

**Military Women's Health:
A Scoping Review and Gap Analysis, 2000 – 2015**

Principal Investigators:

Abigail Marter Yablonsky, Ph.D., NP-C

Jacqueline Rychnovsky, PhD, RN, CPNP, FAANP

Co-Investigators:

Robyn Martin, MPH

Robyn M. Highfill-McRoy, MA, MPH, CPH

Jennifer McAnany, Ph.D.

Research Associates & Assistants:

Shannon Fitzmaurice, MPH

Isabell Lee, MPH

Hannah Kwiatkowski, MPH

Nicholas Otis, BS

Melissa Navarro, BS

Kyle O'Donnell, BA

Janet Wolf, MPH

Health and Behavioral Sciences Department

Naval Health Research Center, San Diego, CA

&

Naval Medical Research Center, Silver Spring, MD

Copyright

The primary authors are military service members. This work was prepared as part of their official duties. Title 17, U.S.C. §105 provides the “Copyright protection under this title is not available for any work of the United States Government.” Title 17, U.S.C. §101 defines a U.S. Government work as work prepared by a military service member or employee of the U.S. Government as part of that person’s official duties.

This research was supported by the Navy Bureau of Medicine and Surgery, under work unit no. N1508. The views expressed in this briefing are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of the Army, Department of the Air Force, Department of Veterans Affairs, Department of Defense, or the U.S. Government. Approved for public release; distribution unlimited. U.S. Government Work (17 U.S.C. §105). Not copyrighted in the U.S.

This research has been conducted in compliance with all applicable federal regulations governing the protection of human subjects in research (Protocol NHRC.2015.0016).

Recommended citation: Yablonsky, A. M., Martin, R.C., Highfill-McRoy, R. M., McAnany, J., Fitzmaurice, S., ... Rychnovsky, J. D. (2017). *Military women’s health: A scoping review and gap analysis, 2000-2015* (Report No. N15-015). Silver Spring: Naval Medical Research Center.

Acknowledgements

The authors wish to recognize our debt of gratitude to the TriService Nursing Research Program (TSNRP), an organization which awarded an Investigator-Initiated Award to the principal investigators of this project, thereby allowing this study to be funded and completed. TSNRP has an amazing staff of professionals that guided and supported the research team throughout this ambitious work. Thank you to this outstanding organization for their faith in this team, and their understanding of the importance of this topic within the military of today, and for the military of the future.

The authors also wish to acknowledge the expert guidance of the Military Women's Health Research Interest Group (RIG) core leadership. These particular individuals, COL Lori Trego, USA, Retired, LTC Nancy Steele, USA, Retired, and Col Candy Wilson, USAF, provided consultation and support throughout this work, and were an invaluable resource to the team completing this project. It is with great appreciation that we honor the original work of the RIG, while extending and expanding on the RIG's 2015 trailblazing report.

The authors also recognize and heartily appreciate the many volunteer hours of the 264 subject matter experts who completed reviews for this project. This project would not be as comprehensive as it is without the additional information collected by these experts. Many thanks!

Finally, the authors wish to thank the women and men of the U.S. military, to whom this report is dedicated. It is only through carefully understanding our differences that we are able to provide expert health services for all entrusted to our care.

Table of Contents

Copyright..... ii

Acknowledgements..... iii

Table of Contentsiv

List of Tablesviii

List of Figures.....xi

Executive Summary..... 1

 Introduction..... 1

 Methods 1

 Results & Discussion..... 3

 Conclusion 4

Introduction..... 7

 Background & Key Questions 8

Methods - Question 1: What Research Has Been Conducted on the Health of U.S. Military Women?..... 9

 Benefits of a Scoping Review..... 9

 Selection of Articles..... 11

 Inclusion and exclusion criteria..... 11

 Data Extraction..... 12

 Level 3 Review..... 12

 Level 4 Review..... 13

 Analyses of Data 14

 Categorization of articles..... 14

 Quality Assurance 15

Methods - Question 2: What is the Quality of the Available Research? 16

 Selection of Articles..... 16

 Data Extraction..... 16

 Hierarchy of evidence..... 16

 Development of a quality indicator checklist..... 17

 Analyses of Data 18

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Quality Assurance.....	20
Results and Discussion - Questions 1 & 2: What Research has been Conducted on the Health of U.S. Military Women? What is the Quality of the Available Research?.....	21
General Overview of the Analytic Sample.....	23
Overview of quality within the analytic sample.....	26
General quality recommendations.....	34
Overview of research topics within the analytic sample.....	36
Topic Overview of the Analytic Sample.....	37
Psychological Health.....	39
Readiness.....	42
Injury.....	45
Acute Care & Preventive Medicine.....	48
Deployment Health.....	51
Social Relationships.....	54
Obstetrics and Gynecology.....	56
Chronic Illness.....	60
Limitations.....	62
Methods - Question 3: Are there Differences in Healthcare Utilization by Gender?.....	63
DMED Diagnostic Data.....	63
Population selection.....	63
Data extraction.....	63
Analyses of data.....	64
Quality assurance.....	64
PDTS Pharmaceutical Data.....	64
Population selection.....	64
Data extraction.....	64
Analyses of data.....	65
Quality assurance.....	66
Results and Discussion - Question 3: Are there Differences in Healthcare Utilization by Gender?..	67
DMED Overall Health Services Usage by Gender.....	67
Outpatient setting.....	67
ICD-9 chapter rate ratios of women to men in the outpatient setting.....	70

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Inpatient Setting.....	71
ICD-9 chapter rate ratios of women to men in the inpatient setting.....	73
Further Analysis of the Mental Disorders ICD-9 Chapter.....	74
Outpatient setting.....	74
ICD-9 category rate ratios of women to men in the outpatient setting.....	80
Inpatient setting.....	81
ICD-9 category rate ratios of women to men in the inpatient setting.....	85
Further Analysis of the Musculoskeletal Disorders ICD-9 Chapter.....	86
Outpatient setting.....	86
ICD-9 category rate ratios of women to men in the outpatient setting.....	91
Inpatient setting.....	92
ICD-9 chapter rate ratios of women to men in the inpatient setting.....	95
Further Analysis of the Injury and Poisoning ICD-9 Chapter.....	96
Outpatient setting.....	96
ICD-9 category rate ratios of women to men in the outpatient setting.....	101
Inpatient setting.....	102
ICD-9 category rate ratios of women to men in the inpatient setting.....	106
DMED Summary.....	107
Limitations.....	107
PDTS Healthcare Services Usage by Gender.....	108
Population descriptive statistics.....	108
Gender analysis by therapeutic class.....	109
Descriptive statistics by branch of service.....	112
Gender analysis by individual prescriptions.....	113
PDTS Summary.....	115
Limitations.....	115
Methods - Question 4: Are there Research Gaps that Need to be Addressed?.....	116
Population Selection.....	116
Data Extraction.....	116
Analyses of Data.....	117
Quality Assurance.....	118

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Results and Discussion – Question 4: Are there Research Gaps that Need to be Addressed?	120
Research Gap Overview	120
Psychological Health: Research Gap Analysis.....	122
Readiness: Research Gap Analysis	128
Injury: Research Gap Analysis	130
Acute Care & Preventive Medicine: Research Gap Analysis	131
Deployment Health: Research Gap Analysis.....	133
Additional analyses.....	134
Social Relationships: Research Gap Analysis.....	137
Obstetrics and Gynecology: Research Gap Analysis.....	141
Chronic Illness: Research Gap Analyses	159
Limitations of Research Gap Analyses.....	163
Conclusion	164
Limitations	164
Scoping Review: Content and Quality of Research.....	164
Healthcare Utilization Analyses by Gender.....	165
Analyses of Research Gaps	165
Future Directions.....	167
References	168
Appendix A: Gender-Specific and Gender-Inclusive Articles ($n = 979$).....	172
Appendix B: Subject Matter Experts (SMEs).....	223
Appendix C: Medical Subject Heading (MeSH) Terms	229
Appendix D: Literature Search Terms.....	230
Appendix E: Level 3 Article Review Form.....	232
Appendix F: Level 4 SME Survey	238
Appendix G: Phase I Topics and Subtopics.....	239
Appendix H: Detailed Description on Article Quality.....	240
Appendix I: Quality Scoring Example.....	242
Appendix J: Article Author Affiliations.....	243
Appendix K: Gap Analysis Matrices.....	245

List of Tables

Executive Summary Table 1 Inclusion and exclusion criteria for scoping review of literature2

Executive Summary Table 2 Identified gaps within each of the 8 major topic areas.....5

Table 1 Comparisons Between Systematic and Scoping Reviews10

Table 2 Levels of Article Review11

Table 3 Level One and Two Inclusion and Exclusion Criteria.....12

Table 4 Data Extracted in Level 3 Review.....13

Table 5 Categorized Topics and Number of Subtopics Within Each Main Area.....14

Table 6 Hierarchy of Evidence Levels for Intervention Studies16

Table 7 Article Review Summary Table21

Table 8 Top Ten Utilized Instruments32

Table 9 Therapeutic Class Categories65

Table 10 Top Five Most Commonly Diagnosed Outpatient ICD-9 Chapters for Enlisted Personnel
.....67

Table 11 Top Five Most Commonly Diagnosed Outpatient ICD-9 Chapters for Officer Personnel
.....68

Table 12 Top Five Most Commonly Diagnosed Inpatient ICD-9 Chapters for Enlisted Personnel
.....71

Table 13 Top Five Most Commonly Diagnosed Inpatient ICD-9 Chapters for Officer Personnel...72

Table 14 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel
within the Mental Disorders Chapter74

Table 15 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders
Chapter for Enlisted Females by Service Branch.....76

Table 16 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders
Chapter for Enlisted Males by Service Branch.....76

Table 17 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel
within the Mental Disorders Chapter77

Table 18 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders
Chapter for Female Officers by Service Branch79

Table 19 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel
within the Mental Disorders Chapter81

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Table 20 Top Three Rate Ratios of Inpatient ICD-9 Categories within the Mental Disorders Chapter for Enlisted Females by Service Branch.....	83
Table 21 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Mental Disorders Chapter	84
Table 22 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel within the Musculoskeletal Disorders Chapter.....	86
Table 23 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Musculoskeletal Disorders Chapter for Enlisted Females by Service Branch	88
Table 24 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel within the Musculoskeletal Disorders Chapter.....	89
Table 25 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Musculoskeletal Disorders Chapter for Female Officers by Service Branch.....	90
Table 26 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel within the Musculoskeletal Disorders Chapter.....	92
Table 27 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Musculoskeletal Disorders Chapter.....	94
Table 28 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel within the Injury and Poisoning Chapter	96
Table 29 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Injury and Poisoning Chapter for Female Enlisted Personnel by Service Branch.....	97
Table 30 Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel within the Injury and Poisoning Chapter	98
Table 31 Top Three Rate Ratios of Outpatient ICD-9 Categories within the Injury and Poisoning Chapter for Female Officer Personnel by Service Branch	100
Table 32 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel within the Injury and Poisoning Chapter	102
Table 33 Top Three Rate Ratios of Inpatient ICD-9 Categories within the Mental Disorders Chapter for Female Enlisted Personnel by Service Branch.....	104
Table 34 Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Injury and Poisoning Chapter	104
Table 35 Person Year Population Totals by Service Branch and Gender.....	108
Table 36 Therapeutic Class Category Prescription Data for Service Members, 2010.....	109
Table 37 Top Three Most Commonly Prescribed Medications Within the Three Most Highly Utilized TCCs for Women, Alongside Male Comparison Data	111
Table 38 Identified gaps within the Psychological Health topic.....	123

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Table 39 Identified gaps within the Readiness topic 128

Table 40 Identified gaps within the Injury topic 130

Table 41 Identified gaps within the Acute Care & Preventive Medicine topic 131

Table 42 Identified gaps within the Deployment Health topic..... 133

Table 43 Identified gaps within the Social Relationships topic..... 138

Table 44 Identified gaps within the Obstetrics and Gynecology topic..... 142

Table 45 Identified gaps within the Chronic Illness topic 159

Table 46 Identified gaps within each of the 8 major topic areas. 166

List of Figures

Figure 1 Principles of high quality within research articles.....18

Figure 2 Quality Indicators Checklist. Internal scores were used to provide a ‘low’, ‘good’, or ‘excellent’ quality rating for each article.....19

Figure 3 Schema for article review process, 2000-2015.22

Figure 4 Publication trends from 2000 to 2015 by female specific and gender inclusive samples.23

Figure 5 Count of articles with a branch specific sample compared to service branch force strength percentages.....24

Figure 6 Number of years between end of data collection and article publication.....25

Figure 7 Percentage of articles by Hierarchy of Evidence level.....26

Figure 8 Percentage of articles by quality category.27

Figure 9 Percentage of articles in each quality category by Hierarchy of Evidence level.27

Figure 10 The six Quality Indicators Checklist dimensions with percentages for the analytic sample28

Figure 11 Conceptual Framing domain indicators with percentages for the analytic sample.29

Figure 12 Utilization of a theoretical or conceptual framework by study design type.29

Figure 13 Appropriateness domain indicators with percentages for the analytic sample.30

Figure 14 Transparency domain indicators with percentages for the analytic sample.30

Figure 15 Validity domain indicators with percentages for the analytic sample.....31

Figure 16 Percentage of articles that used instruments (left) and percentage of articles that used validated instruments.....32

Figure 17 Reliability domain indicators with percentages for the analytic sample.....33

Figure 18 Cogency domain indicators and percentages for the analytic sample.34

Figure 19 Topic categorizations by year of publication.36

Figure 20 Number of articles categorized in each topic.37

Figure 21 Article quality by topic.....38

Figure 22 Number of articles categorized in each subtopic of the Psychological Health topic.....39

Figure 23 Psychological Health article quality by subtopic.....41

Figure 24 Number of articles categorized in each subtopic of the Readiness topic.42

Figure 25 Readiness article quality by subtopic.....44

Figure 26 Number of articles categorized in each subtopic of the Injury topic.....45

Figure 27 Injury article quality by subtopic.....46

MILITARY WOMEN’S HEALTH: REVIEW & GAP ANALYSIS

Figure 28 Number of articles categorized in each subtopic of the Acute Care & Preventive Medicine topic.48

Figure 29 ACPM article quality by subtopic.50

Figure 30 Number of articles categorized in each subtopic of the Deployment Health topic.51

Figure 31 Deployment Health article quality by subtopic52

Figure 32 Number of articles categorized in each subtopic of the Social Relationships topic.54

Figure 33 Social Relationships article quality by subtopic.55

Figure 34 Number of articles categorized in each subtopic of the Ob/Gyn topic.....56

Figure 35 OB/Gyn article quality by subtopic58

Figure 36 Number of articles categorized in each subtopic of the Chronic Illness topic.....60

Figure 37 Chronic Illness article quality by subtopic.....61

Figure 38 Top five diagnosed ICD-9 chapters for outpatient enlisted females, alongside male comparison data.68

Figure 39 Top five diagnosed ICD-9 chapters for outpatient female officers, alongside male comparison data.69

Figure 40 Rate ratios greater than 2 (female:male) for outpatient ICD-9 chapters.70

Figure 41 Top five diagnosed ICD-9 chapters for inpatient enlisted females, alongside male comparison data.71

Figure 42 Top five diagnosed ICD-9 Chapters for inpatient female officers, alongside male comparison data.72

Figure 43 Rate ratios greater than 2 (female:male) for inpatient diagnosis chapters.73

Figure 44 Top five diagnosed ICD-9 categories for outpatient enlisted females within the Mental Disorders chapter, alongside male comparison data.75

Figure 45 Top five diagnosed ICD-9 categories for outpatient female officers within the Mental Disorders chapter, alongside male comparison data.78

Figure 46 Rate ratios greater than 2.0 (female:male) within the outpatient Mental Disorders ICD-9 chapter for enlisted and officer service women.80

Figure 47 Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Mental Disorders chapter, alongside male comparison data.82

Figure 48 Top five diagnosed ICD-9 categories for inpatient female officers within the Mental Disorders chapter, alongside male comparison data.84

Figure 49 Rate ratios greater than 2.0 (female:male) within the inpatient Mental Disorders ICD-9 chapter for enlisted and officer service women.85

MILITARY WOMEN'S HEALTH: REVIEW & GAP ANALYSIS

Figure 50 Top five diagnosed ICD-9 categories for outpatient female enlisted personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.	87
Figure 51 Top five diagnosed ICD-9 categories for outpatient female officers within the Musculoskeletal Disorders chapter, alongside male comparison data.	89
Figure 52 Rate ratios greater than 2.0 (female: male) within the outpatient Musculoskeletal ICD-9 chapter for enlisted and officer service women.	91
Figure 53 Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.	93
Figure 54 Top five diagnosed ICD-9 categories for inpatient female officer personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.	95
Figure 55 Top five diagnosed ICD-9 categories for outpatient female enlisted personnel within the Injury and Poisoning chapter, alongside male comparison data.	96
Figure 56 Top five diagnosed ICD-9 categories for outpatient female officers within the Injury and Poisoning chapter, alongside male comparison data.	99
Figure 57 Rate ratios greater than 2.0 (female: male) within the outpatient Injury and Poisoning ICD-9 chapter for enlisted and officer service women.	101
Figure 58 Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Injury and Poisoning chapter, alongside male comparison data.	103
Figure 59 Top five diagnosed ICD-9 categories for inpatient female officers within the Injury and Poisoning chapter, alongside male comparison data.	105
Figure 60 Rate ratios greater than 2.0 (female: male) within the inpatient Injury and Poisoning ICD-9 chapter for enlisted service women.	106
Figure 61 Service members receiving at least one Central Nervous System Agent Prescription.	112
Figure 62 The top five most commonly prescribed OTC medications for military women, alongside male comparison data.	113
Figure 63 The top six most commonly prescribed non-OTC medications for military women, alongside male comparison data.	114
Figure 64 Number of articles by topic, stratified by service branch.	120
Figure 65 Psychological Health subtopics by service branch.	122
Figure 66 Gap Analysis Matrix for the Stigma subtopic.	124
Figure 67 Gap Analysis Matrix for the Adjustment Disorders subtopic.	125
Figure 68 Gap Analysis Matrix for the Personality Disorders subtopic.	126
Figure 69 Gap Analysis Matrix for the Eating Disorders subtopic.	127
Figure 70 Readiness subtopics by service branch.	128
Figure 71 Gap Analysis Matrix for the Sleep subtopic.	129

MILITARY WOMEN’S HEALTH: REVIEW & GAP ANALYSIS

Figure 72 Injury subtopics by service branch..... 130

Figure 73 Acute Care & Preventive Medicine subtopics by service branch. 131

Figure 74 Gap Analysis Matrix for the Sexually Transmitted Infections (STI) subtopic..... 132

Figure 75 Deployment Health subtopics by service branch..... 133

Figure 76 Percent of articles about each deployment setting by publication year. 134

Figure 77 Gap Analysis Matrix for the Gynecological Care subtopic..... 136

Figure 78 Social Relationships subtopics by service branch..... 137

Figure 79 Gap Analysis Matrix for the Sexual Assault subtopic..... 139

Figure 80 Gap Analysis Matrix for the Physical Assault subtopic..... 140

Figure 81 Obstetrics and Gynecology (Ob/Gyn) subtopics by service branch..... 141

Figure 82 Gap Analysis Matrix for the Uterine Wellness subtopic 143

Figure 83 Gap Analysis Matrix for the Menstruation subtopic. 144

Figure 84 Gap Analysis Matrix for the Menstrual Suppression subtopic..... 145

Figure 85 Gap Analysis Matrix for the Contraception subtopic..... 146

Figure 86 Gap Analysis Matrix for the Unplanned Pregnancy subtopic..... 147

Figure 87 Gap Analysis Matrix for the Fertility subtopic 148

Figure 88 Gap Analysis Matrix for the Antepartum subtopic 149

Figure 89 Gap Analysis Matrix for the Intrapartum subtopic 150

Figure 90 Gap Analysis Matrix for the Postpartum subtopic 151

Figure 91 Gap Analysis Matrix for the Birth Outcomes/Infant Health subtopic. 152

Figure 92 Gap Analysis Matrix for the Breast Wellness subtopic. 153

Figure 93 Gap Analysis Matrix for the Breastfeeding subtopic..... 154

Figure 94 Gap Analysis Matrix for the Vaginal Health subtopic..... 155

Figure 95 Gap Analysis Matrix for the General Obstetrics subtopic..... 157

Figure 96 Gap Analysis Matrix for the Urological Health subtopic..... 158

Figure 97 Chronic Illness subtopics by branch of service. 159

Figure 98 Gap Analysis Matrix for the Cancer subtopic..... 161

Figure 99 Gap Analysis Matrix for the Multisystem Illness subtopic. 162

Executive Summary

Introduction

Research on the U.S. military has until recently focused almost exclusively on the health of male service members. As the number of women in the U.S. military continues to grow, and as more women begin to serve in all military occupational specialties, more research will be needed to examine the health of this population. The objective of this project was to identify research gaps in the literature on military women's health. To that end, the project team at the Naval Health Research Center San Diego (NHRC) conducted a scoping review of the literature, systematically surveying all articles published in the peer-reviewed literature between January 2000 and September 2015. In addition, the team designed an article quality assessment instrument that was measureable and specific, and reviewed recent healthcare utilization data for women and men. The resulting data was aggregated into a weighted matrix, and a comprehensive gap analysis using all of the aforementioned data was performed.

Methods

Data sources and searches. MEDLINE/PubMed, Web of Science, CINAHL, and PsychINFO were searched for articles published between January 2000 and September 2015. The search included MeSH terms related to the health of women serving in the U.S. Armed Forces. Healthcare utilization data for calendar year 2014 was extracted from the Defense Medical Epidemiology Database (DMED). Prescription data for calendar year 2010 was extracted from the Pharmacy Data Transaction Service (PDTS).

Selection of articles. Inclusion and exclusion criteria are shown in Executive Summary Table 1. Each article (n=14,999) was subject to a four level review process. In order to maintain the focus on the health of service women, all articles were required to include a female sample AND include gender specific analysis and results in order to be included for full review. A total of 14,020 articles were excluded from the final Level 4 review. Each article that was marked for exclusion by a primary reviewer in Levels 1-3, was also examined by a secondary reviewer before a final determination was made. If there was disagreement between the reviewers, a senior investigator also examined the article, and a consensus was reached. The full-text of 979 articles (Appendix A) was included in Level 3 data abstraction, as well as in Level 4 review by subject matter experts (SMEs).

Executive Summary Table 1
Inclusion and exclusion criteria for scoping review of literature

Criteria	
Inclusion	Exclusion
U.S. military personnel Included female service members, compared male to female service members, or compared military females with civilian females Related to Military Health System (MHS) or MHS care delivered to service women Involved Active Duty, Reserve, or National Guard eligible for MHS healthcare Involved a health condition or functional status that required healthcare services Included a female sample AND included gender specific analysis and results	Literature reviews without novel data Editorials, expert opinion, commentaries, unpublished reports, historical articles, meeting summaries, case reports Focused solely on medical, nursing, or allied health education Involved only cadets or midshipmen Involved only veterans (prior Active Duty, Reserve or National Guard)

Data extraction. An article review form was specially designed by the NHRC research team to extract all relevant data from each article, including quality elements. Each article was categorized into at least 1 of 8 major topic areas, and into at least 1 of 73 subtopic areas. Article categorizations were not mutually exclusive. Characteristics of each study (such as demographic information, database sources, research settings, study designs, research instruments used, and sampling methods) were extracted by a primary reviewer. One of the senior investigators then randomly reviewed 10% of all data extractions for accuracy. Risk of bias within individual studies, and inter-rater reliability, were not assessed. Each article within the analytic sample received a quality score using the investigator-developed Quality Indicator Checklist. During Level 4 review, a total of 264 subject matter experts (see Appendix B) extracted the following specific information from each article: study question, overall study findings, gender-specific findings (including statistical significance), study limitations, and general comments.

Healthcare utilization data was extracted from DMED by International Classification of Disease, Ninth Revision, (ICD-9) medical diagnosis codes for all U.S. service members on Active Duty service during calendar year 2014. Pharmacy prescription data was extracted from PDTS by Therapeutic Class Category (TCC) and product name for all U.S. service members on Active Duty service during calendar year 2010.

Analyses of Data. Descriptive statistics, including frequencies and percentages, were calculated for all of the study data extracted. Results were initially summarized for the total analytic sample, and then by topic and subtopic. Article quality scores were binned into three categories based on percentage scores as follows: low (<70%), good (70-89.99%), and excellent (≥90%).

The research team did not synthesize the results or findings from studies within the same topic or subtopic areas of research. The broad nature of this study precluded the use of any particular synthesis technique. The aim of the report was to present a map of the existing body of literature on military women's health by topic and subtopic, integrated with quality assessment data.

Results from the scoping review and healthcare utilization analyses were aggregated into a weighted Gap Analysis Matrix (GAM) for each subtopic. These matrices included the following pertinent information from the scoping review, highlighted information from the healthcare utilization data, external military women's health organizational priorities that were relevant to each specific subtopic, and a reviewer synthesis of this data for each subtopic. The GAM data was used to perform a comprehensive gap analysis of topics and subtopics identified within the scoping review of the literature.

Results & Discussion

Results of literature search. The full-text of 979 articles was reviewed (see Appendix A). An online searchable repository of the gender-specific and gender-inclusive articles pertinent to military women's health was created and can be found at <http://triservicenursing.org/database/womenshealth>. All articles were categorized into at least one of 8 major topic and 73 subtopic areas.

Overview of extracted data. There were 8 main healthcare topics of interest, with a range of 6 to 16 subtopics within each of those major categories. Many articles were not specific to a primary focus; because of this, articles were categorized into as many main topics as was pertinent, and the subtopics were used to provide a further layer of detail. Because of this methodology, topic and subtopic totals did not sum to 979. Article quality was determined by scoring specific data elements extracted from each article using the Quality Indicator Checklist. Healthcare utilization data from DMED included counts of all ICD-9 medical diagnoses for Active Duty service members during calendar year 2014. Data from PDTS included totals of all pharmacy prescriptions for Active Duty service members during calendar year 2010.

Summary of results. Of the studies identified in the search, the largest number of articles related to the Readiness (n=561) and Psychological Health (n=429) topics. The smallest number of articles related to Ob/Gyn (n=128) and Chronic Illness (n=97). A total of 958 articles used quantitative methods, 17 articles used qualitative methods, and 4 articles used a mixed methods study design. Overall, 10.2% of the articles were of low quality, 62.2% were of good quality, and 27.2% were of excellent quality. The topics with the highest percentage of excellent quality articles were Social Relationships (36%) and Injury (32%). The topic with the highest percentage of low quality articles was Ob/Gyn (21%).

Overall, the most commonly diagnosed outpatient ICD-9 diagnostic chapter for both officer and enlisted personnel was Musculoskeletal Disorders. Female enlisted and officer personnel were at least 2 times more likely to be diagnosed with a condition in the following outpatient ICD-9 chapters than their male colleagues: Diseases of the Blood & Blood Forming Organs (enlisted

RR=4.0, officer RR=3.0) and Diseases of the Genitourinary System (enlisted RR=7.0, officer RR=6.0). The most commonly diagnosed inpatient ICD-9 chapter for enlisted personnel was Mental Disorders, and the most commonly diagnosed outpatient ICD-9 chapter for officer personnel was again, Musculoskeletal Disorders. Female enlisted and officer personnel were at least 2 times more likely to be diagnosed with a condition in the following inpatient ICD-9 diagnostic chapters than their male peers: Diseases of the Genitourinary System (enlisted RR=6.3, officer RR=5.4), Neoplasms (enlisted RR=3.9, officer RR=4.8), Endocrine, Nutritional, Metabolic Disease, & Immunity Disorders (enlisted RR=2.2, officer RR=2.7), and Diseases of the Blood & Blood Forming Organs (enlisted RR=2.4, officer RR=less than 2.0). More detailed results are included in the report.

Central Nervous System Agents and Anti-Infective Agents were the most commonly prescribed therapeutic class categories (TCCs) for both men and women. The primary TCC in which women were more likely to be prescribed a medication than men was Contraceptives (83.6 times more likely). Women were also 10 times more likely to receive a prescription within the Blood Formation, Coagulation and Thrombosis TCC and in the Vitamin TCC than men. For both men and women, the most commonly prescribed over-the-counter (OTC) medications were Ibuprofen and Acetaminophen. And for both men and women, the most common prescription medications were Hydrocodone-Acetaminophen and Oxycodone-Acetaminophen.

Using the Gap Analysis Matrices, gaps in the literature were identified in 7 out of 8 major topic areas and 26 out of 73 subtopic areas. The Ob/Gyn topic contained the highest number of gaps: 15 of 16 subtopics were found to be areas of concern. The Psychological Health topic contained the second highest number of gaps: 4 of 16 subtopics were found to be areas of concern. The only topic in which no gaps were identified was Injury. More detailed results are included in the report.

Conclusion

The scope of this report was vast; multiple modalities and sources of information were used to generate the report presented here. From this report it is clear that the field of obstetrics and gynecology could benefit from high-quality research in a wide range of areas. Psychological health for military women has been highlighted as an area of concern by many organizations, and the data in this report shows that this research priority is still current, on target, and relevant.

As can be seen in Executive Summary Table 2, research gaps were identified in 7 out of 8 major topic areas; 26 out of 73 specific subtopics were determined to have insufficient evidence. This data shows that more high quality research is needed in the Ob/Gyn and Psychological Health major topic areas, but also in the smaller subtopic areas of sleep, sexually transmitted infections, deployment gynecological care, sexual and physical assault, multisystem illness, and cancer.

Executive Summary Table 2.

Identified gaps within each of the 8 major topic areas

PSYCHOLOGICAL HEALTH
Stigma
Adjustment Disorders
Personality Disorders
Eating Disorders
READINESS
Sleep
INJURY
No gaps identified
ACUTE CARE & PREVENTIVE MEDICINE (ACPM)
Sexually Transmitted Infections (STI)
DEPLOYMENT HEALTH
Gynecological Care
SOCIAL RELATIONSHIPS
Sexual Assault
Physical Assault
OBSTETRICS AND GYNECOLOGY (OB/Gyn)
Contraception
Uterine Wellness
Menstruation
Menstrual Suppression
Antepartum
Intrapartum
Postpartum
Birth Outcomes/Infant Health
Vaginal Health
General OB
Urological health
Unplanned Pregnancy
Breast Wellness
Breastfeeding
Fertility
CHRONIC ILLNESS
Cancer
Multisystem Illness

This report and the online repository of 979 gender-specific and gender-inclusive research articles can be useful to researchers, practitioners and policy makers in many ways. It is an invaluable resource that can be used by DoD health policy makers and funding organizations when developing long range strategies for research prioritization, as it highlights areas of research that are currently inadequately studied. Additionally, the online repository of articles reviewed for this report (<http://triservicenursing.org/database/womenshealth/>) provides clinicians with an easily accessible entry-point into the existing peer-reviewed literature within their clinical specialties to aid them in making evidence-based decisions to help improve the health outcomes of their patients. This report also helps health researchers by outlining the existing literature within specific fields of inquiry, and providing a reminder that more gender-focused and gender-inclusive research is needed in future endeavors.

This report and the online data repository are uniquely valuable as they provide a scientifically sound approach to assessing the status of military women's health; this is critical information for all organizations and personnel who lead, and serve within, the Military Health System.

Military Women's Health: A Scoping Review and Gap Analysis (2000 – 2015)

Introduction

Women in the U.S. military have successfully served alongside their male counterparts for over a century (Manning & Women's Research Education Institute, 2014); however, their representation within the total military force has historically been scant. The presence of women in the military has increased dramatically since the expiration of the Selective Service Act—from estimates between 1.6% and 2.5% of all personnel in 1973 (Leepson, 1981; Patten & Parker, 2011; U.S. General Accounting Office (U.S. GAO), 1990), to 16.5% in 2014 (U.S. Department of Defense (DoD), 2015). While the proportion of enlisted women within the total DoD has been relatively steady over a recent 15 year period (14.7% in 2000; 14.8% in 2014), female officer representation has increased from 14.4% in 2000 to 16.7% in 2014 (U.S. Department of Defense (DoD), 2015). In December of 2015, a historic decision was made to lift the ban on female participation in ground combat across all branches of the military (Rosenberg & Philipps, 2015). Following this decision, 100% of all military occupational specialties are now open to members of both sexes (Tilghman, 2015). These trends serve to indicate the growing importance of women's contributions to national defense.

While gender inclusive research in military populations has increased in recent decades due to National Institutes of Health (NIH) and DoD mandates requiring the inclusion of women in all clinical research ("National Defense Authorization Act for Fiscal Year 1994," 1993; "National Institutes of Health Revitalization Act of 1993," 1993), guidelines and priorities for military women's health research are still lacking. In 1994, Congress appropriated \$40 million for military women's health research, and the Defense Women's Health Program (DWHRP) was launched. Unfortunately, the program was dismantled before participating members could establish an infrastructure that both sustained and integrated research, policy and care strategies across the DoD in an efficient and cost-effective manner (McGraw, Koehlmoos, & Ritchie, 2016). To date, centralized recommendations on military women's health research priorities are still nonexistent.

Such priorities are critical because service members experience more physical and psychiatric morbidity than their civilian counterparts (Research Triangle Institute (RTI) International, 2009; U.S. Department of Defense (DoD), 2013) and some health conditions may differentially affect men and women U.S. Government Accountability Office (U.S. Government Accountability Office (GAO), 2013a). These differences are particularly important because the potential societal implications of disease and disability among women do not exempt military women (World Health Organization (WHO), 2008, 2009). Furthermore, the healthcare needs of military women differ from civilian women due to the unique social, environmental, and occupational exposures of military service. As military women continue to deploy and serve across more diverse occupational specialties, they are potentially exposed to increased health risks (GAO, 2013b).

The rapidly evolving nature of service women's roles necessitates the commitment of targeted research priorities and increased resources to this underdeveloped field. Research that aligns with and anticipates the changing trajectory of service women's experiences and will provide a more nuanced understanding of the factors that influence these experiences is critical to achieving positive health outcomes and maintaining operational readiness.

Background & Key Questions

In response to a 2015 National Defense Authorization Act (NDAA) request for more information about the health of U.S. service women, researchers at the Naval Health Research Center (NHRC) conducted a comprehensive review of the existing peer-reviewed literature on military women's health from 2000 to 2015. Using these results in combination with recent healthcare utilization data, a gap analysis was performed to identify potentially important research areas which were not well-represented in the literature. The project team had one other main goal beyond reviewing the existing literature, summarizing the healthcare utilization data, and conducting a gap analysis. The research team wanted to develop, and provide wide access to an online repository of all gender-specific and gender-inclusive articles within the project's analytic sample, alongside subject matter expert review of each article. This web-based repository is available to individuals and organizations interested in improving the health outcomes and operational readiness of service women, at <http://triservicenursing.org/database/womenshealth/>. This complete research report is built upon a previously published report by the TriService Nursing Research Program (TSNRP) Military Women's Health Research Interest Group (MWHRIG). The previous report assessed the peer-reviewed literature on military women's health from 2000-2010 (Trego, Rychnovsky, Wilson, Steele, & CHARS, 2015). This report is an expansion of the work done with that previous report.

The key questions of the current report were: 1) What peer-reviewed literature exists regarding the health outcomes and operational readiness of military women? 2) What is the quality of the available peer-reviewed literature and resulting evidence? 3) Are there differences in healthcare utilization by gender? and 4) Looking at the peer-reviewed literature and healthcare utilization data, are there research gaps that need to be addressed? Providing answers to these questions will enable military healthcare providers, researchers, and policy makers to more effectively target future health interventions, research initiatives, and funding opportunities. The rest of this report will be organized in terms of the research team's efforts to address these four questions.

Methods - Question 1: What Research Has Been Conducted on the Health of U.S. Military Women?

Benefits of a Scoping Review

Traditionally, large scale literature reviews are conducted using the systematic literature review format. According to the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P), a systematic review “attempts to collate all relevant evidence that fits pre-specified eligibility criteria to answer a specific research question” and “uses explicit, systematic methods to minimize bias in the identification, selection, synthesis, and summary of studies” (Moher et al., 2015, p. 3). A systematic literature review can also examine and synthesize statistical findings across similar study designs to answer a specific research question.

This project, however, sought to examine a very broad topic: “What research on the health outcomes of U.S. service women has been published between 2000 and 2015?” There was no narrowing of the focus to a specific research topic, and all types of study designs could be included. Therefore, the research team determined that it was not appropriate to conduct a traditional systematic literature review. In order to compile the evidence from a large, extremely diverse body of literature, a scoping literature review was conducted.

The claim has been levelled that scoping reviews are simply systematic reviews with less rigor (Brien, Lorenzetti, Lewis, Kennedy, & Ghali, 2010). However, scoping reviews are designed with a different purpose and breadth of knowledge in mind (Gough, Thomas, & Oliver, 2012). The scoping literature review compiles evidence from a range of study designs “thereby providing a mechanism for summarizing and disseminating research findings to policy makers, practitioners, and consumers,” and can draw “conclusions from the existing literature regarding the overall state of research activity” (Arksey & O'Malley, 2005, p. 21). Since scoping reviews are specifically designed to survey broad bodies of literature, they are particularly useful for identifying gaps in scientific knowledge (Kastner et al., 2012). According to Mays, Roberts, & Popay, scoping reviews map out “the key concepts underpinning a research area and the main sources and types of evidence available, and can be undertaken as standalone projects in their own right, especially when an area is complex” (2001, p. 194). Scoping reviews provide “a lay of the land” (Colquhoun et al., 2014, p. 1292), and this map of the research field can later be used to ask more precise research questions which are best answered with a systematic review.

Both systematic reviews and scoping reviews seek to approach the literature using a standardized stepwise approach. However, there are important conceptual and methodological differences between the two types of reviews. Some of the major differences have been summarized in Table 1.

Table 1
Comparisons Between Systematic and Scoping Reviews

Systematic Review	Scoping Review
Answers a focused research question with narrow parameters	Answers a broad research question
Examines articles with similar study designs	Examines articles across various study designs (e.g. randomized controlled trials, focus groups)
Describes specific research findings	Maps key themes, trends, and patterns within fields of study
Aggregates data using quantitative methods	Aggregates data using a combination of quantitative and qualitative methods
Assesses the depth of a topic	Assesses the breadth of a topic
Assesses risk of bias within and across similar studies using statistical methods	Does not statistically assess for bias due to the wide variability in study designs and questions
Summarizes previous analyses on a focused research question	Serves as an exploratory analysis of a broad topic or field of study
Generates conclusions relating to the focused research question	Identifies gaps in a body of literature and provides a platform for future research

Ultimately, the scoping review methodology was chosen for this study because it allowed for the presentation of a large body of varied research in an accessible and summarized format. A scoping review cannot assess the risk of bias within individual studies or aggregate principal summary measures (e.g. odds ratios) due to the breadth of literature surveyed; that is the province of the systematic literature review or meta-analysis. Due to the volume of literature surveyed in a scoping review, it is not practical or possible to present outcome effect estimates and confidence intervals for each study. The aim of this project was not to describe the effectiveness of, or collate specific research findings on, any particular intervention or field of study; the aim was to survey the recent literature for topical content using a wide-lens perspective. By describing trends and patterns in the articles, this scoping review highlighted research gaps in the existing peer-reviewed literature on the health of service women.

The research map generated by this project will be an invaluable resource for DoD health policy makers and funding organizations when developing long range strategies for research prioritization, as it will highlight areas of research that are currently inadequately studied.

Selection of Articles

In consultation with the MWHRIG a list of terms was developed that would be used in the literature search for this project. To capture all articles examining health issues of women serving in the U.S. Armed Forces, specific search criteria and medical subject heading (MeSH) terms were used (see Appendix C). A comprehensive search terms list can be found in Appendix D. From May 4, 2015 to November 1, 2015, NHRC researchers looked for potentially relevant peer-reviewed research articles on service women and military health using the following search engines:

MEDLINE/PubMed, Web of Science, CINAHL, and PsychINFO. The literature search included articles published between January 1, 2000, and September 30, 2015. All 14,999 articles retrieved from the initial search included bibliographic information and abstracts, and were compiled into an EndNote file (Clarivate Analytics, 2017) and given a unique identification number.

Systematic literature review or qualitative metasynthesis articles were excluded from consideration, because articles included in these reviews would also be captured individually by the extensive search strategy. However, to ensure that all relevant articles were identified, the reference sections of literature reviews and meta-syntheses were searched to find articles that may have been missed by the primary search strategy. Meta-analyses ($N = 3$) were included, as these studies can generate new knowledge by coalescing similar studies into one statistical analysis (Greenland & O'Rourke, 2008; Walker, Hernandez, & Kattan, 2008).

Inclusion and exclusion criteria. After removal of duplicates, 14,999 unique articles from the literature search were subject to review based on pre-determined criteria. Table 2 shows the four level review process that was used to select appropriate articles.

Table 2
Levels of Article Review

Level	Reviewed	Reviewers
1	Title and Keywords	NHRC Team
2	Abstract	NHRC Team
3	Full Text	NHRC Team
4	Full Text	Subject Matter Experts

The purpose of levels 1-3 of the review was to ensure that the correct articles were selected for review. These 3 reviews involved increasingly comprehensive reviews of each article to determine whether it met inclusion or exclusion criteria. Specifically, during Level 1 review, the title and keywords of each article were examined; during Level 2 review, the abstract was reviewed; during Level 3 review, the full text was reviewed. Articles that did not meet inclusion/exclusion criteria at any level of the review process were removed from further analysis. A complete list of inclusion and exclusion criteria used in Levels 1 through 3 can be seen in Table 3. In order to maintain a focus on the health of service women, all articles were required to include a female sample AND include gender specific results and analysis in order to be included for full review. All articles that passed the screening process were placed in a database for Level 4 review.

Table 3
Level One and Two Inclusion and Exclusion Criteria

Criteria	
Inclusion	Exclusion
U.S. military personnel Included female service members, compared male to female service members, or compared military females with civilian females Related to Military Health System (MHS) or MHS care delivered to service women Involved Active Duty, Reserve, or National Guard eligible for MHS healthcare ¹ Involved a health condition or functional status that required healthcare services Included a female sample AND included gender specific results and analysis	Literature reviews without novel data Editorials, expert opinion, commentaries, unpublished reports, historical articles, meeting summaries, case reports Focused solely on medical, nursing, or allied health education Involved only cadets or midshipmen ² Involved only veterans (prior Active Duty, Reserve or National Guard)

Note. ¹ Reserve and National Guard members were considered eligible for MHS healthcare if they were activated at the time of study data collection.

² Because some branches of the United States military consider cadets or midshipmen to be active duty while others do not, cadets and midshipmen were uniformly excluded for consistency.

Data Extraction

Relevant data were extracted from each article that passed the Level 3 review process. Level 3 data extraction was performed by NHRC staff. Level 4 data extraction was performed by external subject matter experts (SMEs, see Appendix B). Data extraction methods for Levels 3 & 4 are described in more detail below.

Level 3 Review. Relevant study information was collected using a specially developed form (Appendix E). To ensure that all reviewers collected data in a consistent manner, a data codebook including definitions for each data element was developed and disseminated to the entire team. The data elements coded for each article (shown in Table 4) were entered into an SPSS database for later statistical analysis. Some of this extracted data was also used to populate the searchable online repository of articles, as well as Level 4 SME reviews.

Table 4
Data Extracted in Level 3 Review

Variables for analysis	
Research question/hypothesis	Theoretical/conceptual framework
Total sample	Response rate
Male sample size	Female sample size
Branch of service	Inclusion and exclusion criteria
Participant demographics	Source of database records
Timeframe of data collection	Specific research instruments used
Deployment data collection setting	Physiological/clinical measures collected
Study design	Research setting
Method of data collection	Sampling method
Author disciplines	Topics covered

Level 4 Review. All articles that met inclusion criteria based on Level 3 review were assigned to SMEs for Level 4 review. Level 4 reviewers were SMEs from a broad range of backgrounds and specialties representing clinicians and researchers from the DoD, academia, and every branch of the U.S. military. Identification of SMEs was conducted using a snowball recruitment technique. The first SMEs were identified as experts or leaders in their areas of clinical practice or research by the MWHRIG core leaders. These SMEs were then asked to identify other experts they believed would be qualified to volunteer. Every effort was made to provide SMEs with articles appropriate to their areas of expertise. In order to be considered for participation, each recommended expert was required to meet the following criteria: (1) had earned a Master's degree or higher in a professional discipline; (2) had an interest in military women's health; (3) had a basic understanding of the U.S. military population and structure.

In order to avoid any conflict of interest, none of the NHRC study personnel were allowed to perform Level 4 reviews. A total of 264 SMEs participated in Level 4 reviews, which were completed using an online survey platform (SurveyGizmo, 2005-2017). Each SME was asked to review at least three articles, but the actual number of articles reviewed varied. SMEs extracted and evaluated the following data from each article: study question, overall study findings, gender-specific findings (including statistical significance), study limitations, and general comments. A copy of the Level 4 SME survey can be seen in Appendix F.

Analyses of Data

Descriptive statistics, including frequencies and percentages, were performed on all data extracted from each reviewed article. For some analyses, descriptive statistics were stratified by variable of interest (e.g. by branch of service, quality score, data collection method, etc.).

Categorization of articles. Article topics and subtopics were initially extracted during Level 3 review using 8 topics and 52 subtopics that were identified as relevant to military women's health by the MWHRIG in the Phase I MWHRIG Report (Trego et al., 2015). For a complete list of the Phase I topics and subtopics, see Appendix G. During Level 3, reviewers were instructed to select as many of the topic and subtopic categories as were appropriate for the article. If the article did not seem to fit into any of the existing categories, reviewers were instructed to manually type the article topics and subtopics into a free-text field for later analysis.

Upon completion of Level 3 classification of articles by topic and subtopic, it became clear that the topics and subtopics previously identified by the MWHRIG did not capture the full range of content on military women's health within the published literature. This was due to the fact that the Phase II literature review included over 600 more articles than the MWHRIG Phase I review. To ensure that as many articles were properly categorized as possible, the research team began an iterative process of creating new topics and subtopics. To this end, frequencies for each topic, subtopic, and free text field were obtained from the SPSS database. Members of the research team compared the existing and free text fields for each topic and subtopic and generated re-categorization tables that would better capture the topical content of each article. At the end of this process, 8 topics and 73 subtopics had been categorized. These topics and the number of subtopics within each main topic can be seen in Table 5.

Table 5
Categorized Topics and Number of Subtopics Within Each Main Area

Topic	Subtopics (<i>n</i>)
Psychological Health	16
Ob/Gyn Health	16
Readiness	9
Injury	7
Social Relationships	7
Deployment Health	6
Chronic Illness	6
Acute Care & Preventive Medicine	6

Upon finalization of the new topics and subtopics, all articles were re-reviewed to ensure that they were tagged with appropriate topics and subtopics. To ensure that all reviewers re-categorized the articles in a consistent manner, a topic and subtopic definition guide was created and team members had frequent meetings to discuss any questions that arose. In this stage of the process, there were no

free-text fields; each article was categorized under at least one of the existing topic and subtopic areas. For example, if an article was about the risk of adverse birth outcomes due to vaccination, the article would have been categorized as both “vaccinations” (under Acute Care and Preventive Medicine) and “birth outcomes/infant health” (under Ob/Gyn).

Quality Assurance

In order to ensure that each article was properly reviewed, several quality assurance measures were undertaken in each level of the review process. If an article was marked for exclusion during Level 1 through Level 3 reviews, a second reviewer examined the article using the selection criteria shown in Table 3. If both reviewers agreed that the article did not fit the inclusion criteria, the article was excluded. If the two reviewers did not agree, a third reviewer examined the article and made a determination so that two of the three reviewers reached a consensus. All three reviewers then discussed reasons for inclusion or exclusion, and disseminated these conclusions at weekly meetings to ensure that all team members were using the same criteria for article review.

To improve data quality during Level 3 data extraction, one of the senior investigators randomly reviewed 10% of all Level 3 data extraction forms and cross checked results with the primary reviewer. Differences in answers were discussed and a consensus was reached between the initial reviewer and the senior investigator. Conclusions from these discussions were then disseminated to the review team during weekly meetings to ensure that all team members were using the same criteria for review. Inter-rater reliability was not assessed. Upon completion of Level 4 SME review, each online entry was checked for quality by a research team member. If the review was incomplete, or of obvious low quality, the article was re-reviewed by a different SME; this happened only twice.

To ensure that articles were categorized and re-categorized consistently, 10% of the article categories were reviewed by one of the senior investigators and a third reviewer. Discrepancies were discussed, and the senior investigator made a final determination in the event of disagreement. Clarifications were disseminated to the team on a regular basis.

Methods - Question 2: What is the Quality of the Available Research?

Selection of Articles

The articles were selected as noted in Methods – Question 1.

Data Extraction

Hierarchy of evidence. The Level 3 reviews assessed the level of evidence ranking indicated by the study design. As the research came from a diverse pool of disciplines and covered a wide variety of topics, it was important to rank the evidence consistently across all articles included in the final review. To do this, the team adapted the Rating System for the Hierarchy of Evidence developed by Melnyk and Fineout-Overholt (2011); this adapted framework is shown in Table 6.

Table 6
Hierarchy of Evidence Levels for Intervention Studies

Level	Study Design	Strength
I	META-ANALYSIS: A quantitative synthesis of evidence from all relevant randomized controlled trials	Strongest
II	EXPERIMENTAL: An experiment in which subjects are randomized to a treatment group or control group	
III	QUASI-EXPERIMENTAL: An experiment in which subjects are non-randomly assigned to a treatment group or control group	
IV	CASE-CONTROL study: a comparison of subjects with a condition (case) with those who do not have the condition (control) to determine characteristics that might predict the condition COHORT study: an observation of a selected group (cohort) to determine the development of an outcome, such as disease CORRELATIONAL study: an examination of whether a relationship or association exists between 2 or more variables; cannot determine causality	
V	QUALITATIVE study: a detailed observation of human behavior to understand why and how decisions are made DESCRIPTIVE study: a collection of information on the what, where, and when of a topic of interest	Weakest

Note. Adapted from “Rating System for the Hierarchy of Evidence for Intervention/Treatment Questions” by B. M. Melnyk and E. Fineout-Overholt, 2011, *Evidence-Based Practice in Nursing and Healthcare: A Guide to Best Practice*, p.12. Philadelphia: Lippincott Williams & Wilkins.

According to this rating system, meta-analyses of randomized controlled trials provide the strongest evidence, whereas purely qualitative or descriptive studies offer weaker evidence. The team modified the rating system and the language used within it for clarity and study purpose, as can be seen in

Table 6. For example, systematic literature reviews of descriptive or qualitative studies were excluded for reasons described previously (Selection of Articles); expert opinions were part of exclusion criteria described in Table 3. Each rank of the modified hierarchy (I – V) was accompanied by descriptions of each type of study that could be encountered by reviewers. This gave guidance for the team in classifying articles written by authors across a variety of disciplines; each discipline does not use the exact same study design terminology.

Development of a quality indicator checklist. While the research team was able to adapt a pre-existing instrument to rank levels of evidence across all research articles, this was not possible for rating article quality. The Johns Hopkins Nursing Quality of Evidence Appraisal instrument (Newhouse, Dearholt, Poe, Pugh, & White, 2007) used by Trego and colleagues (Trego et al., 2015), was considered for this project. However, this instrument did not meet the criteria of the current project, which required an instrument that would (1) assess multiple dimensions of quality, (2) incorporate objective criteria, and (3) be applicable across a wide spectrum of research articles. A report by Nutley, Powell, and Davies (2013) outlined the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) format for assessing evidence quality (Nutley et al., 2013). The framework assesses individual studies according to three dimensions: (a) internal validity; (b) appropriateness of study method; and (c) appropriateness of samples, context, and measures. After each dimension is rated, the three separate ratings are combined for an overall assessment ranging from high to low. This method aligned well with the three criteria of the current project (listed above), and served as a good starting point for developing a quality assessment instrument.

The next challenge was to find an instrument that could be used to hone the particular dimensions of quality to be assessed. In a 2014 report by the Department for International Development (DFID), the authors focused on assessing the strength of scientific evidence. The following principles of high quality research articles were outlined: (1) conceptual framing; (2) transparency; (3) appropriateness; (4) cultural sensitivity; (5) validity; (6) reliability; and (7) cogency (Department for International Development (DFID), 2014).

The research team used 6 out of 7 high quality principles outlined in the report, omitting cultural sensitivity, which is objectively measured by assessing whether or not “the study explicitly considers any context-specific cultural factors that may bias the analysis/findings” (DFID, 2014, p. 14). As all studies to be included for review would be framed by the military cultural context, the research team agreed that this assessment would be redundant. The DFID also defined each principle, providing guidance as to how each could be assessed and measured. Using the EPPI-Centre and DFID frameworks, the research team crafted a quality assessment instrument which met the three criteria for this project: (1) it could assess multiple dimensions of quality, (2) it could incorporate objective criteria, and (3) it could be used across a wide spectrum of articles. The quality indicators, and operational definitions for each, are listed in Figure 1.

Conceptual Framing
<p>Authors describe a theoretical basis for their research.</p> <p>Authors describe a conceptual model of how the current analysis sits within the context of existing literature.</p> <p>Authors pose specific research questions and investigate specific hypotheses.</p>
Appropriateness
<p>The design and methods are clearly stated.</p> <p>Descriptive information on study structure is given.</p> <p>The descriptive information given is appropriate for the research project.</p>
Transparency
<p>There is clear disclosure of all data collected.</p> <p>Enough information is given so that the study can be replicated.</p>
Validity
<p>The measures used are well suited to measuring the indicators.</p> <p>Findings of a study are likely to be replicable across multiple contexts.</p>
Reliability
<p>Steps are taken to ensure that data gathered is measured consistently across the different members of the research team.</p> <p>The instruments/measures are applied consistently across the study population.</p>
Cogency
<p>A clear, logical thread runs through the entire paper.</p> <p>Limitations are identified, and alternative interpretations are explored.</p>

Figure 1. Principles of high quality within research articles. Adapted from “Assessing the Strength of Evidence,” by the U.K. Department for International Development, 2014. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291982/HTN-strength-evidence-march2014.pdf

Analyses of Data

A base quality score was calculated for each article using the investigator-developed Quality Indicator Checklist (QIC). Articles were categorized by study design (i.e. quantitative, qualitative, or mixed methods). Data were exported to SPSS, and thereafter summative scores from the QIC questions for all articles were calculated. Quality was scored across the six domains seen in Figure 2.

For a detailed description of how articles were scored on quality, see Appendix H. Quality ratings were assigned based on the following percentages: low (<70%), good (70-89.99%), and excellent (≥90%). See Appendix I for a scoring example. Additionally, frequencies were run on quality overall, and across topic and subtopic areas.

Conceptual Framing	Yes	No
Max Total = 2 pts		
Is a theoretical or conceptual framework mentioned?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)
Is there a research question or hypothesis stated?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)
Appropriateness	Yes	No
Were the following included?		
Max Total = 2 pts		
Sampling method	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Research setting	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Study design	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Time frame of data collection	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Number of female participants	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Transparency	Yes	No
Were the following included?		
Max Total = 2 pts		
Age	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Sex	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Rank	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Sample size	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Service branch	<input type="checkbox"/> (.4 pts)	<input type="checkbox"/> (0 pts)
Validity	Yes	No
Quantitative or Qualitative: Max Total = 2 pts		
Mixed Methods: Max Total = 4 pts		
Were at least one-third of the instruments and measures used within the study validated?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)
Were 66% or more of the instruments and measures used within the study validated?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)
<i>Qualitative: Do the results of the research apply to other contexts or settings for military service women?</i>	<input type="checkbox"/> (2 pts)	<input type="checkbox"/> (0 pts)
Reliability	Yes	No
Quantitative or Qualitative: Max Total = 2 pts		
Mixed Methods: Max Total = 4 pts		
Was there some discussion about steps to ensure that researchers were consistent in the way they asked questions or gathered data? Or was data gathered via online/eformat?	<input type="checkbox"/> (2 pts)	<input type="checkbox"/> (0 pts)
<i>Qualitative: Was there documentation of checking data, analyses, or potential biases with other team members?</i>	<input type="checkbox"/> (2 pts)	<input type="checkbox"/> (0 pts)
Cogency	Yes	No
Max Total = 2 pts		
Are study limitations addressed?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)
Does the study make sense throughout?	<input type="checkbox"/> (1 pt)	<input type="checkbox"/> (0 pts)

Figure 2. Quality Indicators Checklist. Internal scores were used to provide a 'low', 'good', or 'excellent' quality rating for each article.

Quality Assurance

A senior investigator randomly reviewed 10% of data extractions, and cross-checked results with the primary data analyst to ensure that all relevant data had been extracted correctly. During statistical analysis of quality scores, the research team performed multiple calculation iterations to ensure that the quality scores were accurate across all types of studies. To ensure that quality scores were accurately calculated in SPSS, two members of the research team calculated the quality scores for a small random subset of each study type by hand and compared results to the calculations performed in SPSS. If any differences were found, the quality scoring syntax was corrected, re-run, and scores were re-calculated until there was 100% agreement between SPSS and hand calculations.

**Results and Discussion - Questions 1 & 2:
What Research has been Conducted on the Health of U.S. Military Women?
What is the Quality of the Available Research?**

A total of 14,999 articles were identified from the literature search. The literature search flow and reasons for exclusion from the analytic sample can be seen in Figure 3. During the Level 1 and Level 2 reviews, 13,637 articles were excluded. The Level 3 review served as a quality assurance checkpoint. During Level 3 review, the full texts of all 1,362 remaining articles were reviewed, using the same inclusion/exclusion criteria as in Level 1 and 2 reviews. Another 383 articles were flagged as inappropriate, and subsequently removed from further review. The remaining 979 articles were sent to one of 264 SMEs for Level 4 review.

Table 7 shows the results of the iterative four-step review process. A total of 6.5% of articles from the initial search result of 14,999 articles were retained for full analysis. The final sample consisted of 979 articles which related to the health of female service members on active duty.

Table 7
Article Review Summary Table

Level	N	% of Articles	Reviewed	Reviewers
1	14,999	100%	Title and Keywords	NHRC team
2	4,497	30%	Abstract	NHRC team
3	1,362	9.1%	Full Text	NHRC team
4	979	6.5%	Full Text	SMEs

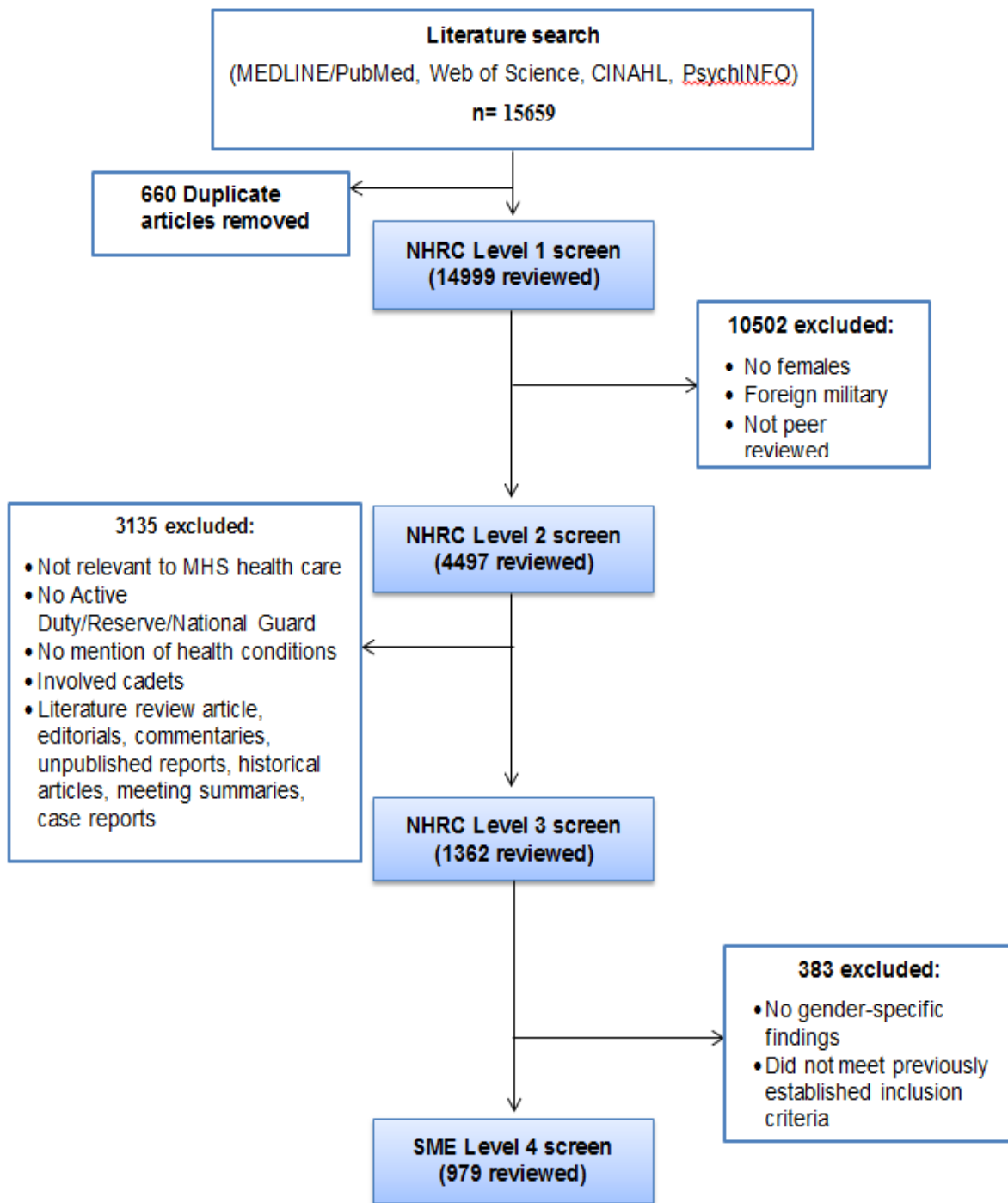


Figure 3. Schema for article review process, 2000-2015.

General Overview of the Analytic Sample

The peer-reviewed articles included in this report were published during the 15 year period between January 1, 2000 and September 30, 2015. Overall findings are presented initially, with quality recommendations to follow. Thereafter, each topic and subtopic of the review is presented, with more detailed quality analyses.

A comprehensive list of primary authors was created to demonstrate the breadth of academic disciplines represented in the scoping review. Military affiliations of primary authors were also included; more than 15% of authors were listed as current or former active duty/reserve at the time of publication. The comprehensive list resulted in 55 specific clinical and academic disciplines. The top five primary author disciplines represented were psychology/psychiatry, epidemiology, orthopedics, public health, and nursing. For a complete list of author affiliations, see Appendix J. Additional publication trends were analyzed using a variety of demographic data.

Figure 4 shows publication trends for military health research stratified by gender characteristics of the samples. In general, there was a gradual decline in gender-inclusive publications from 2000 to 2004, a gradual incline from 2004 to 2012, and a precipitous decline from 2013 to 2015. Publication results from 2015 should be interpreted with caution because of the abbreviated search dates for that year (January 01 to September 30, 2015).

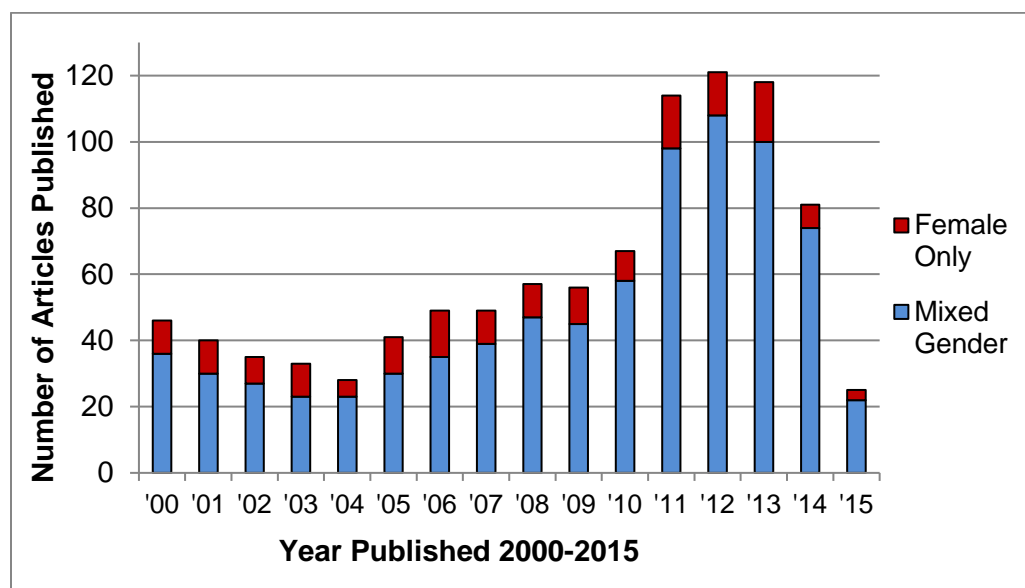


Figure 4. Publication trends from 2000 to 2015 by female specific and gender inclusive samples. *Note.* 2015 data only includes articles published before September 30, 2015.

During the time frame from 2011 to 2013, there were more articles with female-only samples published than in any of the other years; the number of articles with gender-inclusive samples nearly doubled and tripled in this time when compared with numbers from previous years. The surge of research activity at this time could be attributed to the decreased operational tempo of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF). Results generated from the publication trend

data may imply increases in military health research during the tapering years of formal military conflicts, as opposed to the beginning or midpoint periods. This may hint at potential difficulties in gathering data and obtaining approvals to begin research with military populations during wartime. The data may also the scaling down of research as a DoD priority during periods of high operational tempo. However, prioritizing research during these critical wartime periods allows for timely dissemination of healthcare research findings, improving care for warfighters and their families.

To obtain an overview of the research collected, samples from different military service branches were analyzed. The data for Figure 5 were abstracted from reviewed articles and from published military population demographics from 2014 (DoD, 2015). The percentage of the entire Active Duty and Ready Reserve military force represented by each service branch during 2014 can be seen in Figure 5. This data is juxtaposed with the number of articles that reflect research samples within each service branch. Many studies included in the analysis contained samples from multiple Active Duty service branches (e.g. one study could contain Army and Marine Corps samples); the article count reflected for each service branch is not mutually exclusive. All articles were counted once for each branch of service that was represented.

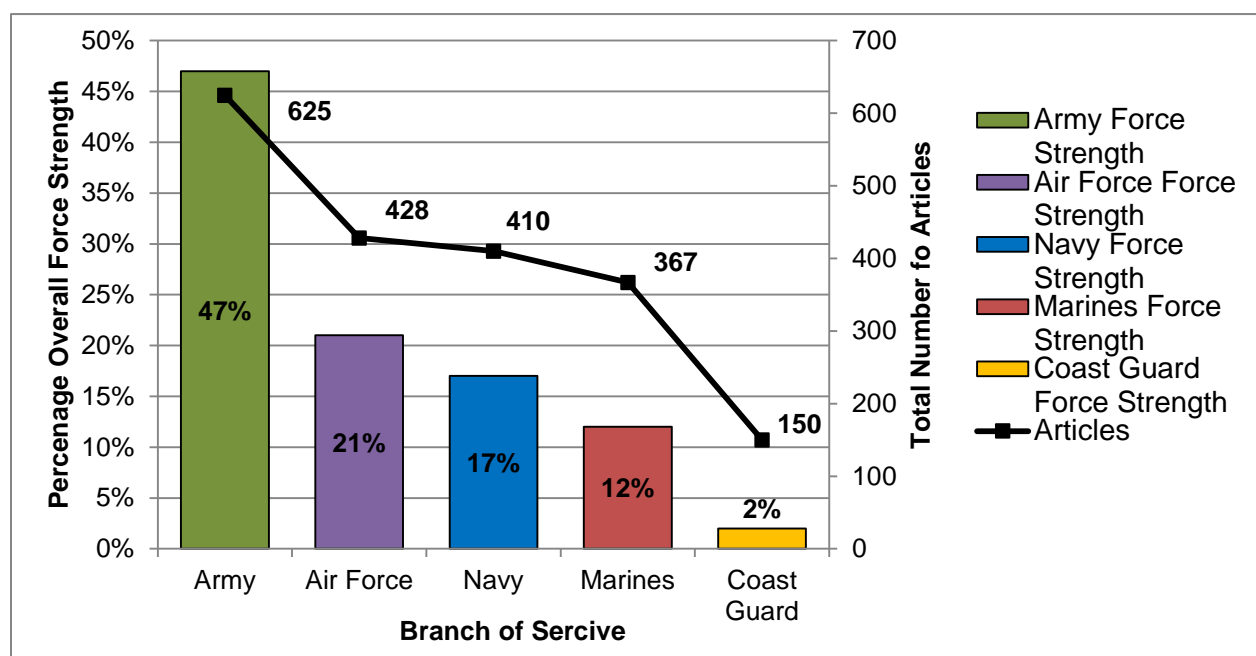


Figure 5. Count of articles with a branch specific sample compared to service branch force strength percentages.

Branch of Service and total number of articles are not mutually exclusive.

Out of 979 articles within the analytic sample, the Air Force and Navy samples were reflected in 44% and 42% of the articles, respectively. Almost two thirds of the articles included in our analytic sample (64%) represented U.S. Army samples; this may reflect the relatively greater size of the Army in comparison to the other service branches. The Marine Corps and Coast Guard samples were very well represented based on their force distribution (37% and 15% of articles, respectively). For the

Marine Corps, this may reflect increased research with ground forces during the recent wars in Iraq and Afghanistan.

Figure 6 shows the elapsed number of years between the end of data collection and the publication of study results in a peer-reviewed journal. Data for this graph was only available for articles that listed a data collection timeframe ($n=782$). Overall the mean time between the reported end of data collection and publication was 3.97 years (SD 2.55 years).

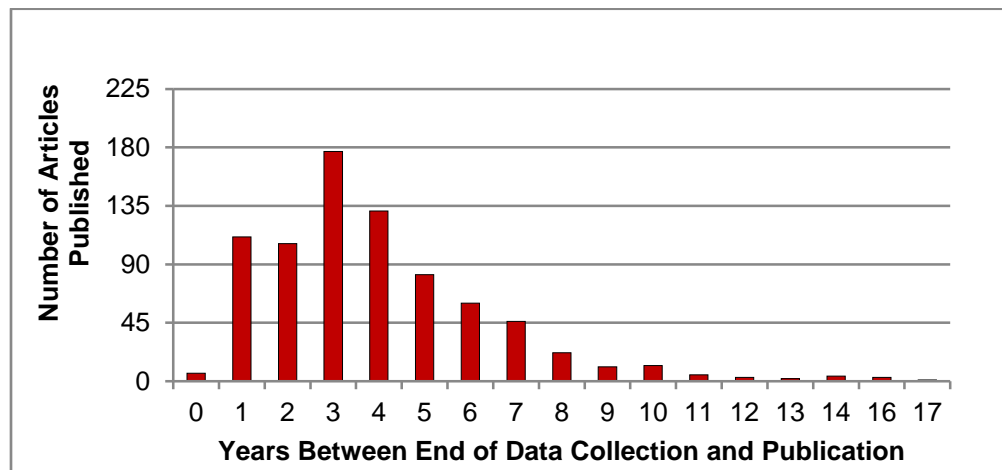


Figure 6. Number of years between end of data collection and article publication.

While publishing military research does require additional approvals for review of sensitive content, timely publication of findings is essential for translating research into clinical practice (Beller, Chen, Wang, & Glasziou, 2013; Carey, Yon, Beadles, & Wines, 2012; Ross, Mocanu, Lampropulos, Tse, & Krumholz, 2013). Over 32% of articles that included a data collection timeframe were published more than 5 years after data collection ended; almost 4% were published more than 10 years after data collection ended. It is beyond the scope of this review to determine why this time lag exists between data collection and publication or to compare publication timelines to the civilian literature. However, this is an area that warrants further investigation. For military research to have the greatest impact on the health and readiness of service members, timely translation of findings into deliverable products is necessary.

Overview of quality within the analytic sample. All 979 articles in this analysis were classified by study design using a modified version of Melnyk and Fineout-Overholt's 2011 Hierarchy of Evidence rating system (see Table 6). Figure 7 shows the hierarchies of evidence represented in the analytic sample.

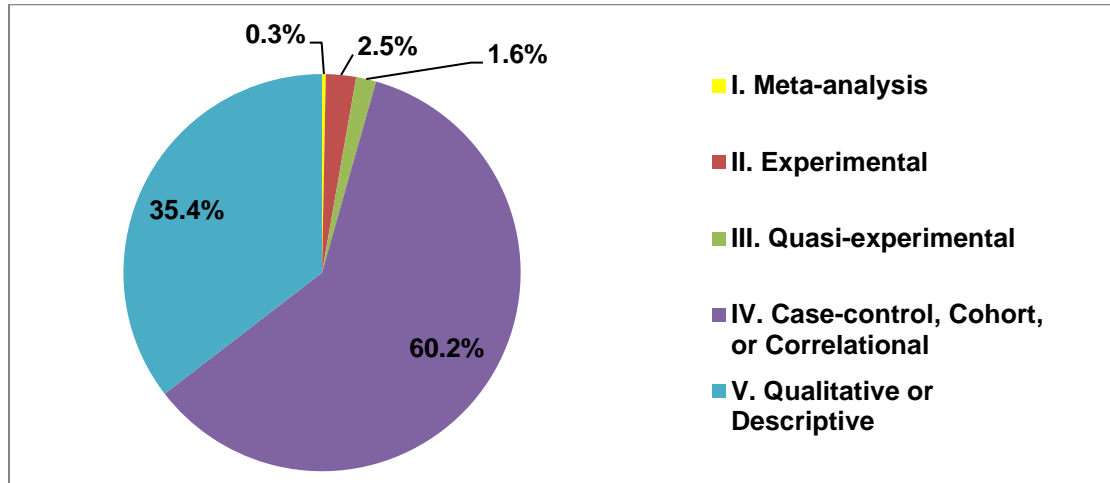


Figure 7. Percentage of articles by Hierarchy of Evidence level.

Both meta-analyses of randomized controlled trials, and experimental study designs, reflect the strongest level of evidence in the Hierarchy of Evidence rating system; out of 979 articles, only 0.3% ($n = 3$) and 2.4% ($n=24$), respectively, met that criteria. This calls attention to the increased need for study designs with stronger levels of evidence, as well as possible difficulties with designing randomized controlled trials in the field of military women's health. Over 60% of the articles ($n=589$) fell under case-control/cohort/correlational study designs, and over 35% ($n = 347$) were qualitative or descriptive studies. This may reflect a research ethos to conduct exploratory work on military women's health using descriptive and observational study designs, prior to randomized controlled trials. It may also reflect the research reality that not every healthcare topic can ethically be studied using a randomized controlled trial methodology. Developing a standardized quality measurement for descriptive and observational studies would thus be very helpful, since most of these studies are ranked as being a weaker level of evidence based on study design alone.

Article quality was determined using criteria previously mentioned (see Figure 2). Using the quality score percentages, excellent articles scored 90% and above, good articles scored between 70-89%, and low articles scored less than 70%. Article quality scores ranged from 32% to 100%. Figure 8 shows that only 10.2% ($n=100$) of the articles scored in the low range. The finding that 89.8% ($n=879$) of all 979 articles scored within the good to excellent range provides greater confidence in the findings represented within the reviewed articles.

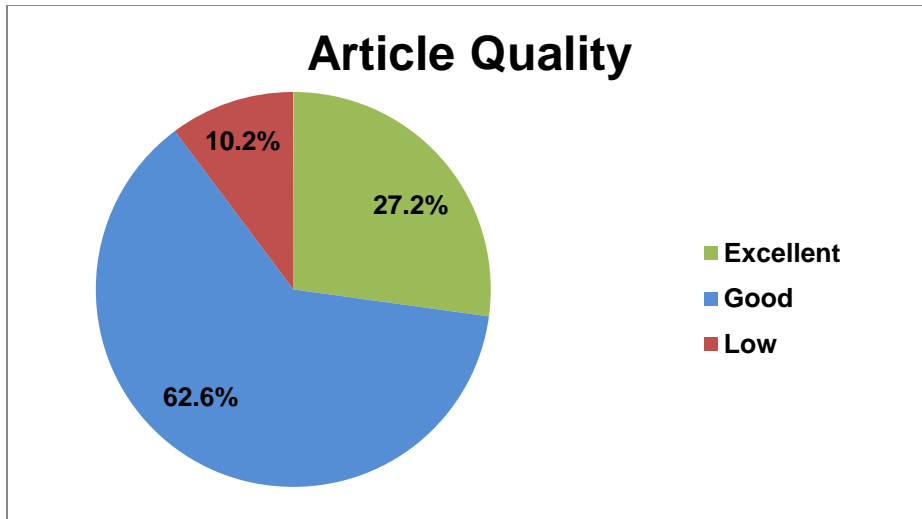


Figure 8. Percentage of articles by quality category

Hierarchy of Evidence level was compared to the three gradations of quality, and can be seen in Figure 9. Levels I, II & III represent the strongest evidence based on the Hierarchy of Evidence rating system. However, within the 43 articles which met the criteria for these three levels, there were 5 articles that were classified as low quality based on the Quality Indicator Checklist (QIC) scoring. The Level IV and Level V articles (589 and 347, respectively) are of weaker evidence based on the Hierarchy of Evidence rating system, but using the QIC scoring, over 89% of them were of good or excellent quality. This shows that Melnyk and Fineout-Overholt’s Hierarchy of Evidence Rating System (2011) may not be a reliable indicator of evidence quality on its own for this body of literature. Using an additional quality measure allows for a more fine-grained analysis of individual articles than can be obtained by using a measure based on study design alone.

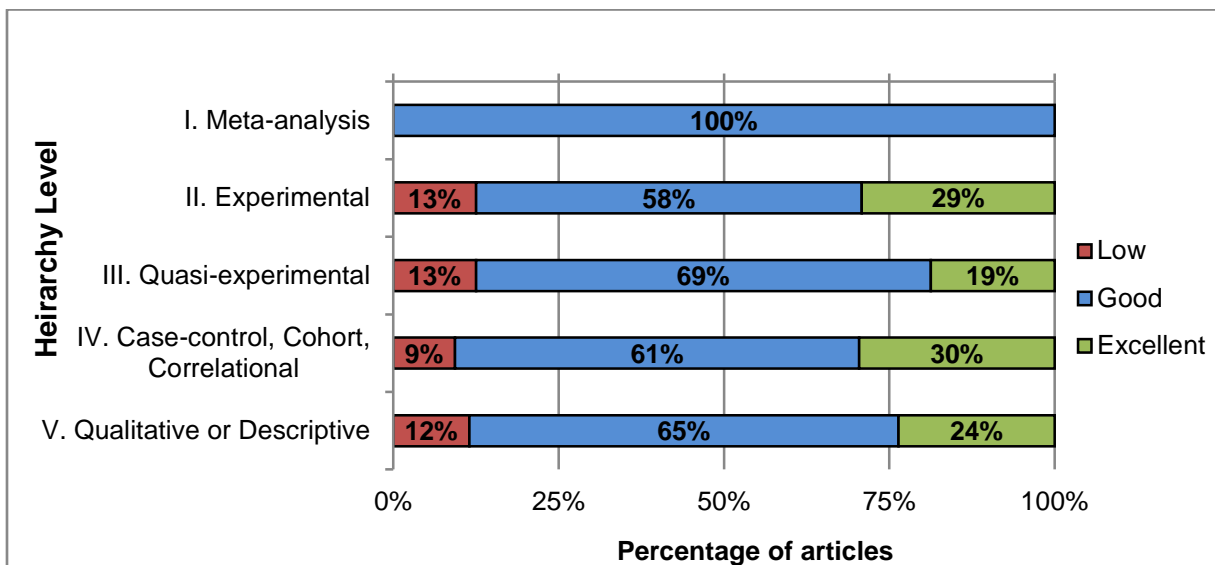


Figure 9. Percentage of articles in each quality category by Hierarchy of Evidence level.

The average quality score across all articles was 82.1 (good quality) regardless of study methodology (quantitative, qualitative, or mixed method). Figure 10 shows the percentage of articles that received full points within each of the 6 quality domains. Most articles lost quality points in the conceptual framing domain; only 24% of articles received full points in this dimension. Conversely, most articles received full points in the reliability domain; only 3% of articles received less than full points. Variations in article quality differed by article topic and study design. These variations are discussed in more detail in the Topic Overview section.

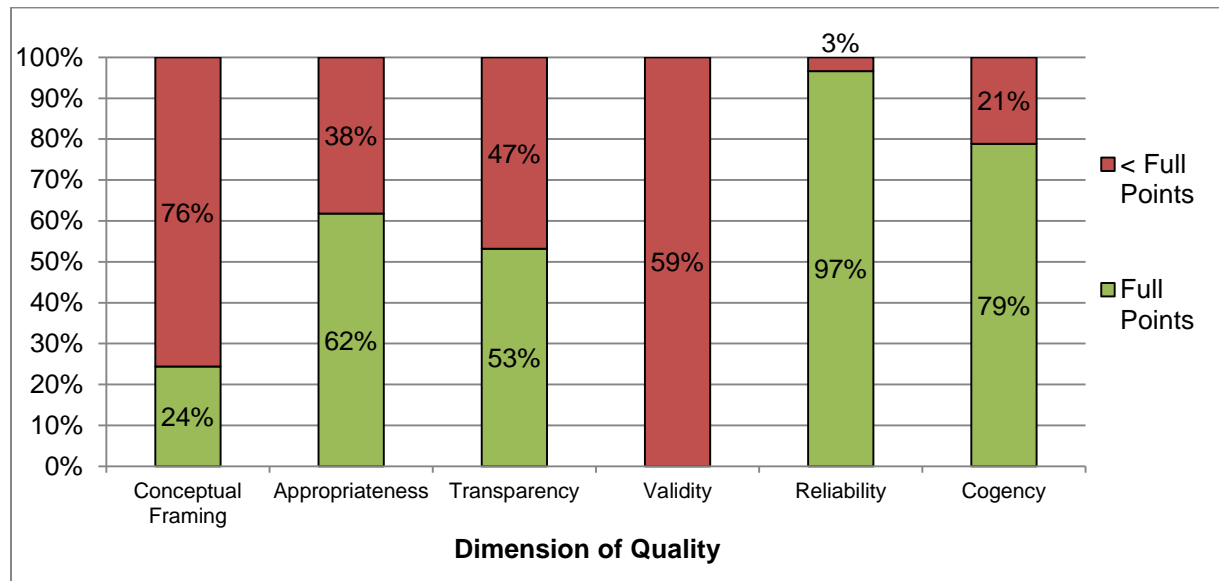


Figure 10. The six Quality Indicators Checklist dimensions with percentages for the analytic sample

Conceptual framing domain. This domain assessed authors' use of a theoretical or conceptual framework as a basis for their research, and whether they posed specific research questions or hypotheses. This domain was the quality indicator category where articles were most likely to lose quality points. As can be seen in Figure 11, almost all of the reviewed articles contained a research question or hypothesis, but only about 25% of articles contained a theoretical or conceptual framework.

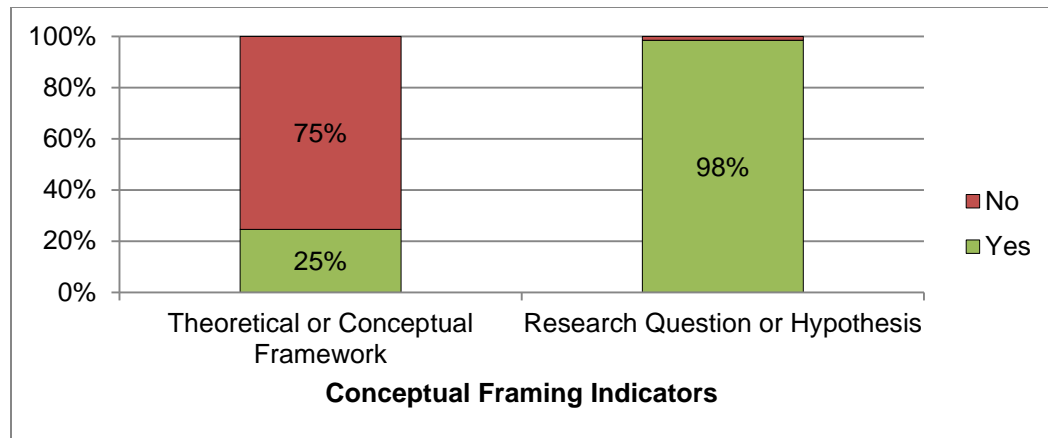


Figure 11. Conceptual Framing domain indicators with percentages for the analytic sample.

The use of a theoretical or conceptual framework varied widely by study methodology, as can be seen in Figure 12. Overall, theoretical or conceptual frameworks were only discussed in 25% (n=241) of articles. Mixed methods studies were the most likely to use a framework (75%, n=3). Only 35.3% (n=6) of the qualitative studies included in this review included a theoretical or conceptual framework. Quantitative studies were the least likely to use frameworks with only 24.2% (n=232) of articles using one. Since approximately 26% (n=253) of the quantitative articles included in this review were population based surveillance type studies, it is not surprising that theoretical or conceptual frameworks were less common within these studies. However, this would still mean that more than 50% of the remaining quantitative articles did not discuss use of a theoretical or conceptual framework.

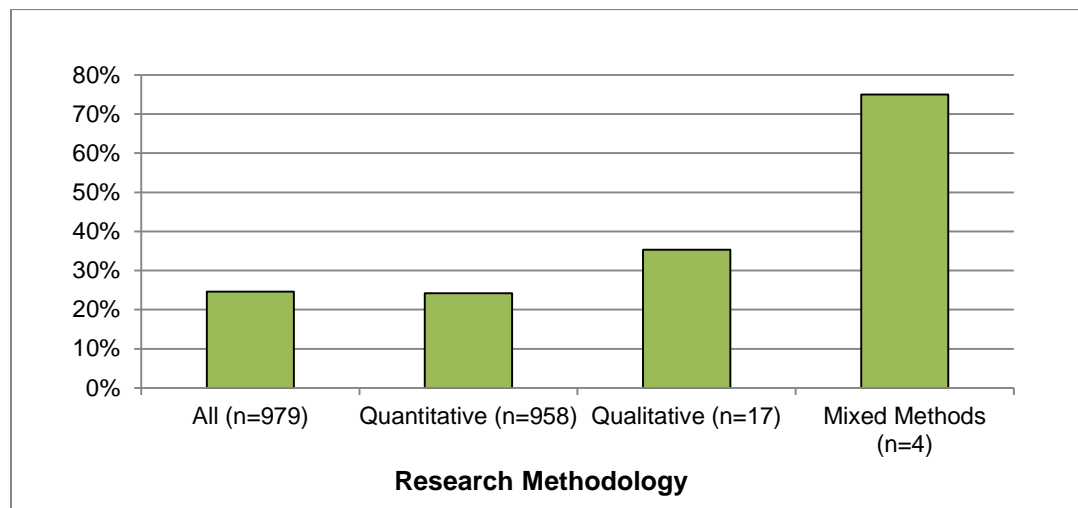


Figure 12. Utilization of a theoretical or conceptual framework by study design type.

Appropriateness domain. This domain assessed authors' clear statement of study design with appropriate descriptive information on study structure. Figure 13 shows the five components of the appropriateness domain, and what percentage of the 979 articles received full points on each component.

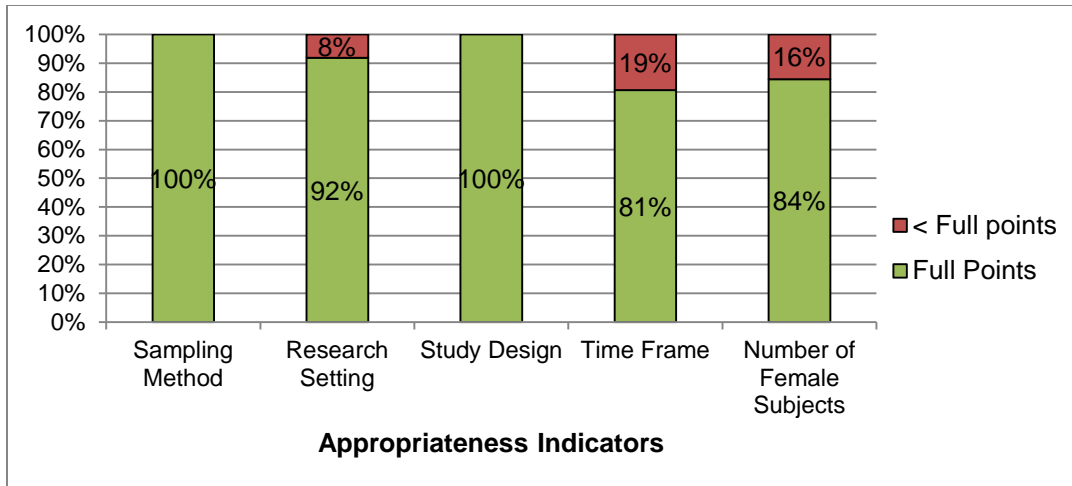


Figure 13. Appropriateness domain indicators with percentages for the analytic sample.

Overall, 62% (n=605) of articles received full points within the Appropriateness domain (Figure 10). On average, articles provided information on four out of the five measures (1.8 out of 2 points, *SD*: 0.24), with the lowest scoring articles providing information on just two out of the five measures (0.8 points). Every article that was reviewed mentioned sampling method and study design; 92% (n=899) of articles included the research setting, 81% (n=790) of articles included the study time frame, and 84% (n=827) of articles included the total number of female participants.

Transparency domain. This domain assessed authors’ inclusion of participant demographics and other information which would allow for study replication. Figure 14 shows the five components of the transparency domain, and what percentage of the 979 articles received full points on each component.

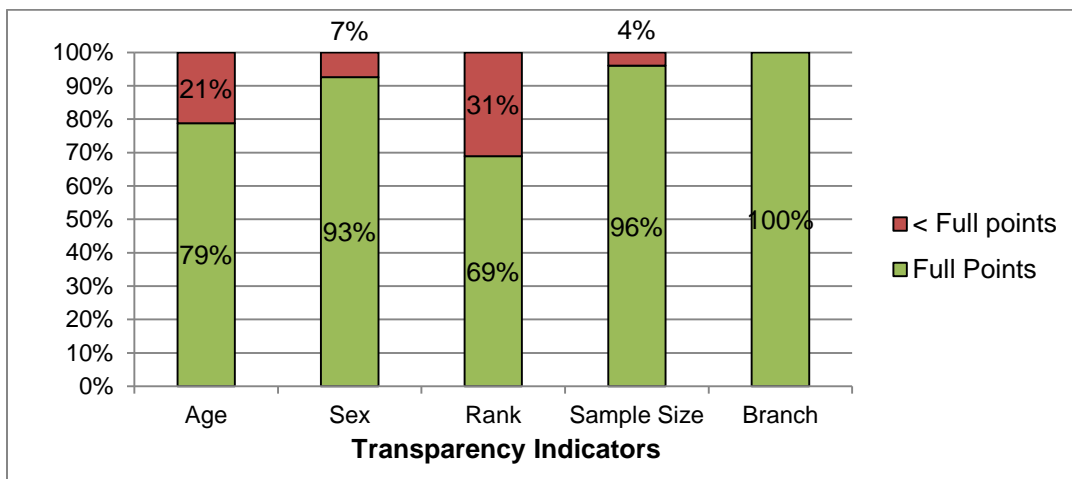


Figure 14. Transparency domain indicators with percentages for the analytic sample.

Overall, 53% (n=521) articles received full points within the Transparency domain (Figure 10). On average, articles provided information on four out of the five measures (1.7 out of 2 points, *SD*: 0.32), with the lowest scoring articles providing information on just one out of the five measures

(0.4 points). All articles gave information on service branch. The component that was least often included was subject rank (69%, n=675); subject age was only included in 79% (n=771) of articles.

Validity domain. The Validity domain assessed whether the data collection instruments used were well suited to accurately measuring the indicators and/or whether study findings could be applicable across multiple contexts. Figure 15 shows the quantitative component and the qualitative component for the validity domain, and what percentage of the 979 articles received full points for this domain.

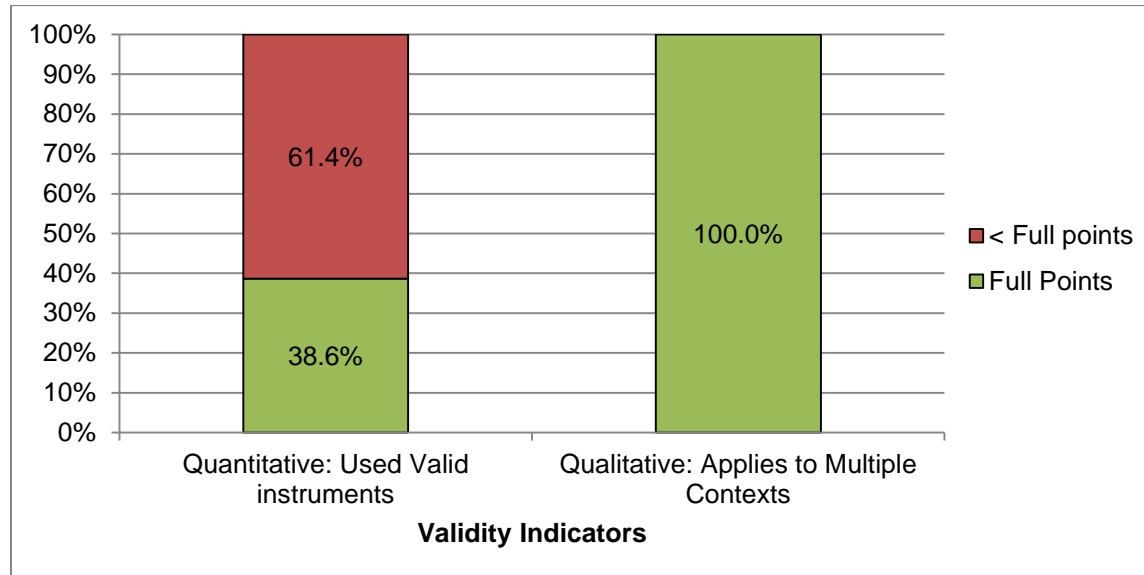


Figure 15 . Validity domain indicators with percentages for the analytic sample.

Validity was a domain where articles often failed to gain quality points; only 41% (n=196) of articles received full Validity points (2 or 4 depending on study design). However there was a large difference in Validity scores between the study types. Qualitative studies scored high in the Validity domain with 100% of articles receiving full points (2 possible). Of the quantitative articles that used at least one research instrument, only 56% (n=261) used instruments that were validated, resulting in lower Validity scores. Among quantitative and mixed methods articles that used research instruments, only 38.6% (n=180) received full points for Validity (2 points for quantitative studies and 4 points for mixed methods studies).

Figure 16 shows a percentage breakdown of articles by how many used questionnaire instruments, and then from that, shows a further snapshot of the articles which used at least one validated instrument. Of the 979 reviewed articles, 466 articles (48%) used at least one research instrument to collect data. Of the 466 articles that used instruments, 261 articles (56%) used at least one validated instrument (with a maximum of 7 reported).

Used Any Instruments

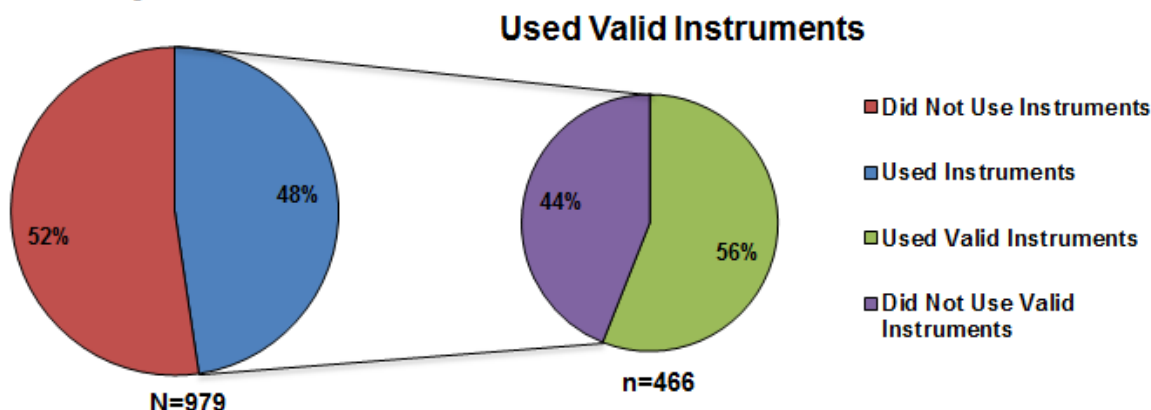


Figure 16. Percentage of articles that used instruments (left) and percentage of articles that used validated instruments (right).

Table 8 shows the top ten most commonly used instruments across the 466 articles that collected data with questionnaire instruments. Out of the top ten instruments, 4 are either military specific or have military oriented components. The DRRI, HRB, Millennium Cohort Study Questionnaire, and a military version of the PCL (PCL-M) are only applicable for military populations. The other 6 items are widely used in civilian literature, and thus may have greater research utility as these tools are comparable across military and civilian populations.

Table 8
Top Ten Utilized Instruments

Instrument Name	Frequency (n)	Percentage (%)	Validated
Post-Traumatic Stress Disorder Checklist (PCL)	82	17.6	Yes
Patient Health Questionnaire (PHQ)	57	12.2	Yes
Deployment Risk and Resilience Inventory (DRRI)	26	5.6	Yes
Medical Outcomes Study Health Survey (MOS)	20	4.3	Yes
Alcohol Use Disorders Identification Test (AUDIT)	16	3.4	Yes
Conflict Tactics Scale (CTS)	16	3.4	Yes
Beck Depression Inventory (BDI)	14	3.0	Yes
Millennium Cohort Study Questionnaire	14	3.0	No
Center for Epidemiologic Studies Depression Scale (CESD)	25	5.4	Yes
DoD Survey of Health Related Behaviors among Active Duty Military Personnel (HRB)	18	3.9	No

Note. Frequency indicates the number of articles that referenced that particular instrument; Percentage was calculated by dividing the number of articles that used the given instrument by 466.

Reliability domain. This domain assessed authors' use of steps to ensure that gathered data was measured consistently across different members of the research team. Figure 17 shows the quantitative component and the qualitative component for the reliability domain, and what percentage of the 979 articles received full points for this domain.

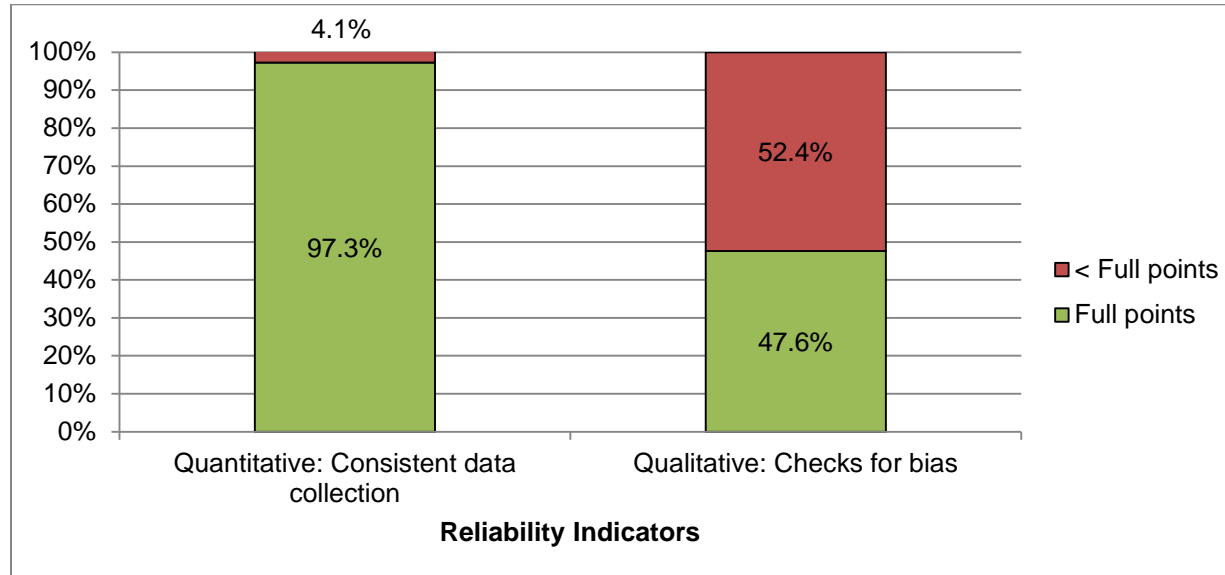


Figure 17. Reliability domain indicators with percentages for the analytic sample.

Quantitative articles scored higher than qualitative articles in the Reliability domain. Quantitative and mixed methods articles received full points for Reliability in 97.3% (936) of articles. Only 47.6% (n=10) of qualitative articles included methods to check data, analysis, or potential bias with other team members to improve reliability.

Cogency domain. This domain assessed authors' use of clear and logical reasoning within their paper, and whether or not they identified limitations to their study. Figure 18 shows the components for the cogency domain, and what percentage of the 979 articles received full points for each component. Almost all of the articles (99.1%, n=970) sustained a coherent line of reasoning throughout, but only 79.6% (n=779) of articles addressed study limitations.

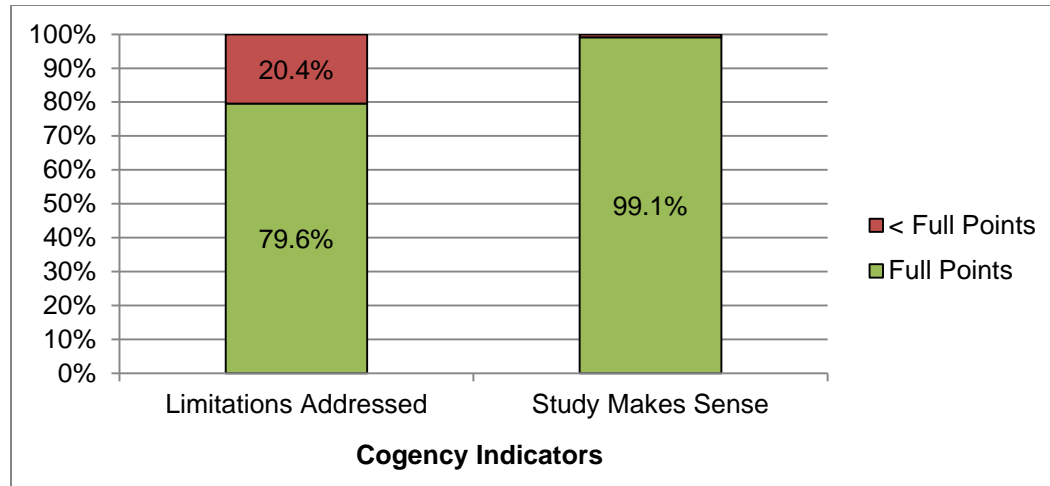


Figure 18. Cogency domain indicators and percentages for the analytic sample.

General quality recommendations. The overall quality of the reviewed articles was good to excellent. Only 10.2% (n=100) of articles received a quality score below 70%.

Conceptual framing recommendations. While almost all (98.5%) of the reviewed articles included a research question or hypothesis, only 24.6% included a theoretical or conceptual framework. Frameworks are an important component of all types of research design; they are useful for explaining why the research should be performed, what should be monitored, measured, or compared, and how to shape study designs. Theories are also essential for making connections between complex theories and real world applications (Glanz, Rimer, & Viswanath, 2008). Without a unifying framework, many studies will fail to adequately explain the connections or patterns within and between concepts. While theoretical or conceptual frameworks may not be appropriate for all study designs, publications should attempt to include frameworks when appropriate.

Appropriateness recommendations. In general, the articles scored high in the Appropriateness domain. Two areas for improvement are inclusion of the time frame of data collection, and inclusion of research setting. It is important to include the specific details of study structure, as this allows other scientists to gain knowledge as to how long a protocol might take, and where it has been executed in the past. Another area where quality was lost involved inclusion of the number of female subjects within the study. It is unclear why some researchers specifically stated that females were included in a study protocol, but then did not include a specific female sample size within the article. Research being done in the military should include all pertinent study information; this is important for advancement of scientific inquiry.

Transparency recommendations. Although the quality scores within the transparency domain were generally high, there are some components that could be improved upon to improve reproducibility. Age and rank have been found to be significant contributors to various health outcomes in both military and civilian populations. The lack of descriptive statistics on readily available demographic data is a surprising oversight shared by many studies within the sample. Research in and out of the military should include the reporting of these basic demographic variables.

Validity recommendations. The validity domain is one dimension of quality where many of the reviewed articles lost points. Many of the articles that used instruments to collect data, failed to use instruments that had been validated. Content validity is the extent to which an instrument measures what it is supposed to measure (Creswell, 2009). Validity is an essential element of data quality because it “refers to the extent to which outcomes can be attributed to an experimental factor, rather than to extraneous or confounding factors” (Glanz et al., 2008). Instruments with high validity are also more useful for generalizing results from study samples to entire populations. It is important to note that there are several fields of study where validated instruments either do not exist, or are too expensive, or are too time intensive to utilize in certain study designs. When appropriate, researchers should include validated instruments in their study designs, and/or describe efforts to validate their findings.

Reliability recommendations. Almost all articles with a quantitative study design included measures to ensure consistent data collection across the full sample. However, in less than 50% of the qualitative studies did the authors report checking for potential biases in data collection methods. This is surprising, considering the potential for various forms of researcher bias that are inherent to qualitative study designs, where the researchers are often the “instruments” of data collection. In the future, publications should report the steps that were taken to reduce bias within the study, for both quantitative and qualitative designs.

Cogency recommendations. The reviewed articles generally scored well within the cogency domain, but just over 20% of articles did not address potential and actual limitations of their study. Not all peer-reviewed journals require a study limitations section within the text of published articles, but the discussion of study limitations is an important element of scientific dialogue. Since no research effort is conducted without limitations, it is essential for authors to acknowledge and address how these limitations may have had an impact on the research, and on its future applicability. This allows for future study design improvement, and alerts readers to pitfalls to avoid in their own research. In order to produce higher quality literature, publications should include study limitations as a mandatory part of journal article submission requirements.

Overview of research topics within the analytic sample. Eight major topic areas were represented within the analytic sample. Research coverage of a wide array of topics has changed over the years, as shown in Figure 19. For almost every topic represented within the analytic sample, there was a gradual increase in publications starting in 2004, with a rapid uptick in 2010. There was also a corresponding decrease in publications from 2013 onwards. For the 15 year timespan of this review, Psychological Health and Readiness were the two mostly highly published topics within this review.

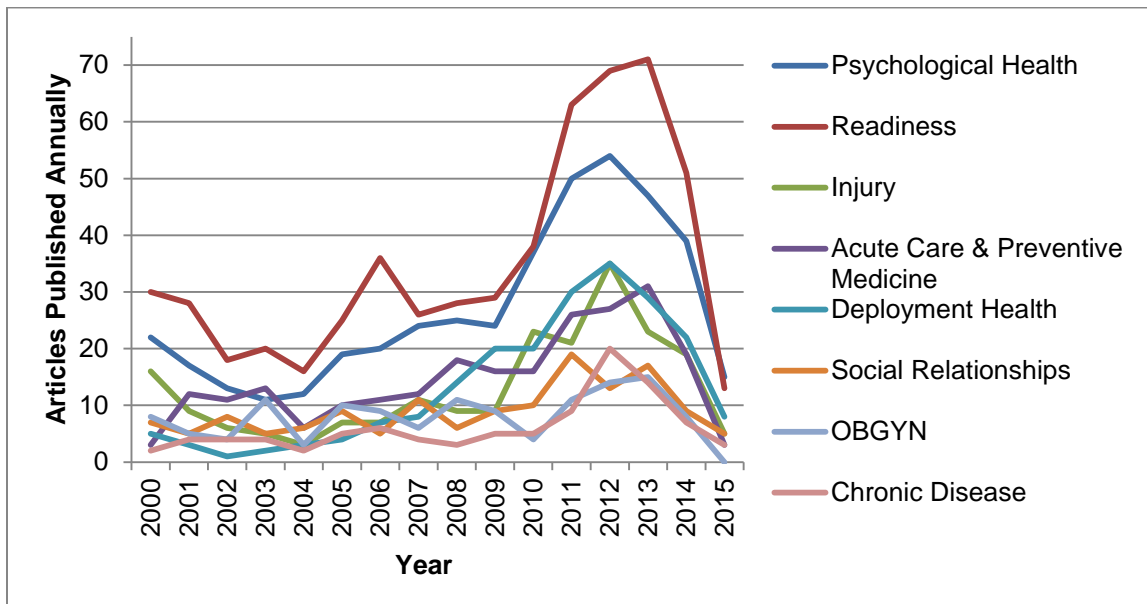


Figure 19. Topic categorizations by year of publication.

Topic Overview of the Analytic Sample

As can be seen in Figure 20, Readiness and Psychological Health were the two largest topic areas within the published scientific literature. Chronic Illness and Ob/Gyn were the two topics with the smallest number of articles.

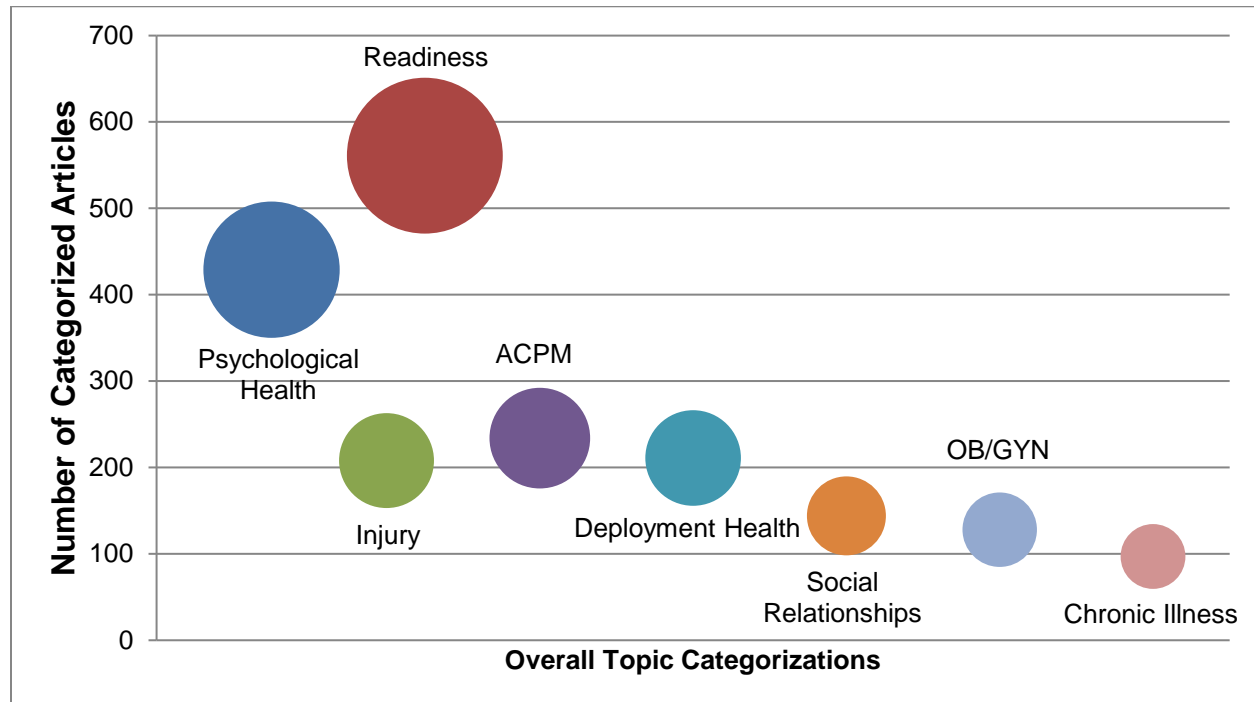


Figure 20. Number of articles categorized in each topic.

It is important to note that the topics and subtopics identified in this review are not mutually exclusive. Each article could have been (and most often was) categorized as more than one topic and/or subtopic. During categorization of articles, if an article was about chronic pain in service members with PTSD, multiple topics and subtopics would have been marked. The topic of Psychological Health, and its PTSD subtopic would have been marked, and the topic of Chronic Illness, and its subtopic of pain would also have been marked. As another example, if an article was about an aeromedical evacuation from theater due to a traumatic brain injury, the article would have been marked as 1) Deployment Health-aeromedical evacuation and 2) Injury-traumatic injury and 3) traumatic brain injury. This one article would have spanned 2 topics (Deployment Health and Injury) and three subtopics (aeromedical evacuation, traumatic injury, and traumatic brain injury). This non-mutual exclusivity is why there are 2012 topic categorizations for an analytic sample of 979 articles, as seen in Figure 21.

Within Figure 21, each topic area was mapped to QIC scores. The topic with the highest percentage of excellent quality articles was Social Relationships (36%), while the Ob/Gyn topic had the lowest percentage of excellent quality articles (17%). The topic with the smallest percentage of low quality articles was Injury (7%), while Ob/Gyn was the topic with the largest number of low quality articles (21%).

Topic	# of articles	% of Total Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Psychological Health	429	21.3	120	10%	62%	28%
Readiness	561	27.9	141	11%	64%	25%
Injury	208	10.3	66	7%	61%	32%
ACPM	234	11.6	66	9%	63%	28%
Deployment Health	211	10.5	65	8%	62%	31%
Social Relationships	144	7.2	52	8%	56%	36%
OB/Gyn	128	6.4	21	21%	63%	17%
Chronic Illness	97	4.8	29	11%	59%	30%
Total	2012	100	560	10%	62%	28%

Figure 21. Article quality by topic.

Article topic categorizations are not mutually exclusive; each article may have been categorized in more than one topic. Although the total number of articles reviewed was 979, the total number of topic categorizations was 2012.

Due to differences in how frequency counts were calculated (by article versus by topic/subtopic categorizations) topic frequencies in Figure 21 may not match across all topic and subtopic specific tables and figures. For example, Figure 21 reports a low quality average of 10% within the Psychological Health topic, but Figure 23 reports a low quality average of 8% across all Psychological Health subtopics. Please note that this is by design, not by accident.

The remainder of this section (Results – Question 1 & 2) will examine each major topic, including definitions of subtopics and more detailed discussion of article quality by subtopic.

Psychological Health. The Psychological Health topic covered all articles related to the psychological health of service members and their families. Figure 22 represents a bubble plot of the articles within this main topic area. There were 16 subtopics, and brief descriptions of each can be found below.

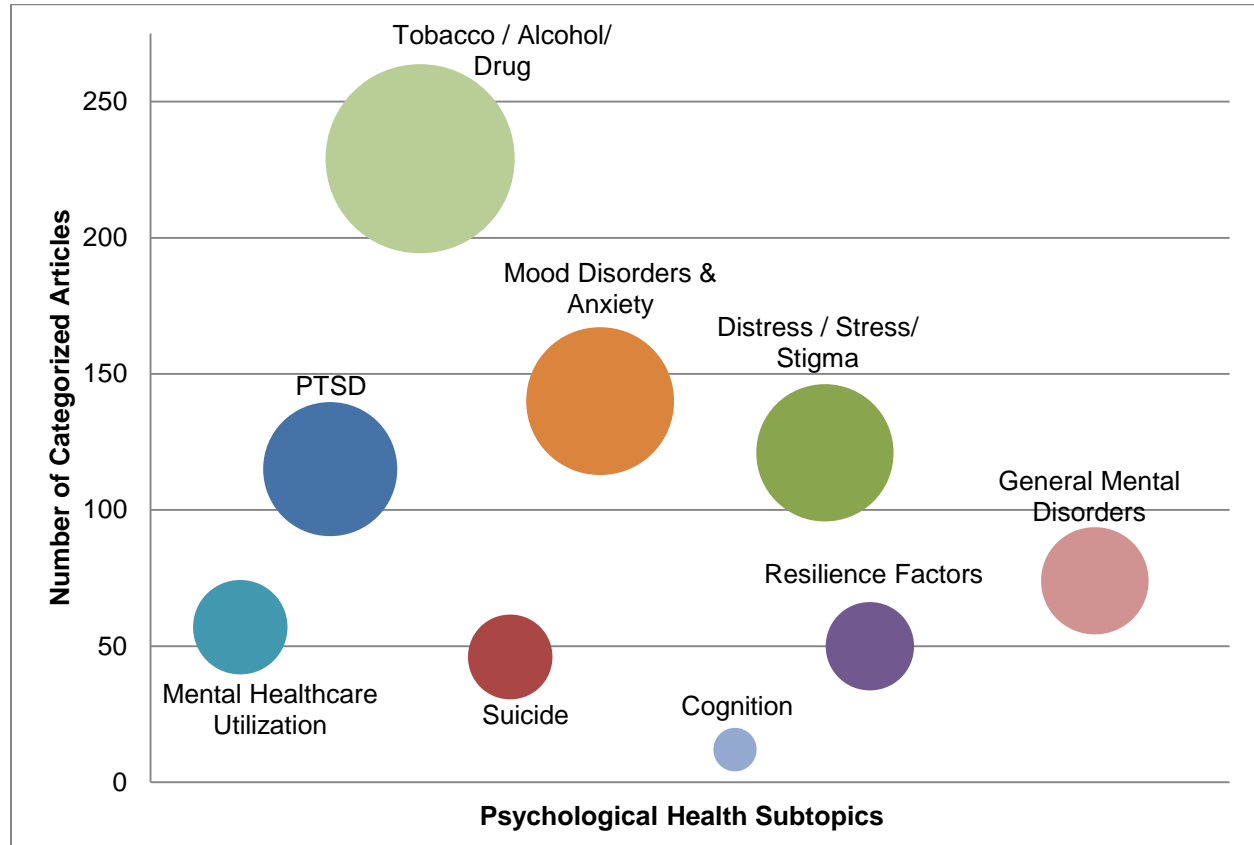


Figure 22. Number of articles categorized in each subtopic of the Psychological Health topic. Tobacco/Alcohol/Drug includes all Tobacco, Alcohol, or Drug subtopic articles. Distress/Stress/Stigma includes all Distress, Stress, and Stigma subtopic articles. General Mental Disorders includes all Adjustment Disorders, Personality Disorders, Eating Disorders, and Other Mental Disorders subtopic articles.

Mood Disorders & Anxiety: Any article related to anxiety, as well as mood disorders, such as depression and bipolar disorder

PTSD: Any article related to PTSD, including diagnostic evaluations and treatments

Alcohol: Any article related to alcohol use (whether occasional or chronic use), abuse of alcohol, or alcohol treatment programs

Tobacco: Any article related to tobacco use (whether occasional or chronic use)

Drug: Any article related to illegal drug use (e.g. marijuana, cocaine) or drug rehabilitation and treatment programs

Stress: Any article related to psychological or physiological stress

Distress: Any article, which did not discuss a mental health disorder, but instead looked at topics such as anger, grief, or mental health stigma

Stigma: Any article related to mental health stigma

Mental Healthcare Utilization: Any article related to mental healthcare utilization, such as rates of hospitalizations and outpatient encounters

Resilience Factors: Any article related to resilience factors, such as benefit finding, social support, or spirituality

Suicide: Any article related to suicide, suicide prevention, or suicidal ideation

Cognition: Any article related to cognitive functioning or performance

Other Mental Disorders: Any article related to diagnosed mental disorders which were not captured by other categories (e.g. ADHD)

Adjustment Disorders: Any article related to the diagnosis and treatment of adjustment disorders

Personality Disorders: Any article related to the diagnosis and treatment of personality disorders (e.g. Antisocial Personality Disorder)

Eating Disorders: Any article related to specific risk factors for, and diagnosis and treatment of, eating disorders

Research topic array. Within the Psychological Health topic, the largest number of articles were related to Mood Disorders & Anxiety ($n=140$, 16.6%). The majority of these articles focused on depression and anxiety. The second largest subtopic was PTSD ($n=115$, 13.6%), which included PTSD-specific research on neurocognitive factors, injury, and physical violence. The largest collapsed subtopic (seen in Figure 22) was Tobacco, Alcohol, & Drugs ($n=229$, 27.1%), reflecting a very high research workload in these areas. In fact, Alcohol was the third largest single subtopic with 107 articles, representing 12.7% of research within the Psychological Health topic. Articles related to alcohol included alcohol-specific research on gender, motor vehicle injury, and intimate partner violence.

The subtopics with the smallest number of articles were adjustment disorders ($n=10$, 1.2%), personality disorders ($n=10$, 1.2%) and eating disorders ($n=6$, 0.7%). Articles related to adjustment disorders, personality disorders, and eating disorders included disorder-specific research on predictors, as well as specific inquiry within recruit samples. It is important to note that many of the articles about adjustment disorders and personality disorders examined broad categories, and not specific subtypes. In contrast, articles about eating disorders examined specific subtypes, such as anorexia nervosa, bulimia nervosa, and binge eating disorder.

Research quality. Within Figure 23, each Psychological Health subtopic area was mapped to QIC scores. The average quality score for articles within the Psychological Health topic was 82.7% (i.e. good quality). The subtopic with the largest proportion of low quality articles was tobacco (20%). Nearly 85% of tobacco articles lacked a theoretical/conceptual framework, and

more than 75% of those that used a tobacco questionnaire did not use a validated instrument. Within the tobacco subtopic, many of the articles focused on the epidemiology (e.g. incidence, prevalence, predictors, etc.) of tobacco use or examined tobacco use as a covariate of other health conditions. This may explain why a theoretical/conceptual framework was not typically used. The validity data are surprising, since validated instruments for measuring tobacco use do exist (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991). The use of validated instruments allows for more reliable comparisons across studies on the same topic, and this is lacking within the tobacco subtopic. Additional quality points were lost within the cogency domain, where almost a quarter of articles neglected to include information about study limitations.

Psychological Health	# of articles	% of Psychological Health Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Mood Disorders & Anxiety	140	16.6	55	6%	55%	39%
PTSD	115	13.6	43	6%	57%	37%
Alcohol	107	12.7	34	8%	60%	32%
Tobacco	85	10.1	13	20%	65%	15%
Drug	37	4.4	12	11%	57%	32%
Stress	74	8.8	16	11%	68%	22%
Distress	34	4	10	3%	68%	29%
Stigma	13	1.5	5		62%	38%
Mental Healthcare Utilization	57	6.8	21	2%	61%	37%
Resilience Factors	50	5.9	16	8%	60%	32%
Suicide	46	5.5	17	7%	57%	37%
Cognition	12	1.4	1	17%	75%	8%
Other Mental Disorders	48	5.7	10	8%	71%	21%
Adjustment Disorders	10	1.2	3		70%	30%
Personality Disorders	10	1.2	3		70%	30%
Eating Disorders	6	0.7	3		50%	50%
Total	844	100	262	8%	61%	31%

Figure 23. Psychological Health article quality by subtopic. Categorized articles are not mutually exclusive and may include one or more subtopics.

Also of interest were subtopics that included only good quality or excellent quality articles. Subtopics meeting these parameters were Eating Disorders, Stigma, Adjustment Disorders, and Personality Disorders. While both the Eating Disorders and Stigma subtopics rank among the top three subtopics within the Mental Health topic in terms of quality, both subtopics were relatively small in size.

Readiness. The Readiness topic covered all articles that related to individual readiness among military members. Figure 24 represents a bubble plot of the articles within this main topic area. There were nine subtopics within the Readiness topic. A brief description of each of these subtopics can be found below.

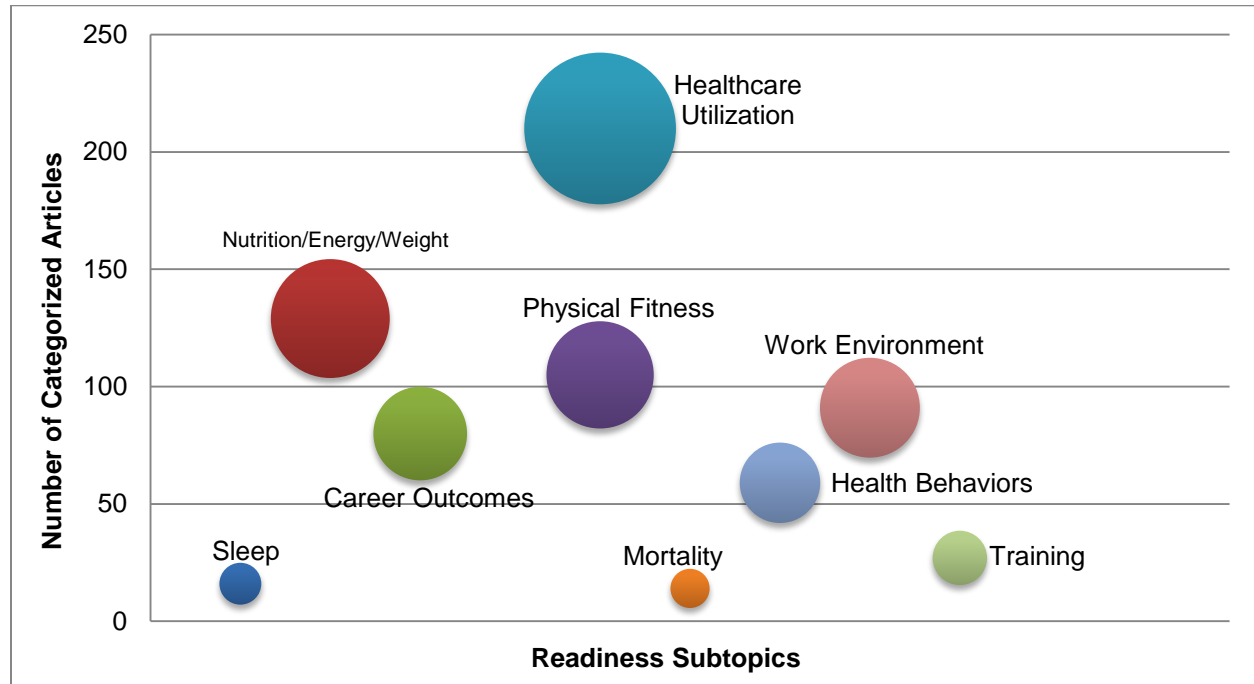


Figure 24. Number of articles categorized in each subtopic of the Readiness topic.

Healthcare Utilization: Any article related to healthcare service utilization by service members and their families, including trends in hospitalizations and/or ambulatory care visits

Nutrition/Energy/Weight: Any article related to service member nutrition, energy levels, or weight, including anthropometric assessments

Physical Fitness: Any article related to the physical activity or fitness of service members, including Physical Fitness Testing (PFT)

Work Environment: Any article related to how the work environment may impact health and/or readiness; included non-deployment related occupational and environmental factors

Career Outcomes: Any article related to career outcomes including service member retention and attrition

Health Behaviors: Any article related to non-sexual behaviors that may impact the health and/or readiness of service members; included both positive and negative behaviors and risk reduction interventions (such as tobacco cessation programs)

Training: Any article related to how training for military specific tasks may impact the health and/or readiness of service members

Sleep: Any article related to sleep or factors contributing to alterations in sleeping habits or circadian rhythm

Mortality: Any article related to non-combat related deaths (i.e. car accidents)

Research topic array. The largest number of articles centered on Healthcare Utilization, and represented the most-published subtopic by percentage within the Readiness topic area (n=210, 28.7%). This subtopic included articles that related to utilization of healthcare services by service members and their families. Many of these articles were surveillance studies to determine trends in hospitalizations and/or ambulatory visits. Since injury and illness significantly impact operational readiness, the proportionately large number of articles published on healthcare utilization patterns aligns with military goals of better understanding how service members use healthcare services (Defense Health Agency (DHA), 2016). The second and third largest subtopics within the Readiness topic were Nutrition/Energy/Weight (n=129, 17.6%) and Physical Fitness (n=105, 14.4%), respectively. Articles about Nutrition/Energy/Weight included research on how to improve the nutrition of incoming recruits, changes in energy levels during combat or physical training, and how weight may impact the readiness of service members. Physical Fitness articles included research on how physical fitness impacts risk of injury, how physical fitness impacts combat readiness, and on Physical Fitness Test (PFI) results. The amount of research on these subtopics, relating to anthropometrics and fitness, is in keeping with the goal of the military to maintain a strong, healthy force, able at all times to meet operational requirements stateside and overseas (Institute of Medicine (IOM) Subcommittee on Military Weight, 2004; U.S. Department of Defense (DoD), 2002).

The two subtopics with the smallest number of published articles were Sleep (n=16, 2.2%) and Mortality (n=14, 1.9%). Articles relating to Sleep included research on postpartum fatigue, changes in sleep patterns due to shift work, and the impact of psychological disorders on sleep patterns. Sleep is a topic of importance to the military, as many military members perform duties that require attention to detail and peak cognitive performance, many times in a sleep-deprived setting (Troxel, 2015). Articles on Mortality included topics such as non-combat related deaths due to suicide, underlying cardiovascular disease, or accidents. Considering many of the deaths researched by the articles within the Mortality subtopic were preventable (such as deaths due to unintentional injury and heat exposure), this would be a useful topic on which to have more data.

Research quality. Within Figure 25, each Readiness subtopic area was mapped to QIC scores. The average quality score for articles within the Readiness topic was 81.3% (good quality). The subtopic with the smallest percent of low (4%) and the largest percent of excellent (35%) quality articles was Career Outcomes. Every year the military invests billions of dollars to train recruits, but the services “have historically lost about one-third of their enlistees before they have completed their initial terms of service” (U.S. GAO, 2000). The relative number and high quality of research on Career Outcomes aligns with the importance of this subtopic for military readiness.

Readiness	# of articles	% of Readiness Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Healthcare Utilization	210	28.7	65	6%	63%	31%
Nutrition/Energy/Weight	129	17.6	26	15%	65%	20%
Physical Fitness	105	14.4	16	18%	67%	15%
Work Environment	91	12.4	25	14%	58%	27%
Career Outcomes	80	10.9	28	4%	61%	35%
Health Behaviors	59	8.1	9	15%	69%	15%
Training	27	3.7	5	7%	74%	19%
Sleep	16	2.2	4	6%	69%	25%
Mortality	14	1.9	4	21%	50%	29%
Total	731	100	182	11%	64%	25%

Figure 25. Readiness article quality by subtopic.

Categorized articles are not mutually exclusive and may include one or more subtopics.

The subtopic with the largest percent of low quality articles was Mortality (21%). Several of the Mortality articles failed to gain points in the transparency domain, which included sample demographic information. Considering the sensitive nature of mortality in the military, it may not have been appropriate for these articles to include this information for privacy reasons. It should also be noted that although the Mortality category had a proportionately large percentage of articles that received low quality scores, it also had the third largest percentage of excellent quality articles (29%). Another area of concern when it comes to article quality is the Health Behaviors subtopic. Only 59 articles (8.1%) related to Readiness were about Health Behaviors; of these 59 articles, only 9 (15%) were of excellent quality. This is an important area of research for the military; many high risk health behaviors such as tobacco or supplement use and driving under the influence are prevalent among military populations (DoD, 2014b).

Although the Nutrition/Energy/Weight and Physical Fitness subtopics were the two categories with the second and third largest number of articles published, they both had a smaller proportion of excellent quality articles compared to other topics within the Readiness topic. Many of the articles in these subtopics articles lost points for not using valid instruments. Only 40% of Nutrition/Energy/Weight articles and 39% of Physical Fitness articles received points for validity, resulting in lower overall quality scores.

Injury. The Injury topic covered all articles that related to injuries among military members. Figure 26 represents a bubble plot of the articles within this main topic area. There were seven subtopics within the Injury topic. A brief description of each of these subtopics can be found below.

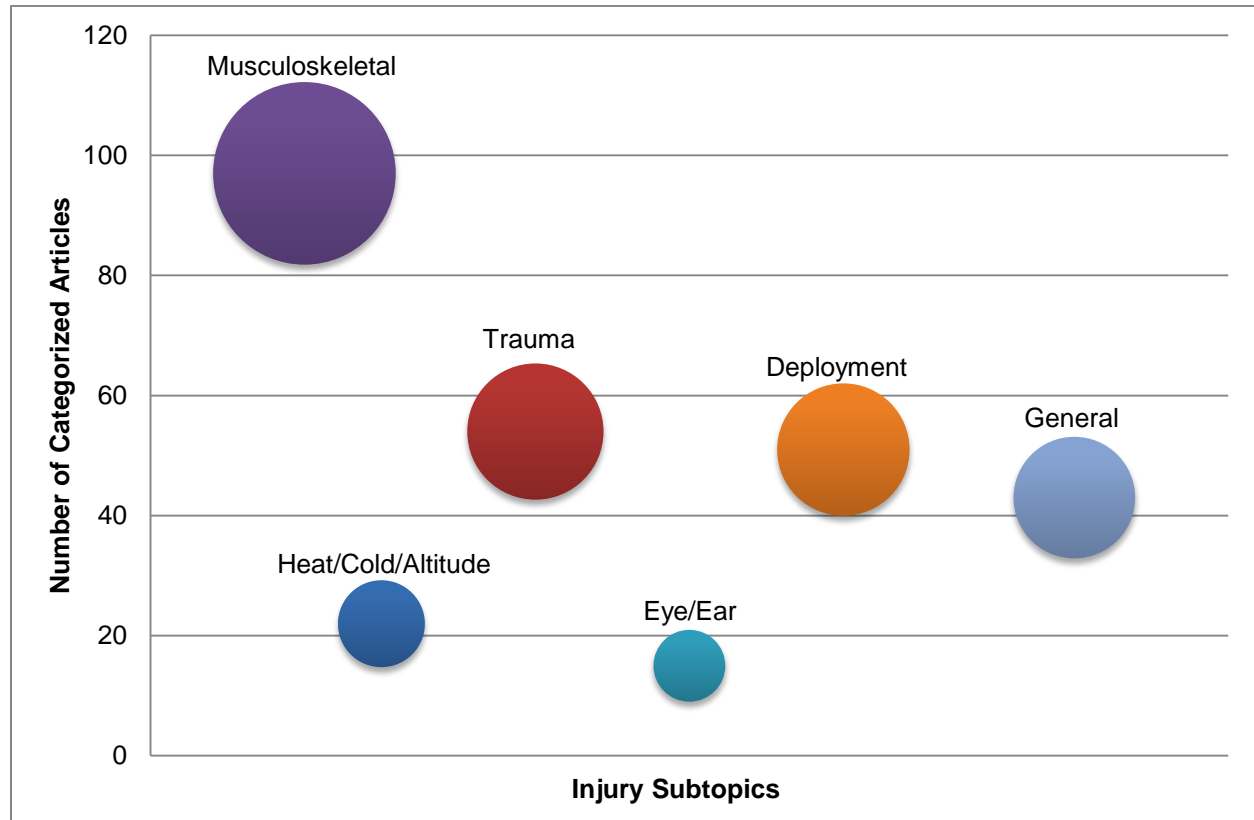


Figure 26. Number of articles categorized in each subtopic of the Injury topic.

Trauma includes all articles from the Traumatic Injury and Traumatic Brain Injury subtopics.

Musculoskeletal Injury: Any article related to musculoskeletal injuries, including overuse or acute injuries

Traumatic Injury: Any article related to an injury caused by trauma (intentional and accidental)

Traumatic Brain Injury (TBI): Any article related to traumatic brain injuries including concussions and mild TBI

Deployment Injury: Any article related to injuries sustained specifically during deployment (combat and non-combat related)

General Injury: Any article related to injuries that do not fit into any of the above subtopics, including articles about non-specific injury types or locations

Heat/Cold/Altitude: Any article related to heat, cold, or altitude related injuries or health issues

Eye/Ear Injury: Any article related to injuries of the eye and/or ear, including intracranial injury

Research topic array. Within the Injury topic, the largest number of articles (n=97, 31.7%) were related to Musculoskeletal Injuries. This subtopic included articles on sprains and strains, low back injuries, and overuse injuries. A majority of the articles in this subtopic were either surveillance studies or epidemiological investigations of potential risk and protective factors for this type of injury within military populations.

The next largest subtopic within Injury was Traumatic Injury (including Traumatic Brain Injury) (n=54, 17.6%). Almost half of the articles about Traumatic Injuries related to Traumatic Brain Injuries (TBI) (n=24). Other articles within this category related to traumatic injuries from motor vehicle accidents, training, and sports/athletics. It is also important to note that 21 articles were categorized as both Traumatic Injury and Deployment Injury because they were traumatic injuries that occurred during deployment.

The smallest number of Injury articles were published on Eye/Ear injuries (n=15, 4.9%). Every branch of service has well established eye and ear injury prevention policies, including prescribed use of personal protection devices for eye and ear protection (DoD, 2010). The relatively small number of articles relating to eye and ear injuries may indicate that existing injury prevention policies are sufficient to minimize the risk of eye/ear injuries in military populations.

Research quality. Within Figure 27, each Injury subtopic area was mapped to QIC scores. The overall quality of the peer reviewed articles in the Injury topic was high with an average quality score of 82.6 (out of 100). Only 6.5% (n=20) of articles were low quality; 35% (n=107) were excellent quality. Approximately 35% (n=34) of the articles in the Musculoskeletal Injury subtopic received excellent quality scores. Research has shown that musculoskeletal injuries impact more service members than any other health condition, are responsible for the largest number of medical encounters, and are the leading contributor to days of limited duty in military populations (Armed Forces Health Surveillance Branch, 2016). The high number and high quality of research on Musculoskeletal Injuries properly reflects the health impacts of this subtopic.

Injury	# of articles	% of Injury Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Musculoskeletal	97	31.7	34	10%	55%	35%
Traumatic	54	17.6	20	4%	59%	37%
Traumatic Brain Injury	24	7.8	12		50%	50%
Deployment	51	16.7	51	6%	53%	41%
General	43	14.1	43	12%	65%	23%
Heat/Cold/Altitude	22	7.2	22		77%	23%
Eye/Ear	15	4.9	15		67%	33%
Total	306	100	107	7%	58%	35%

Figure 27. Injury article quality by subtopic.

All TBI articles were also marked as Traumatic.

Categorized articles are not mutually exclusive and may include one or more subtopics.

The subtopic with the largest percentage of excellent quality articles was Traumatic Brain Injury (TBI). Within this category, 50% (n=12) of articles were excellent quality and there were no low quality articles. TBI has been called one of the “signature wounds” of the Afghanistan and Iraq wars (Tanielian et al., 2008). In an effort to reduce the impact of TBI, the DoD increased resources for TBI screening, diagnosis, treatment, and research (U.S. Assistant Secretary of Defense, 2008). Based on the results of this scoping review, the quality of that research is generally excellent, which is very encouraging news for this field of research, and for the potential impact that these findings will have on military service members.

The subtopic with the second largest percentage of excellent quality articles was Deployment Injury. Unfortunately, injuries are common during deployment. Surveillance on the types and impact of deployment related injuries provides invaluable information to military leaders and policy makers so they can implement strategies to reduce injury risk. Also of note, there were no low quality articles about eye/ear or heat/cold/altitude injuries. Instead, these two subtopics had the largest percentage of good quality articles within the Injury topic. The comparatively higher quality of articles on these subtopics is encouraging, especially considering many of the injuries within these categories are preventable.

Acute Care & Preventive Medicine. The Acute Care & Preventive Medicine (ACPM) topic covered all articles that related to medical care for acute care diagnoses, as well as for disease prevention. Figure 28 represents a bubble plot of the articles within this main topic area. There were six subtopics within the ACPM topic. A brief description of each of these subtopics can be found below.

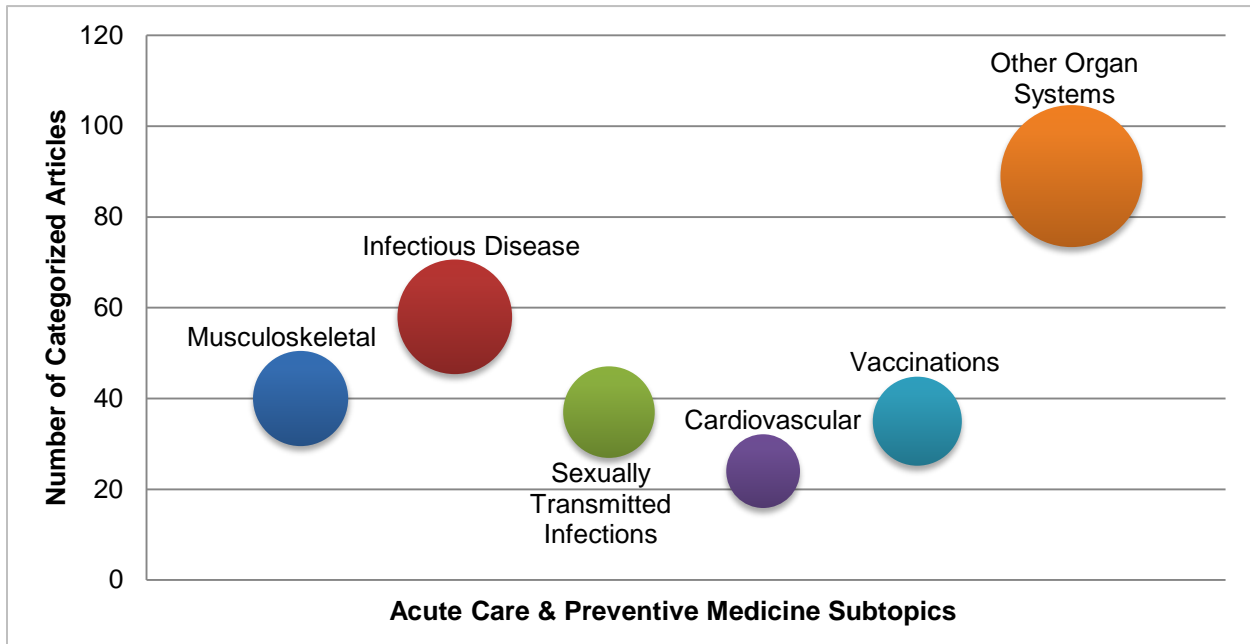


Figure 28. Number of articles categorized in each subtopic of the Acute Care & Preventive Medicine topic.

Other Organ Systems: Any article related to acute or preventive care for other organ systems not covered in the other subtopics, such as wound care for burns (dermatology), non-specific loss of consciousness (neurology), and upper respiratory infections (pulmonary)

Infectious Disease: Any article related to infectious diseases, excluding most sexually transmitted infections. This subtopic includes Hepatitis A/B/C and influenza, but did not include HIV (HIV was categorized in the Chronic Illness topic).

Musculoskeletal System: Any article related to non-injury and non-chronic musculoskeletal diagnoses, including surgical repair, bone health, amputations, and other preventive measures

STI: Any article related to sexually transmitted infections, except HIV (covered in the Chronic Illness topic) and Hepatitis A/B/C (covered in the Infectious Disease subtopic). Examples included *Trichomonas vaginalis* and genital warts

Vaccinations: Any article related to vaccinations and immunity

Cardiovascular: Any article related to acute cardiovascular conditions or preventive measures, including syncope, and evaluation of lipid panels

Research topic array. Within the ACPM topic, the largest number of articles related to Other Organ Systems ($n=89$, 31.4%). This subtopic included research on hearing, vision readiness, dental caries risk, and gastrointestinal symptoms. Every service member is required to go through dental screening and hearing testing as part of individual readiness requirements. Each service branch generates quarterly reports to summarize the Individual Medical Readiness (IMR) status of all service members (DoD, 2014a). There seems to be a discrepancy between the amount of data available from these screenings, and the amount of research conducted with this data. Only 6 out of 89 articles in the Other Organ Systems subtopic utilized dental and hearing test data. This may indicate difficulty in conducting studies that utilize electronic medical data from service personnel, or perhaps these topics are not considered high priority research areas for the DoD.

The second and third largest subtopics within the ACPM topic were Infectious Disease ($n=58$, 20.5%) and the Musculoskeletal System ($n=40$, 14.1%). Articles regarding Infectious Disease research included risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA) infections, predictors for immunologic alterations, and incidence rates for soft tissue infections. More than half of these articles utilized database information, such as from the Defense Medical Surveillance System (DMSS); this may indicate less funding for field research in this subtopic. Articles in the Musculoskeletal subtopic included research on shoe fit evaluations, and acute musculoskeletal pain. These two subtopics reflect the exposures and conditions that service personnel may often experience during the course of military service.

The two subtopics with the smallest number of published articles were Vaccinations ($n=35$, 12.4%) and the Cardiovascular System ($n=24$, 8.48%). Articles within the Cardiovascular subtopic included research on lipid and plasma markers associated with fatigue, transient cardiac dysfunction, and rates of syncope. Articles related to Vaccinations included research on hepatitis A immunity, vaccine responsiveness and clinical outcomes, and risks of anthrax vaccinations. It is not surprising that the number of articles within the vaccination subtopic is relatively small; the civilian literature in this area is most likely very pertinent to military populations.

Research quality. Within Figure 29, each ACPM subtopic was mapped to QIC scores. The average quality score for articles within the ACPM subtopic was 82.4% (good quality). The subtopic with the largest percentage of excellent quality articles was Infectious Disease (38%). This likely reflects the high research prioritization given to tracking infectious diseases and analyzing this data among active duty personnel (The Henry J. Kaiser Family Foundation, 2013). Given the nature of the military as a global presence, it is critical to establish standardized preventive measures for, and to contain, infectious disease outbreaks. This is particularly important as the broad spectrum of acute physical manifestations from an infectious disease may compromise the readiness of military personnel, potentially leading to chronic after-effects.

ACPM	# of articles	% of ACPM Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Other Organ Systems	89	31.4	21	8%	69%	24%
Infectious Disease	58	20.5	22	7%	55%	38%
Musculoskeletal	40	14.1	14	8%	58%	35%
STI	37	13.1	7	14%	68%	19%
Vaccinations	35	12.4	10		71%	29%
Cardiovascular	24	8.5	6	8%	67%	25%
Total	283	100	80	7%	64%	28%

Figure 29. ACPM article quality by subtopic.

Categorized articles are not mutually exclusive and may include one or more subtopics.

The ACPM topic was one of three topics which had the lowest percentage of low quality articles (7%; the others were Injury and Deployment Health). The ACPM subtopic with the highest percentage of low quality articles was Sexually Transmitted Infections (14%), which had double the percentage of the overall ACPM topic. Within the STI subtopic, 62% of the articles did not gain full points in the transparency domain. Further high-quality research with clear descriptions of the sample population and use of validated instruments in this area are needed.

The Vaccinations subtopic ($n=35$) consisted of only good and excellent quality articles. The quality of these articles as a whole is impressive, especially considering that they make up more than 12% of the total number of articles for this topic. Many of the articles included in this subtopic (42%) included non-recruit samples (e.g. officer or enlisted). This may reflect the availability of robust vaccination data in Active Duty service personnel who have graduated from basic training.

Deployment Health. Deployment Health was defined as health topics experienced by active duty members when in a deployed setting. This included data that was collected post deployment, as long as questionnaires related to exposures or behaviors DURING deployment. Figure 30 represents a bubble plot of the articles within this main topic area. There were 6 subtopics within the Deployment Health topic. A brief description of each of these subtopics can be found below.

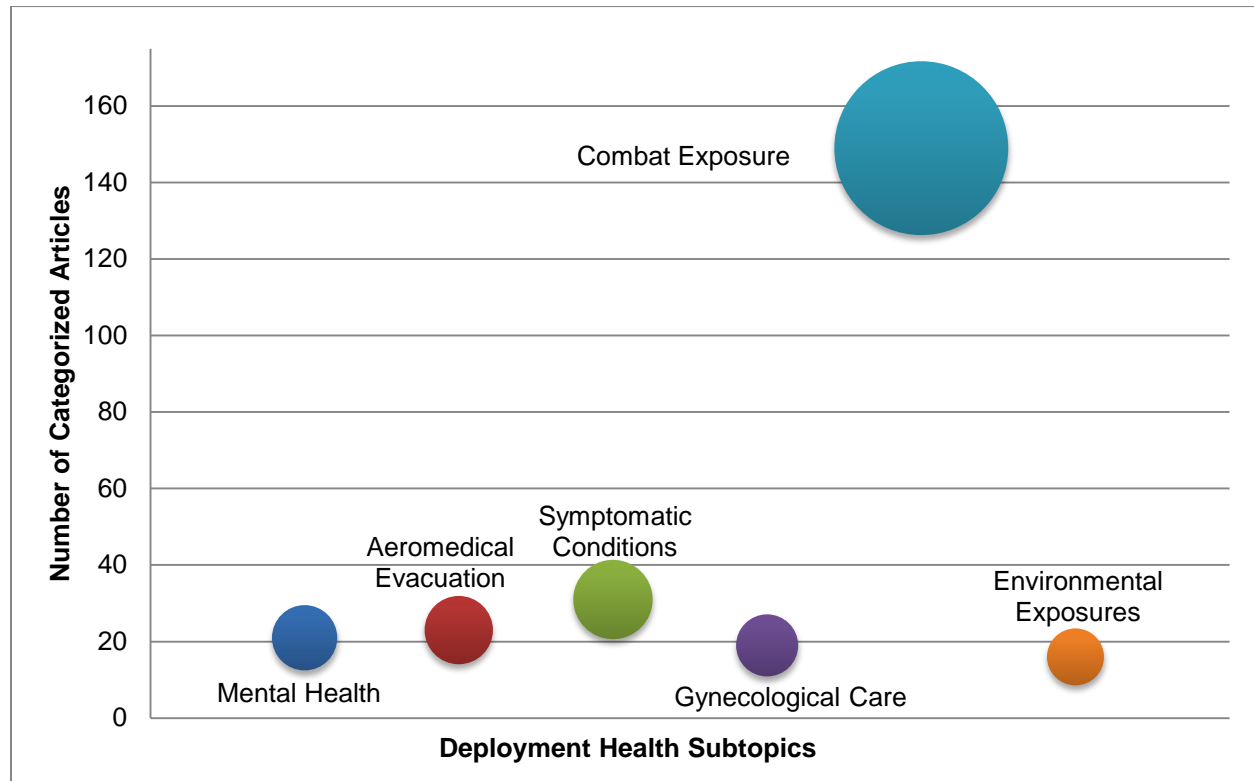


Figure 30. Number of articles categorized in each subtopic of the Deployment Health topic.

Combat Exposure: Any article related to exposure to combat during deployment

Symptomatic Conditions: Any article related to any illness that occurred during deployment, did not include injuries

Aeromedical Evacuation: Any article related to aeromedical evacuation from a deployment setting, included evacuation not both combat and non-combat related injuries or illnesses

Mental Health: Any article related to mental health during deployment, included access to care or factors that impacted the mental health of deployed service members

Gynecological Care: Any article related to gynecological care during deployment, included access to care or necessary supplies

Environmental Exposures: Any article related to environmental exposures during deployment

Research topic array. The subtopic with the highest number of articles by far in the Deployment Health category was Combat Exposures ($n = 149$). This subtopic included many

articles investigating linkages between combat exposures and mental health outcomes, such as post-traumatic stress disorder (PTSD), disordered eating, and suicidal ideation. This subtopic also had a number of articles relating to physical injuries, including TBI. The second largest subtopic was Symptomatic Conditions ($n = 31$); these articles included research on diagnosed conditions that deployed service members were treated for in a deployed setting. Diagnosed conditions included urinary tract infections, headaches, and upper respiratory infections.

All of the other four subtopics contained a smaller number of articles (range: 16-23). Articles on aeromedical evacuation related to transporting active duty members out of the deployed setting. Both the mental health and gynecological care subtopics particularly described these types of healthcare for service members in the deployed setting. Articles on environmental exposures reflected a wide range of exposures including open air burn pits, vehicle exhaust, and sand.

The overall number of articles for the Deployment Health subtopics was surprisingly low, with the exception of Combat Exposure. Service men and women face a multitude of exposures and situations that can affect their health, even when they are not facing direct combat on a deployment. Additional exposures and effects on health during deployment need to be examined, as well as ongoing research into the effects of combat exposures.

Research quality. Within Figure 31, each Deployment Health subtopic was mapped to QIC scores. The subtopic with the highest percentage of excellent quality of articles was Aeromedical Evacuation (39%). Within this subtopic, articles consistently received high scores in the Reliability and Appropriateness domains. Considering the nature of emergency healthcare, especially in combat zones, the quality of these articles reflects an interest in the efficient and safe evacuation of service members from the operational theater. Combat exposure had the second highest percentage of excellent quality articles (36%). The percentage of low quality articles (5%) was very small when considering the large total number of articles in this subtopic ($n = 149$). Many of the articles used validated instruments to measure combat exposure, and scored full points within the transparency and cogency quality domains.

Deployment Health	# of articles	% of Deployment Health Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Combat Exposure	149	57.5	53	5%	59%	36%
Symptomatic Condition	31	12	4	13%	74%	13%
Aeromedical Evacuation	23	8.9	9	4%	57%	39%
Mental Health	21	8.1	6		71%	29%
Gynecological Care	19	7.3	2	21%	68%	11%
Environmental Exposures	16	6.2	5	13%	56%	31%
Total	259	100	79	7%	62%	31%

Figure 31 . Deployment Health article quality by subtopic. Categorized articles are not mutually exclusive and may include one or more subtopics.

The subtopic area with highest percentage of low quality articles (21%) was gynecological care; this topic also had the lowest percentage of excellent quality articles (11%). Many articles within this subtopic lost points by not using validated instruments, as well as by not stating study limitations, or providing specific demographic information. This is concerning; the number of women serving in the military is continues to increase. Within the area of gynecological health, proper preventive care and treatment are of utmost importance to the health of deployed female service members specifically, as well as the health of the overall force.

Social Relationships. The Social Relationships topic covered all articles that related to social relationships, both positive and negative, among military members and their families. Figure 32 represents a bubble plot of the articles within this main topic area. There were seven subtopics within the Social Relationships topic. A brief description of each of these subtopics can be found below.

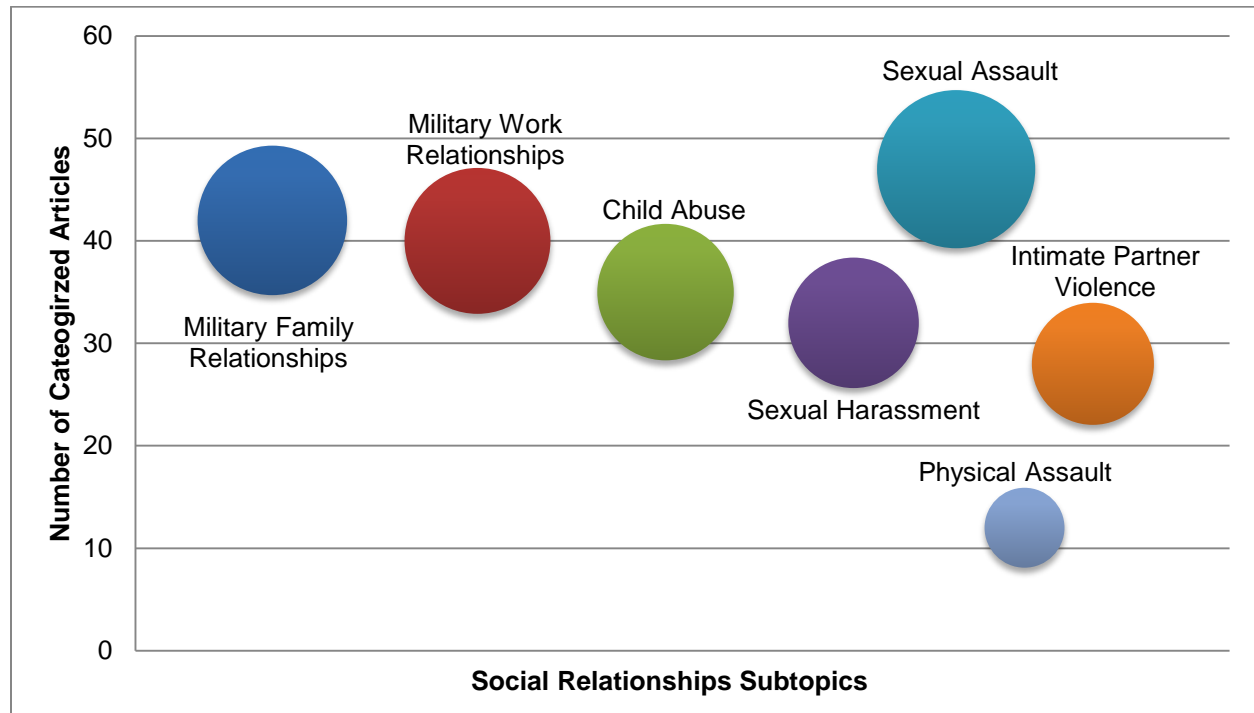


Figure 32. Number of articles categorized in each subtopic of the Social Relationships topic.

Sexual Assault: Any article related to sexual assault experienced or perpetrated by military populations, included military sexual trauma

Military Family Relationships: Any article related to social relationships between military members and their families, did not include child abuse or intimate partner violence

Military Work Relationships: Any article related to social relationships between military members and either other military service members or their civilian co-workers

Child Abuse: Any article related to the child abuse; included physical, emotional, and sexual maltreatment or abuse victimization and perpetration, and adult aftereffects of child abuse

Sexual Harassment: Any article related to sexual harassment experienced or perpetrated by military populations

Intimate Partner Violence: Any article related to physical violence experienced or perpetrated by military members and/or their spouse/romantic partner

Physical Assault: Any article related to violence experienced or perpetrated by military members, excludes violence from/against partners or children

Research topic array. With 144 (7.2%) peer-reviewed articles, Social Relationships was one of the smaller topics reviewed in this scoping review. The Sexual Assault subtopic had the largest number of peer-reviewed articles within this topic (n=47, 19.9%). These articles included research on the prevalence and impact of sexual assault experienced or perpetrated before and during military service. There were also 32 articles (13.6%) on Sexual Harassment.

Military families also play an important role in the health and readiness of service members. This is reflected in the percentage of articles that have been published on Military Family Relationships. This subtopic had the second largest number of articles published within the area of Social Relationships (n=42, 17.8%). The Military Family Relationships subtopic included research in areas such as marriage satisfaction, the impact of social support, and family stress. Work relationships can also impact the health and readiness of service members. Approximately 16.9% (n=40) of all Social Relationships articles were about Military Work Relationships. These articles included research about issues such as work stress, unit cohesion, and the impact of leadership.

Research quality. Within Figure 33, all Social Relationships subtopics were mapped to QIC scores. With an average overall quality score of 84.3%, the Social Relationships topic had the highest quality rating among the eight reviewed topic areas. Within every subtopic, at least 33% of articles received an excellent quality score; 50% of articles about both Intimate Partner Violence (n=14) and Physical Assault (n=6) received an excellent quality score. There were also two subtopics (Intimate Partner Violence and Child Abuse) that had no low quality articles. The largest percentage of low quality articles (15%) was in the Military Work Relationships subtopic. All but one of the low quality articles in the Military Work Relationships subtopic lost points in the Validity dimension of quality because they failed to use valid instruments during data collection. Researchers should attempt to use valid instrumentation in the future to allow for comparable findings across studies, thereby increasing the quality and generalizability of their findings.

Social Relationships	# of articles	% of Social Relationship Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Sexual Assault	47	19.9	16	13%	53%	34%
Military Family Relationships	42	17.8	14	10%	57%	33%
Military Work Relationships	40	16.9	14	15%	50%	35%
Child Abuse	35	14.8	16		54%	46%
Sexual Harassment	32	13.6	13	9%	50%	41%
Intimate Partner Violence	28	11.9	14		50%	50%
Physical Assault	12	5.1	6	8%	42%	50%
Total	236	100	93	8%	52%	39%

Figure 33. Social Relationships article quality by subtopic. Categorized articles are not mutually exclusive and may include one or more subtopics.

Obstetrics and Gynecology. The Obstetrics and Gynecology (Ob/Gyn) topic included all articles related to reproductive, maternal, and infant health. Figure 34 represents a bubble plot of the articles within this main topic area. While a majority of the subtopics in this area were specific to female-only samples, the Fertility, Sexual Health, Contraception, and Urological Health subtopics were inclusive of adult male samples. There were sixteen subtopics within the Ob/Gyn topic. For ease of data visualization, several of these subtopics were collapsed under broader headings, as noted under Figure 34. A brief description of each of these subtopics can be found below.

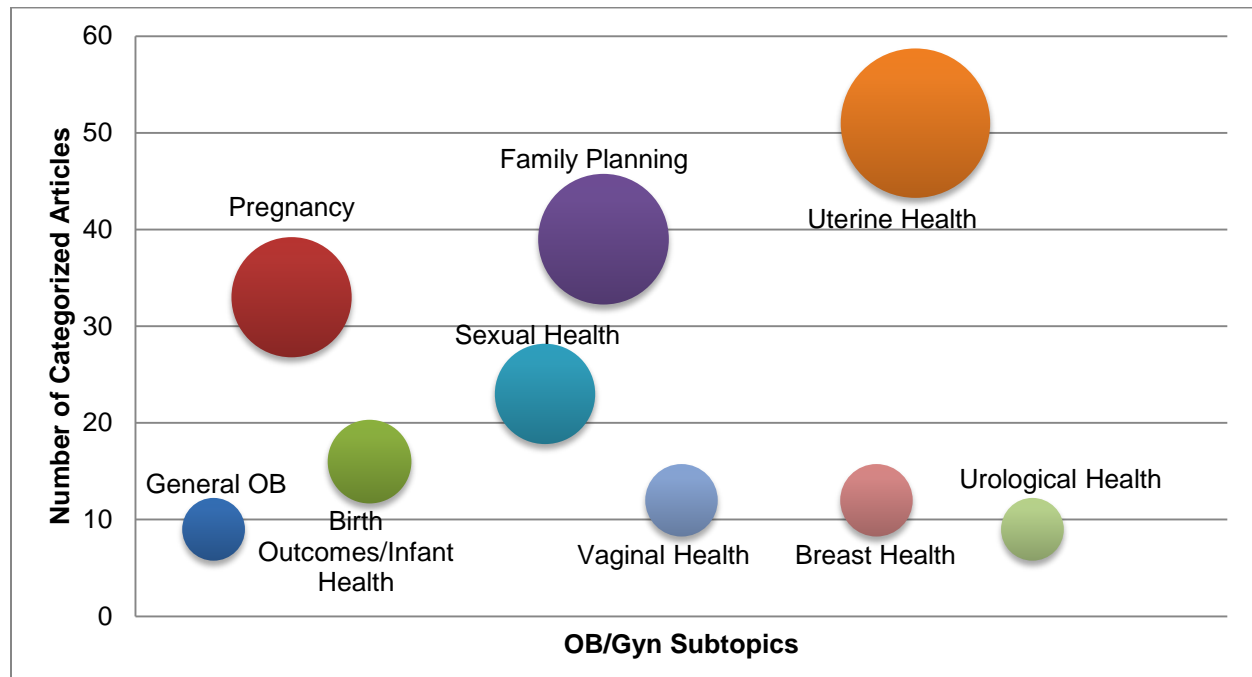


Figure 34. includes all Postpartum, Antepartum, and Intrapartum subtopic articles. Family Planning includes all Contraception, Unplanned Pregnancy, and Fertility subtopic articles. Uterine Health includes all Uterine Wellness, Menstruation, and Menstrual Suppression subtopic articles.

Contraception: Any article related to contraception used for any purpose (e.g. birth control, menstrual suppression), included the use of male condoms

Uterine Wellness: Any article related to health outcomes involving the uterus or cervix, included pap smears

Sexual Health: Any article related to sexual behaviors, sexual education, or sexual health interventions. This subtopic did not contain articles on sexually transmitted infections (covered in Acute Care & Preventive Medicine) or human immunodeficiency virus infections (covered in Chronic Illness).

Menstruation: Any article related to menstruation, but not menstrual suppression

Menstrual Suppression: Any article related to menstrual suppression and/or regulation

Postpartum: Any article related to medical care given following the delivery of the child

Antepartum: Any article related to medical care given during pregnancy but before delivery of the child

Intrapartum: Any article related to medical care given from the onset of labor to delivery

Birth Outcomes/Infant Health: Any article related to the delivery of the baby, and health outcomes for both the mother and baby. This subtopic also included articles about the association of birth defects with certain exposures (e.g. vaccines, deployment).

Vaginal Health: Any article related to this specific part of the female genital tract, as well as related conditions and diseases

General Obstetrics: Any article related to the non-medical care aspects of pregnancy, such as pregnancy intention

Urological Health: Any article related to male and female urinary tracts and related medical conditions, such as urinary tract infections (UTIs) and urinary stones

Unplanned Pregnancy: Any article related to rates and prevention of unintended pregnancies

Breast Wellness: Any article related to breast cancer and breast examinations, such as mammograms

Breastfeeding: Any article related to breastfeeding practices, including rates of breastfeeding among military women or qualitative studies of breastfeeding experiences

Fertility: Any article related to the desire to get pregnant, as well as rates of infertility among active duty service women

Research topic array. Within the Ob/Gyn topic, the largest single subtopic with the greatest number of articles was the Contraception subtopic ($n=29$, 14.2%). These articles focused on different types of contraception given to women (and sometimes men), as well as participants' knowledge and attitudes towards contraceptive use. This is an important and operationally relevant topic for both male and female service members. The DoD has provided guidance on pre- and post-deployment contraceptive counselling which should be provided to service members, as well as instructing that contraceptive counselling be given during deployment healthcare visits also (DoD, 2016). Women have legitimate health reasons to use birth control over and above pregnancy prevention, such as for menstrual suppression during deployment.

The single subtopic with the second largest number of articles was Uterine Wellness ($n=24$, 11.8%). Articles included in this subtopic dealt with rates of uterine fibroids, hysterectomies, and myomectomies. The subtopic with the third largest number of articles was Sexual Health ($n=23$, 11.3%). Examples of articles included in this subtopic were articles on sexual concerns, sexual health information needs, and sexual health programs. These three single subtopics are closely aligned; knowledge about contraception, and availability of contraception, likely impact decision making processes related to sexual health and uterine health (World Health Organization (WHO), 2014).

The two subtopics with the smallest number of published articles were Breastfeeding ($n=5$, 2.45%) and Fertility ($n=3$, 1.47%). Articles relating to the Breastfeeding subtopic included research on

breastfeeding practices, breastfeeding experiences, and rates of breastfeeding. The scant number of articles on this topic signifies a lack of scientific knowledge on breastfeeding within the military population. Additionally, there may be barriers to breastfeeding within the military population, despite breastfeeding-specific directives (Department of the Army, 2015). A recent survey of women’s healthcare services demonstrated low rates of breastfeeding in U.S. military hospitals (GAO, 2016). The Fertility subtopic included research on female and male infertility, and the delivery of reproductive healthcare.

Research quality. Within Figure 35, all Ob/Gyn subtopics were mapped to QIC scores. The average quality score for articles in the Ob/Gyn topic was 78.8% (good quality). Overall, the average number of low quality articles was 29% across the Ob/Gyn topic.

OB/Gyn	# of articles	% Of OB/Gyn Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Contraception	29	14.2	6	31%	48%	21%
Uterine Wellness	24	11.8	4	33%	50%	17%
Sexual Health	23	11.3	3	13%	74%	13%
Menstruation	17	8.3	3	47%	35%	18%
Menstrual Suppression	10	4.9	1	60%	30%	10%
Postpartum	16	7.8	1	19%	75%	6%
Antepartum	11	5.4	1	27%	64%	9%
Intrapartum	6	2.9	0	50%	50%	
Birth Outcomes/Infant	16	7.8	1	25%	69%	6%
Vaginal Health	12	5.9	1	42%	50%	8%
General OB	9	4.4	1	22%	67%	11%
Urological Health	9	4.4	2	22%	56%	22%
Unplanned Pregnancy	7	3.4	0	29%	71%	
Breast Wellness	7	3.4	3		57%	43%
Breastfeeding	5	2.5	0	40%	60%	
Fertility	3	1.5	1		67%	33%
Total	204	100	28	29%	57%	14%

Figure 35 . OB/Gyn article quality by subtopic.

Categorized articles are not mutually exclusive and may include one or more subtopics.

The subtopic with the largest percentage of excellent quality articles (43%) was Breast Wellness ($n=7$); this subtopic also had no low quality articles. The overall quality of the articles in this subtopic is encouraging, although the number of articles is quite small. In comparison, the Breastfeeding subtopic ($n=5$) had no excellent quality articles, and a significant proportion of low quality articles (40%). When juxtaposing these two subtopics, which both contributed to the Breast Health heading, it is clear that there is a striking difference in quality. However, due to the small amount of articles included in the collapsed subtopic ($n=12$), it is difficult to make concrete inferences from the data; further research is warranted to provide greater statistical context.

Other subtopics with no excellent quality articles were Intrapartum ($n=6$) and Unplanned Pregnancy ($n=7$). These subtopics, as well as the Breastfeeding subtopic, had rates of low quality that ranged from almost 30% to 50%. More than half of the articles included in these three subtopics failed to gain points in the quality domains of transparency and validity. Compared to all other major topic areas, Ob/Gyn had the highest percentage of low quality articles, and the smallest percentage of excellent quality articles. The quality of this existing research on the reproductive health of service women is concerning.

Chronic Illness. The Chronic Illness topic covered all articles related to chronic illness among service members. Figure 36 represents a bubble plot of the articles within this main topic area. Brief descriptions of the six subtopics can be found below.

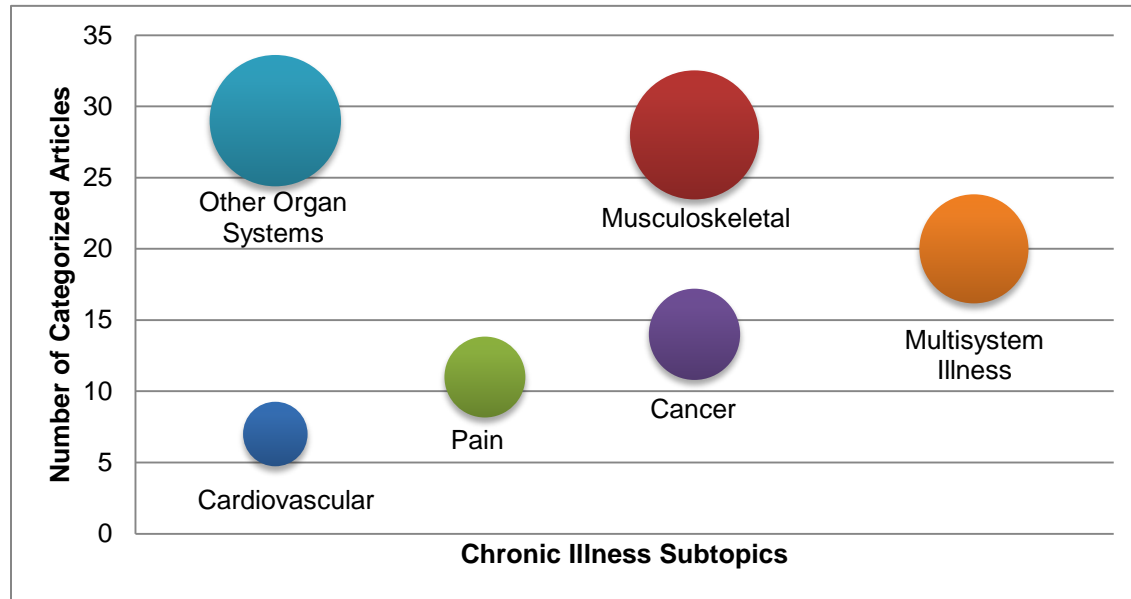


Figure 36. Number of articles categorized in each subtopic of the Chronic Illness topic.

Other Organ Systems: Any article related to chronic illness in other organ systems, such as kidney disease, lung disease, or prostatic disease

Musculoskeletal: Any article related to chronic musculoskeletal conditions (i.e. non-injury)

Multisystem Illness: Any article related to a non-specific chronic illness (e.g. Gulf War syndrome) or to a chronic illness that affects multiple body systems (e.g. HIV/AIDS, lupus)

Cancer: Any article related to diagnosis and treatment of any type of cancer

Pain: Any article related to diagnosis and treatment of chronic pain

Cardiovascular: Any article related to chronic cardiovascular disease, such as congestive heart failure, or coronary disease

Research topic array. Within the Chronic Illness topic, the largest number of articles were related to Other Organ Systems (n=29, 26.6%). This subtopic included articles about conditions such as hearing loss, headaches, and epilepsy. The second and third largest subtopics were the Musculoskeletal System (n=28, 25.7%) and Multisystem Illness (n=20, 18.3%). Articles related to the Musculoskeletal subtopic included research on osteoarthritis and degenerative disc disease. Of the twenty articles related to Multisystem Illness, twelve examined HIV and five examined chronic conditions potentially resulting from some type of environmental or occupational exposure (such as burn pits, jet fuel, or deployment during the Gulf War).

The subtopics with the smallest number of articles were Cancer (n=14, 12.8%), Chronic Pain (n=11, 10.1%) and the Cardiovascular System (n=7, 6.4%). The Cancer subtopic included articles related to any type of cancer. Examples of article topics within the Pain category included chronic low back pain, fibromyalgia, and greater trochanteric pain syndrome. Articles within the Cardiovascular subtopic included research on coronary heart disease, congestive heart failure, and cardiomyopathy.

Research quality. Within Figure 37, all Chronic Illness subtopics were mapped to QIC scores. The average quality score for articles within the Chronic Illness topic was 83% (i.e. good quality). The subtopic with the largest proportion of low quality articles was Multisystem Illness (35%). In this subtopic, 90% of articles did not use a theoretical or conceptual framework; many of them primarily focused on the epidemiology (e.g. incidence, prevalence, predictors, etc.) of conditions such as HIV and Gulf War Syndrome. This subtopic also lost points in the appropriateness and transparency domains. Within the transparency domain, 55% of articles did not include information about rank, and 45% neglected to include information about age. Within the appropriateness domain, 35% of articles lacked information about female sample size. Within the cogency domain, 40% of articles did not include information regarding study limitations. It is unclear why authors left out this information, but this is concerning from a quality standpoint.

Chronic Illness	# of articles	% of Chronic Illness Articles	# high quality articles	Article Quality (%)		
				Red=Low	Blue=Good	Green=Excellent
Other Organ Systems	29	26.6	7	3%	72%	24%
Musculoskeletal	28	25.7	14	4%	46%	50%
Multisystem Illness	20	18.3	2	35%	55%	10%
Cancer	14	12.8	4		71%	29%
Pain	11	10.1	3	9%	64%	27%
Cardiovascular	7	6.4	2	14%	57%	29%
Total	109	100	32	10%	61%	29%

Figure 37. Chronic Illness article quality by subtopic. Categorized articles are not mutually exclusive and may include one or more subtopics.

The Cancer subtopic consisted entirely of good quality or excellent quality articles. However, the Cancer subtopic was quite small (n = 14); this may be explained by the relative youth and health of the military population. The Musculoskeletal subtopic had the largest proportion of excellent quality articles (50%). Service members engage in both occupational and recreational activities that may increase their risk for developing chronic musculoskeletal conditions. The high quality of the available research on chronic illness in this population strengthens the generalizability and reliability of the results therein and can provide a platform for informed decision-making.

Limitations

Due to the broad scope of this study, and the large number of articles reviewed, several limitations are worth noting. A comprehensive literature search was performed using an extensive list of key terms; however, it is possible that some peer-reviewed articles were not captured. Moreover, the unique goals and applications of military research may preclude the publication of research findings in most peer-reviewed journals, resulting in a considerable repository of grey literature that is not publicly accessible.

Data for each article was extracted by research staff with varying degrees of experience and subject matter expertise; quality assurance measures were employed to ensure reliable extraction. For example, one of the senior investigators randomly reviewed 10% of all Level 3 data extraction forms, cross-checking results with the primary reviewer. Discrepancies were discussed, and a consensus was reached. Similarly, 10% of the article categories (i.e. topics and subtopics) were reviewed by the primary reviewer, one of the senior investigators, and a third team member. Discrepancies were discussed, and the senior investigator made the final determination in the event of disagreement. Articles were categorized according to their primary foci; however, topics and subtopics were not mutually exclusive. As a result, the weighting of topics and subtopics within the peer-reviewed literature might have been skewed. It is important to note here that science is often an interdisciplinary endeavor; the resulting articles encompass a wide array of subject areas and primary author disciplines.

Also of note, at the time of this study no existing quality instrument met the unique needs of the project. The instrument that was developed for this project (the QIC) was adapted from several existing quality instruments, and has not been assessed for validity or reliability. Because of this, it is possible that the QIC was biased towards particular topics and research designs. The team attempted to address this by developing scoring systems for different research designs, and scaling scoring when certain indicators were not appropriate. For a detailed explanation of scoring system adaptations, please refer to Appendix H. The QIC used in this study is just one 'snapshot' method of assessing the quality of articles; a diligent reader will have time and opportunity to make a more nuanced quality assessment. The QIC is the first instrument of its kind within the scoping review literature; achieving a balance between accuracy and reproducibility was essential when evaluating the 979 articles included within this project.

Methods - Question 3: Are there Differences in Healthcare Utilization by Gender?

To answer the third key question of this report, “What are the differences in healthcare utilization by gender?” the team extracted population level data on all medical diagnoses given to service members during 2014 (which was the most recent information available at the time of data collection). Data was obtained from the Defense Medical Epidemiology Database (DMED). Detailed prescription data for active duty personnel in 2010 (which was the most recent information available to the team at the time of data collection) was also collected from the Pharmacy Data Transaction Service (PDTs). Methods for extraction and evaluation of diagnostic and pharmaceutical data are described below.

DMED Diagnostic Data

Population selection. All service members that served on active duty in the U.S. military and were seen for a qualifying medical encounter between 1 January 2014 and 31 December 2014 were included in the population. Qualifying medical encounters were (1) inpatient or outpatient encounters reimbursed by the TRICARE Management Activity, and (2) the first occurrence of a primary diagnosis during the above specified time period. In select cases, the first occurrence option was not available, and “all occurrences” of a diagnosis were used instead. Data was obtained for U.S. Air Force, Army, Marine Corps, and Navy populations.

Data extraction. Data was obtained from the Defense Medical Epidemiology Database (DMED), derived from the Defense Medical Surveillance System (DMSS). DMSS is a comprehensive repository of all medical, personnel and deployment data for all service members. DMED is a de-identified database allowing for the querying of all active duty service members’ medical data. DMED includes the International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9) medical diagnoses that were reimbursed by the TRICARE Management Activity.

The ICD-9 is a systematic way to categorize and group disease entities. The largest ICD-9 grouping is a chapter, and examples of these include the Mental Disorders chapter, the Neoplasms chapter, and the Injury and Poisoning Chapter. Within each chapter there are smaller diagnostic clusters called categories. For example, a category within the Mental Disorders chapter is personality disorders. Within each category there are subcategories; within personality disorders, two subcategories are ‘schizoid personality disorder’ and ‘other personality disorders.’ When even more detail is needed, subclassifications are used; within ‘other personality disorders’ several subclassifications exist, including “narcissistic personality disorder” and “borderline personality disorder.” Throughout the report, the ICD-9 nomenclature of chapters, categories, subcategories, and subclassifications will be used. ICD-9 information was available for medical encounters within an MTF, as well as encounters paid for by TRICARE in an off-base setting.

DMED also includes demographic and military service information. DMED data are de-identified and presented in an aggregate format, displaying both counts and rates, with the total population

strength or service specific strength as the denominator. All of the information reported on DMED reflects data from calendar year 2014. Data was extracted by sex (male and female), rank (enlisted and officer), medical care setting (ambulatory and hospitalized), and branch of service (Army, Navy, Air Force, & Marine Corps). For each ICD-9 diagnostic category, data was pulled in all possible combinations (e.g. outpatient, female, enlisted, Army; outpatient, male, enlisted, Army).

Analyses of data. Preliminary exploratory work was carried out on 15 of the 17 ICD-9 diagnosis categories. Two diagnostic categories were excluded as they related to female-specific conditions, and could not be compared between the sexes. The following two classes of diagnoses were excluded: (1) complications of pregnancy, childbirth, and puerperium, and (2) conditions originating in the perinatal period.

Rates were calculated per 1,000 person-years and the risk ratio between females and males was calculated and tested for a significant difference. If a condition had a very small sample size (i.e. fewer than 30 cases for either females or males), statistical analyses were not conducted due to the potential instability of the calculations (Klein, Proctor, Boudreault, & Turczyn, 2002).

After completion of preliminary analyses, the team examined classes of diagnosis codes with high frequencies. Additional in-depth analyses were conducted for the following categories: (1) mental disorders, (2) diseases of the musculoskeletal system and connective tissue, and (3) injury and poisoning. In sub-analyses, specific diagnoses in each category were queried to further explore areas of interest identified in the scoping review. Additionally, sub-analyses were conducted if large numbers of cases were noted in an ill-defined category (such as “other, not elsewhere specified”) to gain further detail and clarity on these diagnoses.

Quality assurance. Data quality was assured through the use of DMED, a reliable and trustworthy data source. Information in the database was captured through the use of insurance medical reimbursement data. All data pulls were captured with a preserved copy of the information viewed and archived. To assure data quality and consistency, all data was entered and checked for accuracy by two individuals. The data analysis team had weekly meetings to ensure that all team members were aware of the overall analytic plan; any data questions were discussed and resolved.

PDTS Pharmaceutical Data

Population selection. The PDTS is a centralized database that includes a comprehensive profile of all medications received by DoD beneficiaries across all service branches (Health.mil). All prescriptions obtained by active duty personnel between January 1st, 2010 and December 31st, 2010 were included in the data analysis. All prescriptions across all service branches were included if they had been reimbursed by the TRICARE Management Activity.

Data extraction. The Pharmacy Data Transaction Service (PDTS) is part of the DoD Military Health System (MHS). PDTS includes pharmaceutical issuance data from military treatment facilities, retail, and mail pharmacies that are reimbursed through TRICARE. The following PDTS data fields were extracted: Sponsor ID (SSN), Beneficiary Category, Gender, Branch of Service, Product Name, Therapeutic Class Category (TCC), and Issue Date. PDTS prescription data is

categorized based the American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic Classification System (PTCS) (AHFS Clinical Drug Information, 2017). This system groups medications with similar pharmacologic, therapeutic, and/or chemical characteristics. The list of 30 PDTS therapeutic class categories can be seen in Table 9.

Table 9
Therapeutic Class Categories

Prescription Types	
Antihistamines	Gastrointestinal Drugs
Anti-Infectives	Gold Compounds*
Antineoplastic Agents	Heavy Metal Antagonists*
Autonomic Drugs	Hormones and Synthetic Substitutes
Blood Derivatives*	Local Anesthetics
Blood Formation/Coagulation/ Thrombosis Agents	Medical Devices
Cardiovascular Drugs	Miscellaneous Therapeutic Agents
Central Nervous System Drugs	Oxytocics*
Contraceptives	Pharmaceutical Aids
Diagnostic Agents	Radioactive Agents*
Dental Agents*	Respiratory Tract Agents
Disinfectants (non-dermatologic use)*	Serums, Toxoids, and Vaccines
Eye, Ear, Nose and Throat Preparations	Skin and Mucous Membrane Preparations
Enzymes*	Smooth Muscle Relaxants
Electrolytic, Caloric, and Water Balance	Vitamins

Note. *= Excluded from further analysis

The research team then excluded prescriptions in the gold compound, heavy metal antagonist, enzyme, dental agents, blood derivatives, disinfectants, and radioactive agent categories due to the scant amount of prescriptions issued in these categories, which precluded calculations of statistically significant rate ratios. Oxytocics were also excluded because only women received prescriptions in this category. Therefore, a total of 22 therapeutic class categories were analyzed. Some medications were recoded based on active ingredient. For example, Motrin and Advil (which are trade names) were recoded to Ibuprofen, which is the generic name reflecting the active medication ingredient.

Analyses of data. Data in calendar year 2010 were stratified by gender, and branch of service. Only the first issued prescription within each therapeutic class was used to obtain data on therapeutic classification frequencies. For example, if a service member received prescriptions for

acetaminophen and ibuprofen (both within the Central Nervous System Drug classification), this would only be counted once. However, when assessing frequencies for specific prescriptions, each unique prescription issued *for the first time* in the calendar year was included. If a service member was issued refills for a specific prescription within the calendar year, those refills were not counted.

To calculate prescription rates by total DoD force strength, as well as by individual service branch, calendar year 2010 data was retrieved from DMED, which included only active duty personnel. Frequencies for each class were divided by total number of active duty personnel and multiplied by 1,000 (i.e., [number of prescriptions from PDTS/population size from DMED] \times 1,000) to reflect prescription rates per 1,000 active duty personnel. Descriptive statistics and frequencies were calculated using IBM SPSS 23.0 for Windows (SPSS, Chicago, Illinois).

Quality assurance. To assure data quality and consistency, the research team had weekly meetings to ensure that all team members were aware of the overall analytic plan; any data questions were resolved by the senior investigator. All programming to recode prescription names was double-checked for accuracy by a second team member, and statistical analyses were performed by two individuals to ensure that all results matched.

Results and Discussion - Question 3: Are there Differences in Healthcare Utilization by Gender?

Results presented in this section reflect service member healthcare utilization data from calendar year 2014 and pharmacy prescription data from calendar year 2010. Results and discussion for healthcare utilization data from DMED is presented first. An overall summary of all utilization data is followed by more detailed descriptions from selected ICD-9 chapters described in the Question 3 methods section above. Results and discussion for each DMED data section are presented for outpatient encounters by rank, gender, and branch of service, followed by inpatient encounters by rank, gender, and branch of service. The sections are presented in the following order: 1) Overall health services usage, 2) Analysis of Mental Disorders, 3) Analysis of Musculoskeletal Disorders, 4) Analysis of Injury and Poisoning. Results and discussion for pharmacy prescription data from the PDTS database follow. Analyses of prescriptions within each of the 22 therapeutic drug classes described in the Question 3 methods section are presented by gender and branch of service.

DMED Overall Health Services Usage by Gender

Outpatient setting. Table 10 shows the top 5 ICD-9 diagnosed chapters for enlisted personnel overall, as well as split out for men and women. It is important to note that for this section on overall utilization, ICD-9 Diagnostic Chapter data was only available for all occurrences; this resulted in non-mutually exclusive data and some rates over 1,000 per 1,000 person-years. Among enlisted personnel, the ICD-9 chapter with the largest number of cases in an outpatient setting was Diseases of the Musculoskeletal System and Connective Tissue (hereinafter referred to in text, tables, and figures as the “Musculoskeletal Disorders” chapter).

Table 10

Top Five Most Commonly Diagnosed Outpatient ICD-9 Chapters for Enlisted Personnel

ICD-9 Diagnostic Chapter	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Musculoskeletal Disorders	2,495,473	1.5	516,228	3,175.7	1,979,245	2,106.5
Mental Disorders	1,742,614	1.6	383,142	2,357.0	1,359,472	1,446.9
Symptoms, Signs, and Ill-Defined Conditions	1,383,381	1.9	336,981	2,073.0	1,046,400	1,113.7
Diseases of the Nervous System and Sense Organs	841,822	1.2	142,579	877.1	699,243	744.2
Injury and Poisoning	700,483	1.1	114,279	703.0	586,204	623.9

Note. ICD-9 Diagnostic Chapter data was only available for all occurrences; this resulted in non-mutually exclusive data and some rates over 1,000 per 1,000 person-years.

Figure 38 shows the top five diagnosed chapters for female enlisted service members, along with side-by-side male comparison data. The top four chapters for women were the same as those for men; the fifth highest chapter for men was Injury and Poisoning.

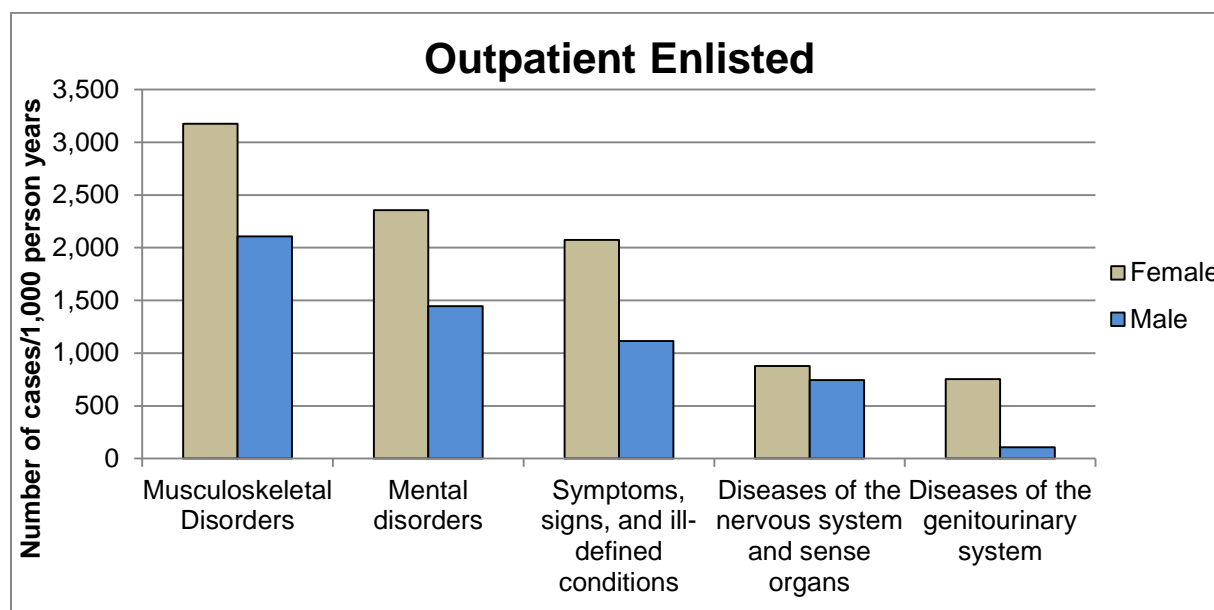


Figure 38. Top five diagnosed ICD-9 chapters for outpatient enlisted females, alongside male comparison data.

Table 11 shows the top five diagnosed chapters for officers overall, as well as split out for women and men. Among officers in an outpatient setting, the most highly diagnosed chapter was Musculoskeletal Disorders (paralleled in the enlisted data).

Table 11

Top Five Most Commonly Diagnosed Outpatient ICD-9 Chapters for Officer Personnel

ICD-9 Diagnostic Chapter	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Musculoskeletal Disorders	502,118	1.4	110,665	2,814.4	391,453	1,982.0
Symptoms, Signs, and Ill-Defined Conditions	277,279	1.8	72,228	1,836.9	205,051	1,038.2
Nervous System and Sense Organs	198,126	1.1	34,895	887.4	163,231	826.4
Mental Disorders	168,336	2.0	48,769	1,240.3	119,567	605.4
Injury and Poisoning	107,976	1.1	19,708	501.2	88,268	446.9

Note. ICD-9 Diagnostic Chapter data was only available for all occurrences; this resulted in non-mutually exclusive data and some rates over 1 per person-year.

Figure 39 shows the top 5 diagnosed chapters for female officers, along with side-by-side male officer comparison data. The top four diagnostic chapters for female officers were the same as for males. The fifth highest chapter for male officers was Injury and Poisoning (paralleling the male enlisted outpatient data).

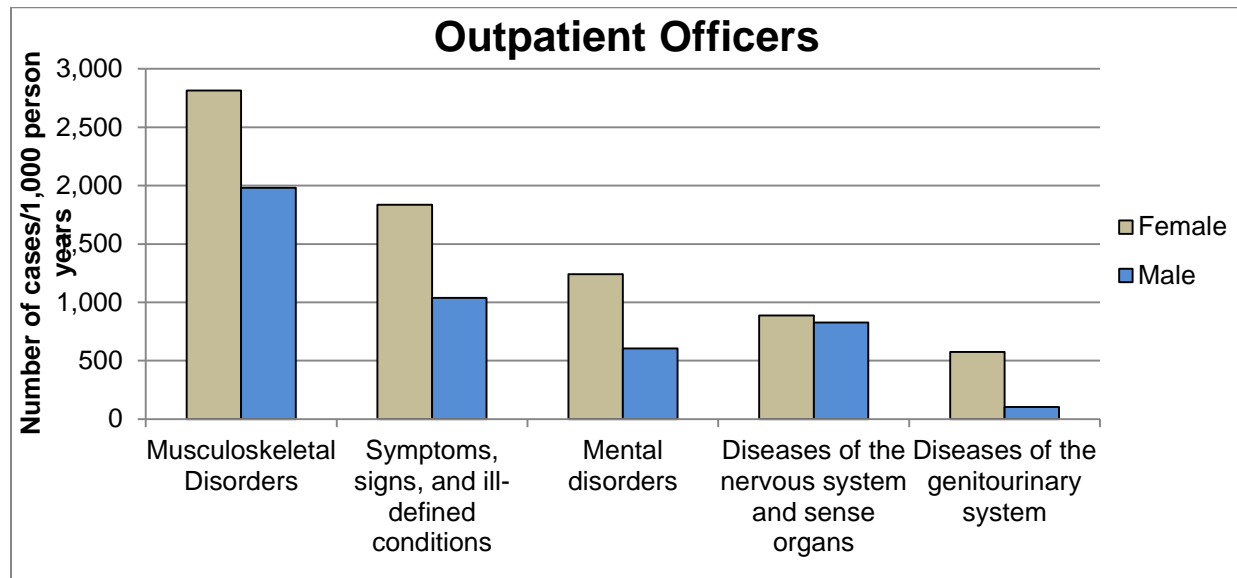


Figure 39. Top five diagnosed ICD-9 chapters for outpatient female officers, alongside male comparison data.

For every one of the fifteen ICD-9 chapters, females overall (in an outpatient setting) were significantly more likely to be diagnosed than males. For thirteen out of fifteen diagnosed ICD-9 chapters, women were between 1.1 and 2.0 times more likely to be diagnosed with a condition in that chapter than men. Research has shown that women are up to two times more likely to seek healthcare overall than men (Sandman, Simantov, & An, 2000; Wang, Hunt, Nazareth, Freemantle, & Petersen, 2013).

ICD-9 chapter rate ratios of women to men in the outpatient setting. Figure 40 presents the two ICD-9 chapters where the rate ratio for women to men was over 2.0. The rate ratio of enlisted outpatient women to enlisted outpatient men was 3.0 for Diseases of the Blood and Blood-Forming Organs (ranked 15th overall); this means that women were diagnosed with blood-related diseases 3 times more often than men. Diseases of the Genitourinary System (ranked 8th overall) were diagnosed 7 times more in women than in men. Among female officers in an outpatient setting, the trends for number of cases and rate ratios were similar to female enlisted personnel. Diseases of the Genitourinary System and Diseases of the Blood and Blood-Forming Organs were significantly more likely to be diagnosed among women than men. These two ICD-9 chapters may highlight diagnostic clusters of concern for military women.

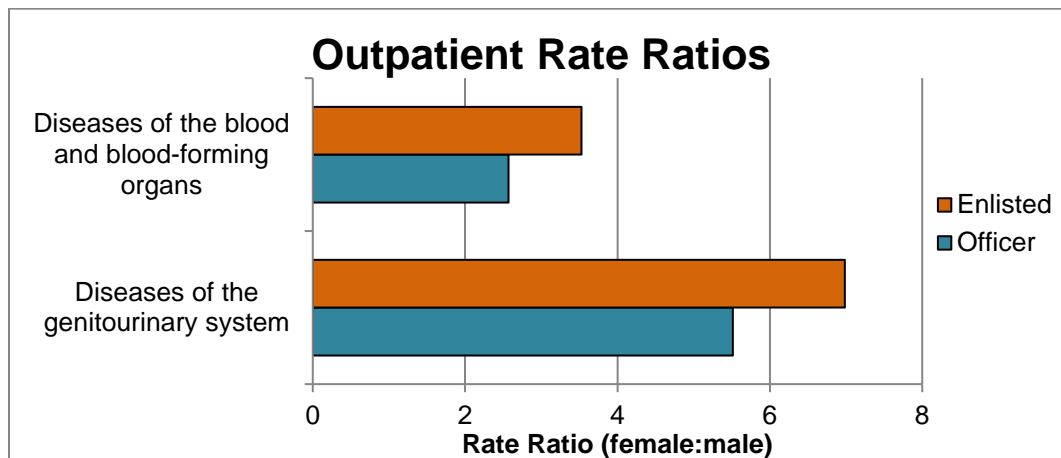


Figure 40. Rate ratios greater than 2 (female: male) for outpatient ICD-9 chapters.

Inpatient Setting. The top 5 diagnosed chapters for inpatient enlisted personnel overall, and by sex, are shown in Table 12. Among enlisted personnel in an inpatient setting, the most highly diagnosed ICD-9 chapter was Mental Disorders.

Table 12
Top Five Most Commonly Diagnosed Inpatient ICD-9 Chapters for Enlisted Personnel

ICD-9 Diagnostic Chapter	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Mental Disorders	15,047	1.5	3,042	18.7	12,005	12.8
Injury and Poisoning	6,497	0.9	834	5.1	5,663	6.0
Diseases of the Digestive System	5,553	1.3	1,023	6.3	4,530	4.8
Musculoskeletal Disorders	4,989	0.9	660	4.1	4,329	4.6
Symptoms, Signs, and Ill-Defined Conditions	2,880	1.6	616	3.8	2,264	2.4

Figure 41 shows the top five diagnosed chapters for inpatient female enlisted service members, alongside male comparison data. Four out of the top five diagnostic chapters for females were also in the top five diagnoses for males. The fifth highest chapter for men was Symptoms, Signs, and Ill-Defined Conditions.

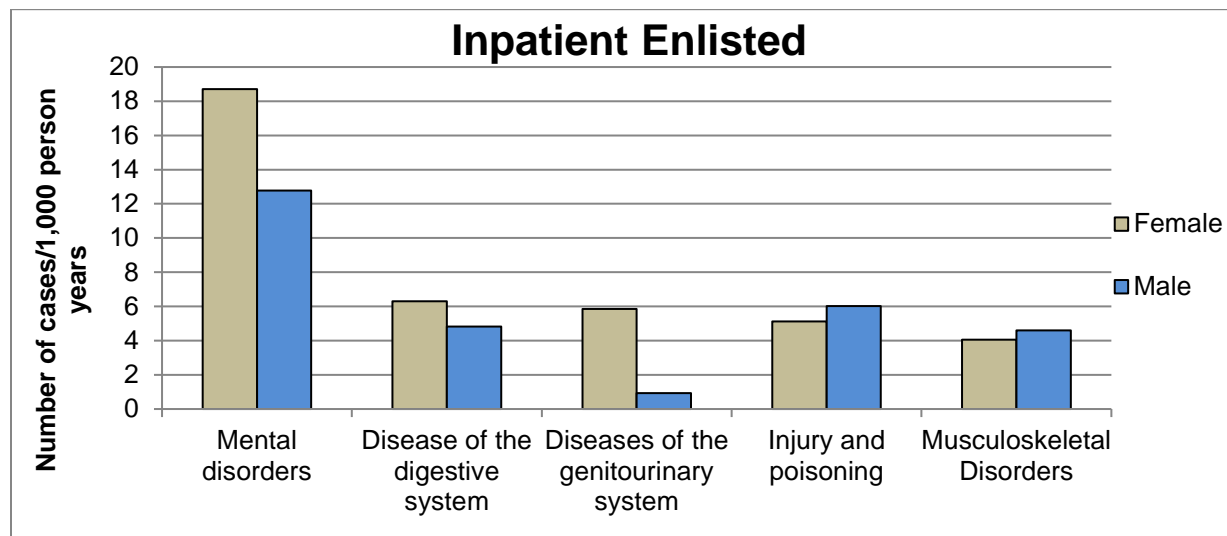


Figure 41. Top five diagnosed ICD-9 chapters for inpatient enlisted females, alongside male comparison data.

Table 13 shows the top 5 diagnosed chapters for officers overall, as well as split out for women and men. Among officers in an inpatient setting, the most highly diagnosed chapter was Musculoskeletal Disorders (a departure from the enlisted data).

Table 13
Top Five Most Commonly Diagnosed Inpatient ICD-9 Chapters for Officer Personnel

ICD-9 Diagnostic Chapter	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Musculoskeletal Disorders	1,122	1.0	191	4.9	931	4.7
Diseases of the Digestive System	963	1.2	185	4.7	778	3.9
Injury and Poisoning	874	0.8	126	3.2	748	3.8
Mental Disorders	861	1.7	218	5.5	643	3.3
Symptoms, Signs, and Ill-Defined Conditions	534	1.3	107	2.7	427	2.2

Figure 42 shows the top five diagnosed chapters for inpatient female officers; the most common diagnostic chapter was Neoplasms (again, a departure from the enlisted data). In the inpatient setting, all chapters were much less prevalent among officers than among enlisted personnel.

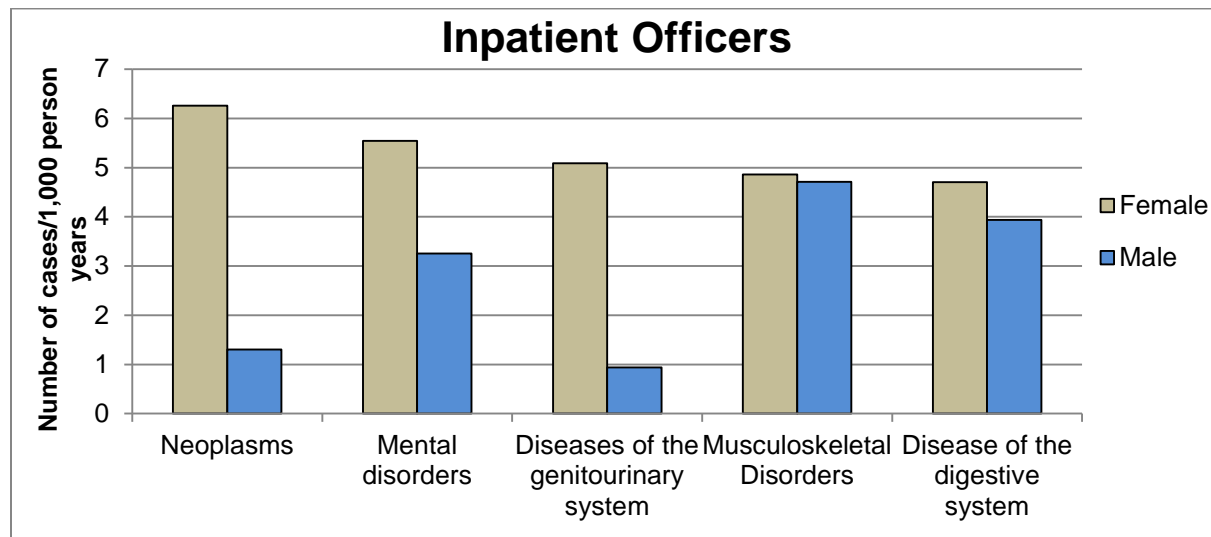


Figure 42. Top five diagnosed ICD-9 Chapters for inpatient female officers, alongside male comparison data.

ICD-9 chapter rate ratios of women to men in the inpatient setting. Figure 43 presents the four inpatient ICD-9 chapters where the rate ratio of women to men was over 2.0. These ICD-9 chapters may highlight diagnostic clusters of concern for women.

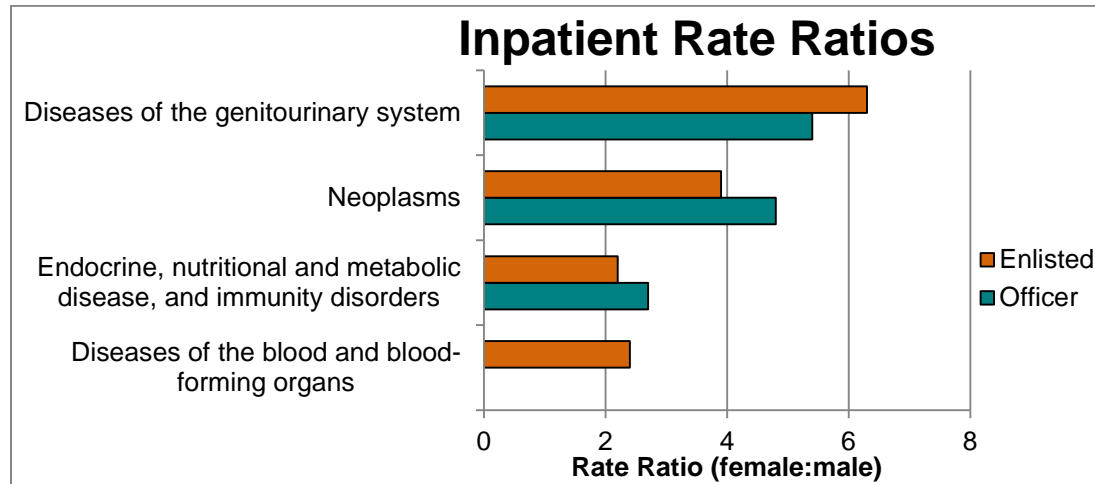


Figure 43. Rate ratios greater than 2 (female: male) for inpatient diagnosis chapters.

For enlisted women, Diseases of the Blood and Blood-Forming Organs (ranked 15th overall) was diagnosed 2.4 times more often in women than in men. Endocrine, Nutritional, and Metabolic Disease, and Immunity Disorders (ranked 13th overall), were diagnosed 2.2 times more often in enlisted women than in enlisted men; female officers were 2.7 times more likely to be diagnosed with a condition in this ICD-9 chapter than were male officers. Neoplasms (ranked 6th among officer personnel) were 4.8 times more likely to be diagnosed in female officers than in their male counterparts; for enlisted females, the diagnostic rate in this chapter was 3.9 times higher than for enlisted males. Diseases of the Genitourinary System (ranked 6th overall among enlisted personnel) was diagnosed 6.3 times more often in enlisted women than among enlisted men, and was 5.4 times more likely to be diagnosed in female officers than in male officers. This ICD-9 chapter (Diseases of the Genitourinary System) is more often diagnosed in women in both inpatient and outpatient settings, and across both enlisted and officer personnel.

Based on their higher number of cases in both inpatient and outpatient settings, three diagnostic ICD-9 chapters were further examined. These were: (1) Mental Disorders, (2) Musculoskeletal Disorders, and (3) Injury and Poisoning (which has a co-linear relationship with musculoskeletal concerns).

Further Analysis of the Mental Disorders ICD-9 Chapter

Outpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Mental Disorders chapter were calculated for enlisted and officer personnel in the outpatient ambulatory setting.

Counts and rates for enlisted personnel. Table 14 contains the most commonly diagnosed mental health conditions for outpatient enlisted service members overall, as well as split out for females and males. Adjustment reaction was the most commonly diagnosed condition in the Mental Disorders chapter.

Table 14

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel within the Mental Disorders Chapter

Outpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Adjustment reaction	47,358	1.7	10,618	65.3	36,740	39.1
Neurotic disorders	31,211	1.8	7,393	45.5	23,818	25.3
Depressive disorder, not elsewhere classified	19,393	2.0	5,029	30.9	14,364	15.3
Nondependent abuse of drugs	17,774	0.7	2,032	12.5	15,742	16.8
Affective psychoses	13,054	2.1	3,461	21.3	9,593	10.2

Note. ICD-9 Diagnostic Category data was available for first occurrence of each category; this resulted in mutually exclusive data and all rates fewer than 1,000 per 1,000 person-years.

Figure 44 shows the top 5 diagnosed conditions for female enlisted service members, alongside male data. The most commonly diagnosed conditions were almost identical for women and men.

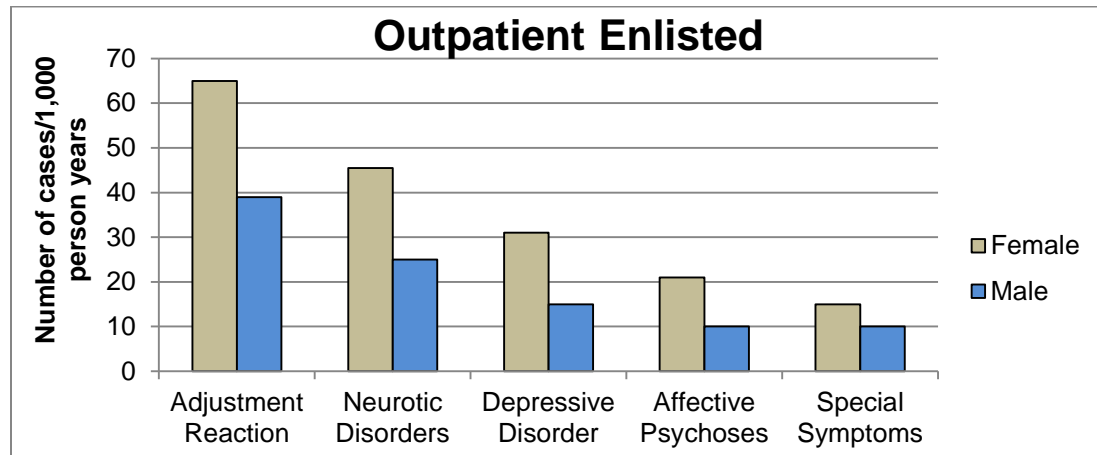


Figure 44. Top five diagnosed ICD-9 categories for outpatient enlisted females within the Mental Disorders chapter, alongside male comparison data.

For all services, the top 5 diagnoses were the same across female enlisted personnel, with slight rank order shifts between services.

Among male service members, the top 5 diagnoses were almost the same by branch, with slight rank order shifts. The only notable difference was among Navy and Marine Corps personnel; alcohol dependence syndrome (n = 1,782 male sailors and 1,441 male Marines) was one of the top 5 most common outpatient mental health diagnoses in these service branches.

In Table 15 (below), female to male rate ratios are shown by service branch, with the top three highlighted for each service. Personality disorders were in the top 3 outpatient conditions diagnosed more often for enlisted women than for enlisted men across all four service branches. Additionally, acute reaction to stress, depressive disorders, and affective psychoses were consistently diagnosed at least two times more often in women than in men across the services.

Table 15

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders Chapter for Enlisted Females by Service Branch

ICD-9 Diagnostic Category	Army (n = 410,835)	Navy (n = 266,237)	Air Force (n = 256,712)	Marine Corps (n = 168,346)
Physiological malfunction arising from mental factors	2.8	**	**	**
Acute reaction to stress	2.6	2.2	3.5	3.7
Personality disorders	2.1	3.4	2.5	4.8
Psychic factors associated with diseases classified elsewhere	1.8	3.8	2.1	**
Neurotic disorders	1.6	2.4	2.0	2.2
Depressive disorder	2.0	2.3	2.2	2.4
Affective psychoses	2.0	2.3	2.1	2.5

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. **= Numbers too small to test for significant difference.

For comparison, Table 16 shows the most diagnosed conditions within the ICD-9 chapter of Mental Disorders for enlisted men by branch of service. In comparison to women, men were more often diagnosed with alcohol dependence syndrome across the service branches shown.

Table 16

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders Chapter for Enlisted Males by Service Branch

ICD-9 Diagnostic Category	Army (n = 410,835)	Navy (n = 266,237)	Air Force (n = 256,712)
Sexual deviations and disorders	6.6	**	3.2
Other organic psychotic conditions organic	1.8	**	***
Alcohol dependence syndrome	1.7	1.5	1.5
Drug dependence	1.6	1.5	***
Nondependent abuse of drugs	1.4	1.2	1.3
Alcoholic psychoses	1.6	***	1.8

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. The Marine Corps had no more than 30 cases in both males and females; consequently no rate ratios are reported. **= Numbers too small to test for significant difference. ***= No significant difference between males and females in rate of diagnosis.

Further exploration of enlisted data. Of interest, the categories of adjustment reaction and neurotic disorders were investigated further as they were the top two diagnosed conditions within the outpatient Mental Disorders ICD-9 chapter. Among both male and female enlisted personnel, the most common diagnosis subcategory within adjustment reaction was adjustment reaction with predominant disturbance of other emotions (42.5 outpatient cases per 1,000 enlisted female person-years and 22.6 outpatient cases per 1,000 enlisted male person-years). The most common subcategory for neurotic disorders among women was anxiety states with a rate of 38.5 outpatient cases per 1,000 enlisted female person-years. Within the category of nondependent abuse of drugs, the two most common diagnoses among male enlisted service members were alcohol (9.01 per 1,000 person-years) and tobacco use disorder (7.75 per 1,000 person-years).

Drug dependency in enlisted men was investigated further and it was found that amphetamine and other psychostimulant dependence was the most common with 2.1 outpatient diagnoses per 1,000 enlisted male person-years. The next most common, opioid type dependence had 0.65 cases per 1,000 person-years. Investigation into the category of sexual and gender identity disorders among enlisted males in the Army and Air Force found that although the rates were higher among males than females, the actual numbers of diagnoses among males was still low in each of the subcategories. There were 12 or fewer diagnosed cases in the Army of any of the three disorders (trans-sexualism, gender identity disorder in child, gender identity disorder in adolescent or adult). In the Air Force there were 5 or fewer cases of any of the subcategory diagnoses.

Counts and rates for officer personnel. Table 17 contains the most commonly diagnosed outpatient conditions within the Mental Disorders ICD-9 chapter among officers overall, as well as split out by women and men. Adjustment reaction was the top diagnostic category for the combined population, as well as for female and male officers individually.

Table 17

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel within the Mental Disorders Chapter

Outpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Adjustment reaction	4,283	1.9	1,186	30.2	3,097	15.7
Neurotic disorders	3,438	1.9	945	24.0	2,493	12.6
Special symptoms or syndromes, not elsewhere classified	2,013	1.3	415	10.6	1,598	8.1
Depressive disorder, not elsewhere classified	1,758	2.2	538	13.7	1,220	6.2
Affective psychoses	1,252	2.5	419	10.7	833	4.2

The top five diagnosed conditions for officers and enlisted personnel were remarkably similar; even the rank order was the same for female enlisted service members and female officers.

Figure 45 shows the top 5 diagnosed conditions for female officers, alongside male data. The most commonly diagnosed condition for men and women within the Mental Disorders ICD-9 chapter was Adjustment Reaction, paralleling the enlisted data.

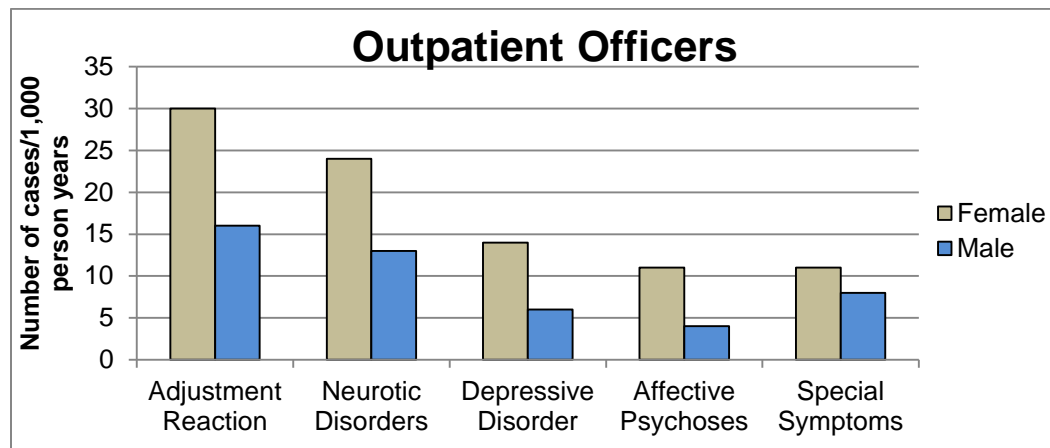


Figure 45. Top five diagnosed ICD-9 categories for outpatient female officers within the Mental Disorders chapter, alongside male comparison data.

In all branches, the top 5 diagnosed conditions for female officers were the same as for the overall mixed gender population. The only notable exception was for male officers in the Navy and the Marine Corps; nondependent abuse of drugs displaced affective psychoses in the top five most commonly diagnosed conditions. Male officers were more likely to be diagnosed with alcohol dependence syndrome (1.7 times more likely), and nondependent abuse of drugs (1.7 times more likely), relative to women. Due to small numbers (fewer than 30 cases for either males, females, or both) male officers were not significantly more likely to be diagnosed with any other mental health condition in an outpatient setting.

In Table 18, female to male rate ratios are shown by service branch, with the top three highlighted for each service. Across all three service branches shown, affective psychoses were in the top 3 outpatient conditions diagnosed more often for female officers than male officers.

Table 18

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Mental Disorders Chapter for Female Officers by Service Branch

ICD-9 Diagnostic Category	Army (n = 98,086)	Navy (n = 54,122)	Air Force (n = 63,429)
Acute reaction to stress	4.2	**	**
Affective psychoses	2.4	2.3	3.0
Transient organic psychotic conditions	2.1	**	**
Depressive disorder	1.9	2.7	3.0
Neurotic disorders	1.7	2.3	2.5
Adjustment reaction	1.7	2.0	2.6

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. The Marine Corps had no more than 30 cases in both males and females; consequently, no rate ratios are reported. **= Numbers too small to test for significant difference.

The only diagnostic category in which male officers were significantly more likely to receive a diagnosis than female officers was nondependent abuse of drugs. Male Army officers were 1.5 times more likely to be diagnosed with nondependent abuse of drugs than female Army officers.

Further exploration of officer data. The ICD-9 category of adjustment reaction, which was the number one outpatient diagnosis among both female and male officers, was further explored. The most common subcategory diagnosed within adjustment reaction was ‘adjustment reaction with predominant disturbance of other emotions’ (20.1 outpatient diagnoses per 1,000 female officer person-years and 8.9 outpatient diagnoses per 1,000 male officer person-years). ‘Special symptoms or syndromes, not elsewhere classified’ was the fifth most commonly diagnosed subcategory for female officers, and the third most commonly diagnosed subcategory for male officers. Further investigation found that the most commonly diagnosed subcategory among both female and male officers was ‘specific disorders of sleep of nonorganic origin’ (8.75 cases per 1,000 female officer person-years and 7.57 cases per 1,000 male officer person-years). The next most common for both was ‘pain disorders related to psychological factors’ (1.60 cases per 1,000 female officer person-years and 0.60 cases per 1,000 male officer person-years).

ICD-9 category rate ratios of women to men in the outpatient setting. Figure 46 shows the ICD-9 categories within the Mental Disorders chapter where the rate ratio for women to men was over 2.0.

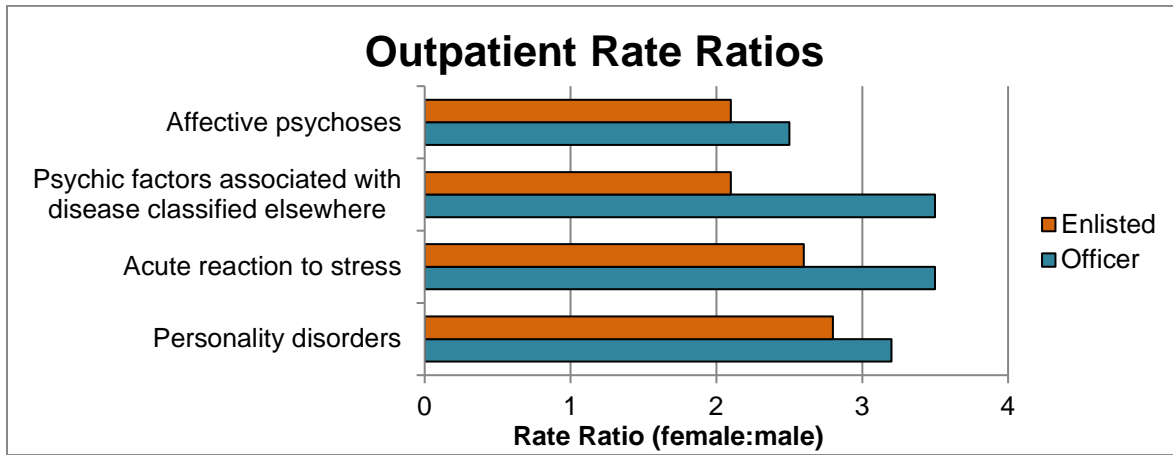


Figure 46. Rate ratios greater than 2.0 (female: male) within the outpatient Mental Disorders ICD-9 chapter for enlisted and officer service women.

For both enlisted and officer women, the following conditions were over two times more likely to be diagnosed in women than in men: affective psychoses, psychic factors associated with disease classified elsewhere, acute reaction to stress, and personality disorders. These may indicate mental health diagnostic clusters of concern for women. Additionally within the Mental Disorders chapter, enlisted personnel were 2.6 times more likely to be diagnosed with ‘disturbances of emotions specific to childhood and adolescence,’ and 3.1 times more likely to be diagnosed with ‘physiological malfunctions arising from mental factors’ than their enlisted male counterparts. Female officers were also 2.2 times more likely to be diagnosed with ‘depressive disorder, not elsewhere classified’ and 2.4 times more likely to be diagnosed with ‘other nonorganic psychoses’ than their male officer peers.

Inpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Mental Disorders chapter were calculated for enlisted and officer personnel in the inpatient hospital setting.

Counts and rates for enlisted personnel. Table 19 contains the most commonly diagnosed inpatient conditions within the Mental Disorders ICD-9 chapter among enlisted overall, as well as split out by women and men. The most commonly diagnosed condition for men and women within the Mental Disorders ICD-9 chapter was Adjustment Reaction, paralleling the outpatient data. The top 5 most common inpatient diagnoses were almost the same for male and female enlisted personnel, with slight rank order variations.

The top four most common ICD-9 categories within the Mental Disorders chapter among enlisted female service members were the same in outpatient and inpatient settings, although ranking order varied.

Table 19

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel within the Mental Disorders Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Adjustment reaction	4,431	1.6	972	6.0	3,459	3.7
Affective psychoses	2,509	1.9	618	3.8	1,891	2.0
Alcohol dependence syndrome	1,209	0.9	157	1.0	1,052	1.1
Neurotic disorders	1,028	1.6	220	1.4	808	0.9
Depressive disorder, not elsewhere classified	1,017	1.7	235	1.5	782	0.8

Figure 47 shows the top 5 diagnosed ICD-9 categories for enlisted women, alongside male comparison data. The most commonly diagnosed condition for inpatient enlisted women and men was Adjustment Reaction (paralleling the outpatient data for enlisted and officer personnel).

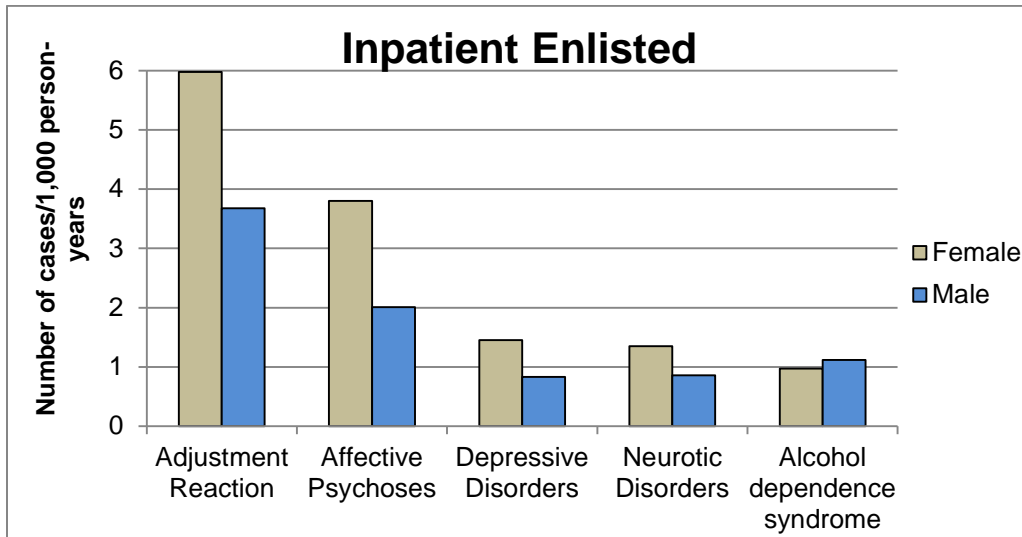


Figure 47. Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Mental Disorders chapter, alongside male comparison data.

Among female enlisted service members in the Navy, the fourth most common inpatient diagnoses was alcohol dependence syndrome (n = 60 females). Otherwise the top five conditions shown in Figure 47 were the same across all other service branches.

Overall male enlisted service members in the inpatient setting were significantly more likely to be diagnosed with nondependent abuse of drugs (1.7 times more likely than females). There were no other mental health conditions in which males were significantly more likely to be diagnosed than females.

In Table 20, female to male ratios are shown by service branch, with the top three categories highlighted for each service. Personality disorders were more likely to impact enlisted female service members across branches.

Table 20

Top Three Rate Ratios of Inpatient ICD-9 Categories within the Mental Disorders Chapter for Enlisted Females by Service Branch

ICD-9 Diagnostic Category	Army (n = 410,835)	Navy (n = 266,237)	Air Force (n = 256,712)	Marine Corps (n = 168,346)
Personality disorders	2.8	3.4	*	
Depressive disorder	1.8	1.6	1.5	
Affective psychoses	1.8	2.2	1.6	
Adjustment reaction	1.5	2.6	1.7	2.2
Neurotic disorders	1.4	1.8	2.4	

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. **= numbers too small to test for significant difference

The only two diagnoses which male enlisted service members were statistically more likely to receive compared to females was nondependent abuse of drugs (1.7 times more likely) and alcohol dependence syndrome (1.5 times more likely), both only among Army personnel. Looking at variations among male enlisted service personnel by service branch, the number 5 most commonly diagnosed inpatient condition within the Mental Disorders chapter was alcoholic psychoses in the Navy and Air Force (n = 118 sailors, n = 83 airmen). Nondependent abuse of drugs was the fourth most common inpatient diagnosis among Marine enlisted personnel (n = 106).

Further exploration of enlisted data. For both male and female enlisted personnel, the most common subcategory of adjustment reaction diagnosed in an inpatient setting was 'adjustment disorder with depressed mood' (2.1 diagnoses per 1,000 enlisted female person-year and 1.2 diagnoses per 1,000 enlisted male person-year).

Counts and rates for officer personnel. Table 21 contains the most commonly diagnosed ICD-9 categories within the Mental Disorders chapter for inpatient officers overall, as well as split out by females and males.

Table 21

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Mental Disorders Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Affective psychoses	172	2.2	53	1.4	119	0.6
Adjustment reaction	165	2.1	48	1.2	117	0.6
Alcohol dependence syndrome	92	**	6	0.2	86	0.4
Neurotic disorders	61	**	13	0.3	48	0.2
Alcoholic psychoses	45	**	2	0.1	43	0.2
Depressive disorder, not elsewhere classified	45	**	8	0.2	37	0.2

Note. **=Numbers too small to test for significant difference.

Although all ICD-9 categories had small numbers of cases, Figure 48 shows the top five commonly diagnosed categories for officer women, alongside male comparison data. In a departure from the outpatient enlisted and officer data, and from the inpatient enlisted data, Adjustment Reaction was not the top diagnosis for men and women, but was the second most frequently diagnosed condition in the Mental Disorders chapter for inpatient officers.

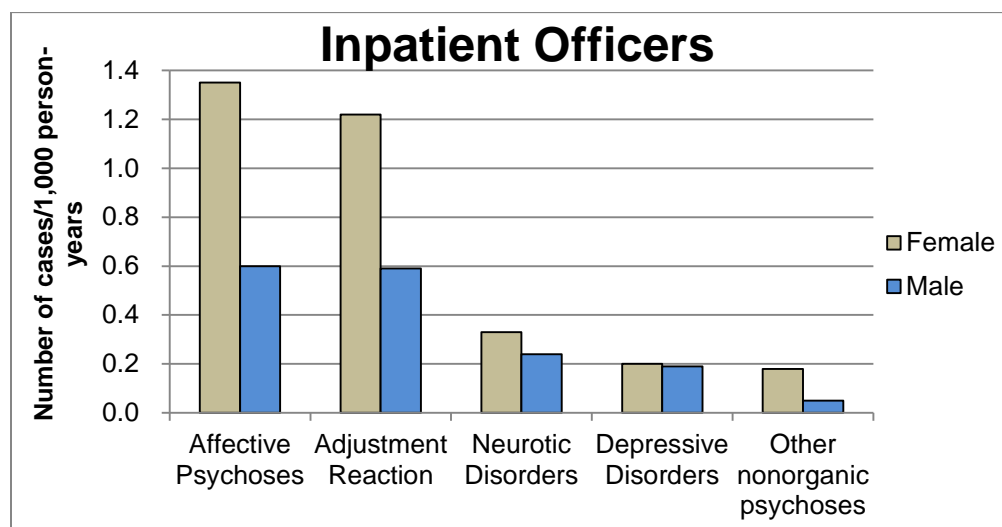


Figure 48. Top five diagnosed ICD-9 categories for inpatient female officers within the Mental Disorders chapter, alongside male comparison data.

There were not enough cases across service branches to report female to male rate ratios for officers in an inpatient setting. Due to the small number of cases (n < 30 for most diagnoses across

branches), statistical significance tests could not be performed in most cases. Only two inpatient mental health diagnoses among officers had enough cases to test for statistical significance. The two diagnoses were affective psychoses and adjustment reaction. Both diagnoses were significantly more likely to impact female officers than male officers.

Further exploration of officer data. For both female and male officers in an inpatient setting the most common subcategory under adjustment reaction was 'other specified adjustment reactions' (0.7 cases per 1,000 female officer person-years and 0.3 cases per 1,000 male officer person-years).

ICD-9 category rate ratios of women to men in the inpatient setting. Figure 49 shows the ICD-9 categories within the Mental Disorders chapter where the rate ratio for women to men was over 2.0 in an inpatient setting. Special symptoms or syndromes were 8.3 times more likely to be diagnosed in enlisted women than in men; personality disorders were 3.2 times more likely to be diagnosed in enlisted women than in men. Affective psychoses and adjustment reaction were over 2 times more likely to be diagnosed in female officers than in male officers. There was no overlap between enlisted and officer service members in ICD-9 categories with rate ratios greater than 2.0.

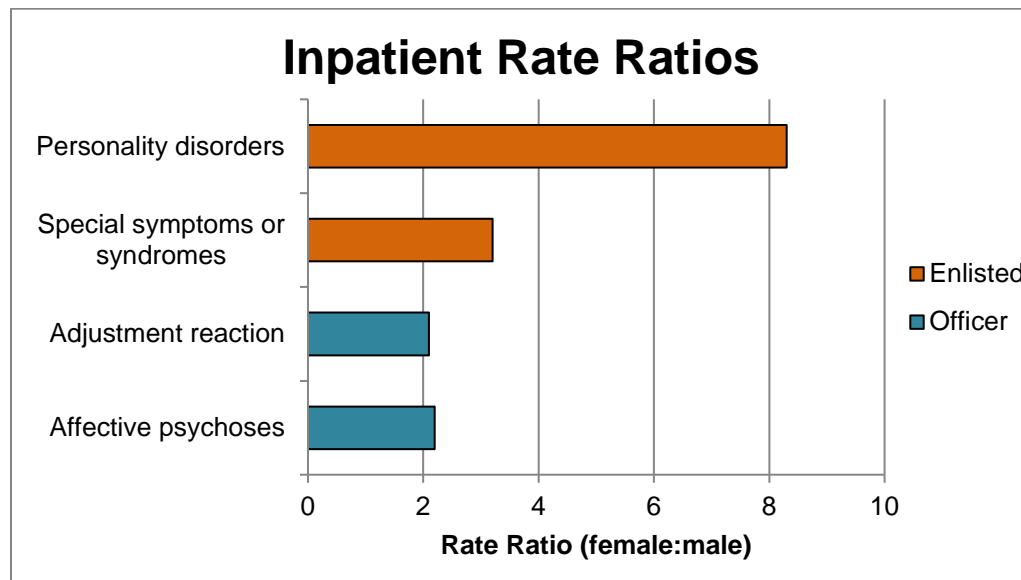


Figure 49. Rate ratios greater than 2.0 (female: male) within the inpatient Mental Disorders ICD-9 chapter for enlisted and officer service women.

Further Analysis of the Musculoskeletal Disorders ICD-9 Chapter

Outpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Musculoskeletal Disorders chapter were calculated for enlisted and officer personnel in the outpatient ambulatory setting.

Counts and rates for enlisted personnel. Table 22 shows the 5 most commonly diagnosed ICD-9 categories within the Musculoskeletal Disorders chapter for outpatient enlisted service members overall, as well as split out for females and males. Other and unspecified disorders of the joint was the most common diagnostic category for both female and male enlisted personnel.

Table 22

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel within the Musculoskeletal Disorders Chapter

Outpatient ICD-9 Diagnostic Chapter	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Other and unspecified disorders of joint	98,069	1.2	17,188	105.7	80,881	86.1
Other and unspecified disorders of back	67,809	1.3	12,275	75.5	55,534	59.1
Other disorders of soft tissues	56,493	1.4	11,087	68.2	45,406	48.3
Peripheral enthesopathies	35,494	1.3	6,380	39.2	29,114	31.0
Disorders muscle, ligament, and fascia	30,638	1.6	6,500	40.0	24,138	25.7

Figure 50 shows the top 5 diagnosed conditions for female enlisted service members, with side-by-side male comparison data. The most commonly diagnosed category was 'Other and unspecified disorders of joint' for enlisted women and men.

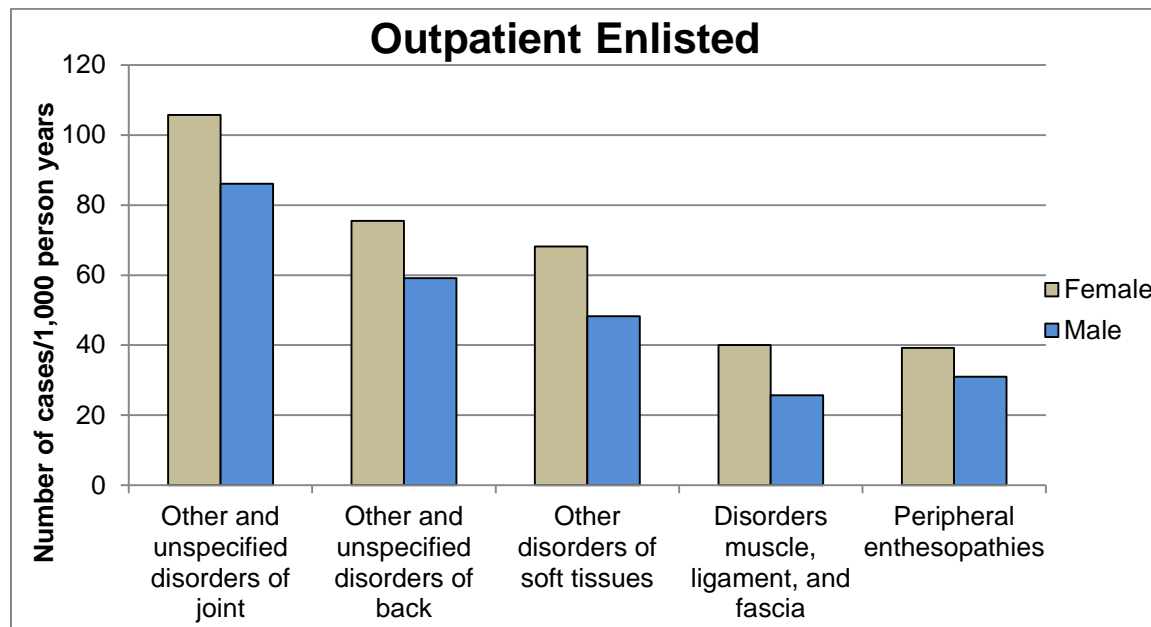


Figure 50. Top five diagnosed ICD-9 categories for outpatient female enlisted personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.

Male enlisted personnel were significantly more likely to be diagnosed with osteochondropathies (1.6 times more likely), other acquired musculoskeletal deformities (1.2 times more likely), and osteoarthritis and related disorders (1.1 times more likely), relative to their female peers.

In Table 23, female to male rate ratios are shown by service branch, with the top three categories highlighted for each service. 'Ankylosing spondylitis and other inflammatory spondylopathies,' 'acquired deformities of the toe,' and 'curvature of spine' were consistently diagnosed at least two times as often in women than in men across the services.

Table 23

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Musculoskeletal Disorders Chapter for Enlisted Females by Service Branch

ICD-9 Diagnostic Category	Army (n = 410,835)	Navy (n = 266,237)	Air Force (n = 256,712)	Marine Corps (n = 168,346)
Diffuse disease connective tissue	6.2	**	6.5	**
Rheumatoid arthritis and inflammatory polyarthropathies	2.8	**	2.6	**
Curvature of spine	2.7	2.1	2.3	2.6
Osteomyelitis, periostitis, and other infections involving bones	**	3.6	**	**
Acquired deformities toe	2.4	3.3	2.7	3.7
Ankylosing spondylitis and other inflammatory spondylopathies	2.6	3.3	2.7	4.4

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. **= Numbers too small to test for significant difference.

There were very few musculoskeletal outpatient diagnoses that male enlisted service members were significantly more likely to have than females when examined by branch. Males were significantly more likely in both the Army and the Navy to receive a diagnosis of osteochondropathy (1.7 and 1.6 times more likely respectively), relative to their female peers. Male Army personnel were also 1.3 times more likely to be diagnosed with 'other acquired musculoskeletal deformities' and male Navy personnel were 1.3 times more likely to be diagnosed with 'osteoarthritis and related disorders' than their female counterparts.

Further exploration of enlisted data. Within the category of other and unspecified disorders of joint, the top subcategories for women and men was 'pain in joint'. Other and unspecified disorders of back were investigated further and 'lumbago' was the most common subcategory with 81.1% of women (61 cases per 1,000 person-years) and 84.1% of men (50 cases per 1,000 person-years) within this category. Looking at other disorders of soft tissues, the most common subcategory was 'pain in limb' for women (61 cases/1,000 person-years) and men (43.7 cases/ 1,000 person-years).

Counts and rates for officer personnel. Table 24 contains the most commonly diagnosed ICD-9 categories within the Musculoskeletal chapter among officers overall, as well as split out by females and males. The top 5 categories overall are identical to those for outpatient enlisted personnel.

Table 24

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel within the Musculoskeletal Disorders Chapter

Outpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Other and unspecified disorders of joint	12,563	1.1	2,310	58.7	10,253	51.9
Other and unspecified disorders of back	10,356	1.1	1,920	48.8	8,436	42.7
Other disorders of soft tissues	7,784	1.3	1,616	41.1	6,168	31.2
Peripheral enthesopathies	6,509	1.1	1,128	28.7	5,381	27.2
Disorder muscle, ligament, and fascia	5,507	1.4	1,196	30.4	4,311	21.8

Figure 51 shows the top 5 diagnosed categories for female officers, alongside male comparison data. The most commonly diagnosed ICD-9 category for men and women within the Musculoskeletal Disorders chapter was ‘other and unspecified disorders of joint,’ paralleling the enlisted data.

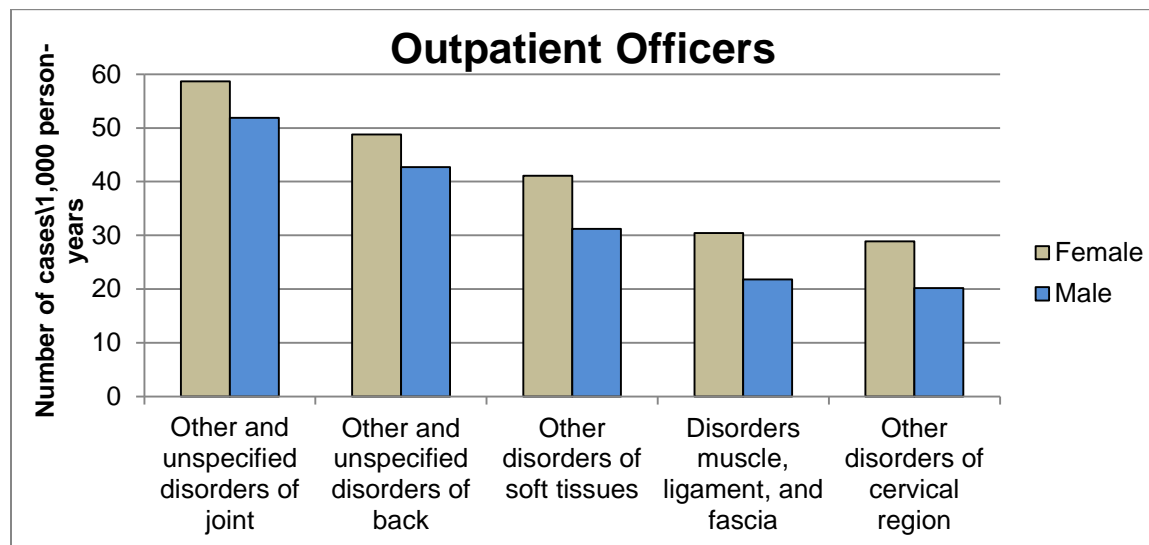


Figure 51. Top five diagnosed ICD-9 categories for outpatient female officers within the Musculoskeletal Disorders chapter, alongside male comparison data.

In Table 25, female to male ratios are shown by service branch, with the top three highlighted for each service. Acquired deformities of the toe were consistently diagnosed in female officers more than two times as often than in male officers across the service branches.

Table 25

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Musculoskeletal Disorders Chapter for Female Officers by Service Branch

ICD-9 Diagnostic Category	Army (n = 98,086)	Navy (n = 54,122)	Air Force (n = 63,429)	Marine Corps (n = 21,193)
Curvature of spine	2.1	**	3.0	**
Acquired deformities toe	2.0	2.9	2.5	**
Anklosing spondylitis and other inflammatory spondylopathies	1.9	2.3	2.6	**
Other disorders of synovium, tendon and bursa	1.4	1.8	1.5	**
Internal derangement of knee	***	***	3.9	**
Other disorders of cervical region	1.4	1.4	1.4	1.5
Other disorders of soft tissues	1.2	1.3	1.4	1.5
Disorder muscle ligament and fascia	1.3	1.4	1.6	1.4

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches.

**= Numbers too small to test for significant difference.

***= Not significantly more likely among females.

Male officers were not significantly more likely to receive any outpatient musculoskeletal diagnosis compared to female officers.

Further exploration of officer data. The results of further exploration into the top three subcategories paralleled the results from the enlisted data. The top subcategory of other and unspecified disorders of joint was 'pain in joint.' The most diagnosed subcategory of other and unspecified disorders of back was 'lumbago.' Examination of other disorders of soft tissue found that 'pain in limb' was the most common subcategory among women with 37.0 cases/1,000 person years and among men with 27.9 cases/1,000 person years. The most common acquired deformity of the toe among enlisted women was 'hallux valgus' (i.e. a bunion) and was diagnosed in an outpatient setting among 739 women.

ICD-9 category rate ratios of women to men in the outpatient setting. Figure 52 shows the ICD-9 categories within the Musculoskeletal Disorders chapter where the rate ratio for women to men was over 2.0. All of the conditions more likely to be diagnosed in female officers than their male peers, were also more likely to be diagnosed in female enlisted personnel than their male peers. Of the five conditions, diffuse disease of the connective tissue had the highest rate ratio, indicating that women were 5 to 6 times more likely to be diagnosed with a condition in this category than their male counterparts. Among enlisted women, osteomyelitis, periostitis, and other infections involving the bone were 2.6 times more likely to be diagnosed than in enlisted men. These categories may indicate diagnostic clusters of concern for military women.

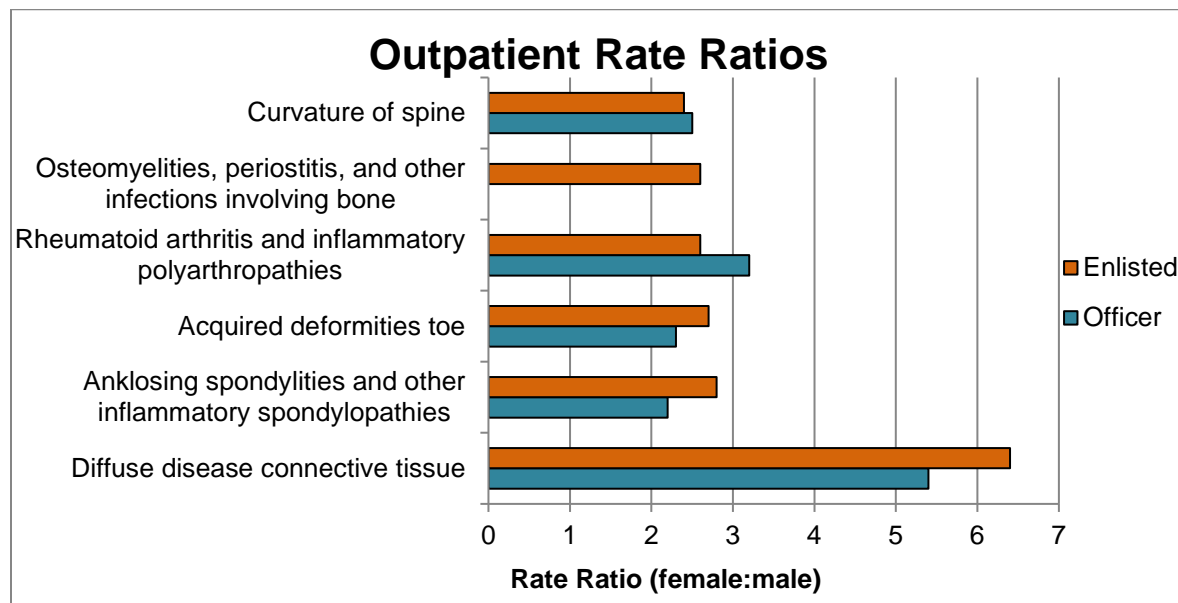


Figure 52. Rate ratios greater than 2.0 (female: male) within the outpatient Musculoskeletal ICD-9 chapter for enlisted and officer service women.

Inpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Musculoskeletal Disorders chapter were calculated for enlisted and officer personnel in the inpatient hospital setting.

Counts and rates for enlisted personnel. Table 26 contains the most commonly diagnosed inpatient ICD-9 categories within the Musculoskeletal Disorders chapter among enlisted overall, as well as split out by women and men. The most common ICD-9 category overall, and among female and male enlisted personnel individually, was intervertebral disc disorders. The top 5 most common inpatient ICD-9 categories were almost the same for female and male enlisted personnel, with slight rank order variations.

Table 26

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel within the Musculoskeletal Disorders Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Intervertebral disc disorders	1,313	0.7	143	0.9	1,170	1.3
Disorder muscle ligament and fascia	506	0.8	64	0.4	442	0.5
Spondylosis and allied disorders	412	0.9	57	0.4	355	0.4
Other and unspecified disorders of back	346	0.7	38	0.2	308	0.3
Other disorders of bone and cartilage	248	1.7	56	0.3	192	0.2

Figure 53 shows the top 5 diagnosed conditions for enlisted women, alongside male comparison data. The top 3 categories for enlisted women were identical to the top 3 categories for enlisted men.

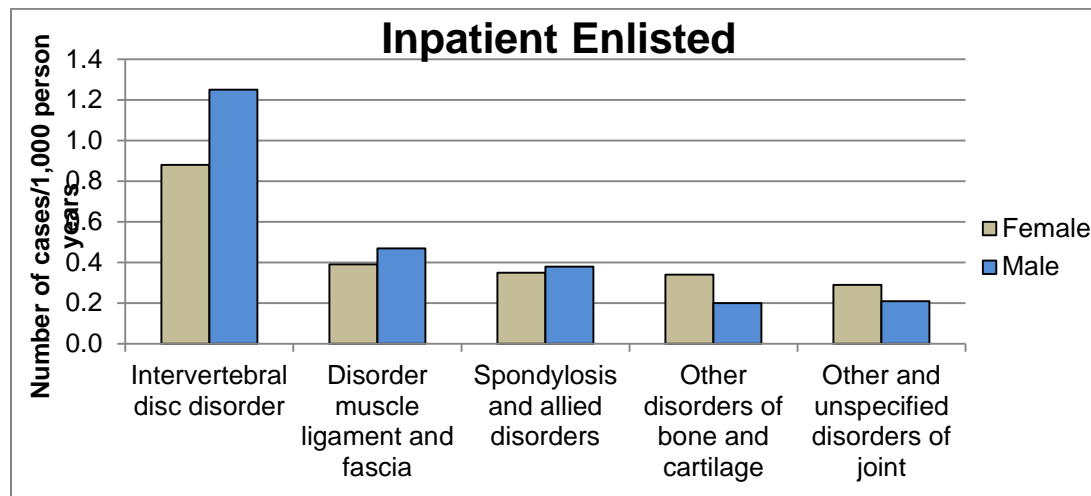


Figure 53. Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.

Overall male enlisted service members in the inpatient setting were significantly more likely to be diagnosed with intervertebral disc disorders (1.5 times more likely than females).

Except for 7 categories, few rate ratio comparisons could be carried out due to small numbers of cases ($n < 30$). Of these seven categories, only two showed significant differences in rate ratio between female and male service members. One of these two was intervertebral disc disorders (discussed above) and the second was 'other and unspecified disorders of joint.' Female enlisted personnel were 1.4 times more likely to be diagnosed with this condition in an inpatient setting than their male peers.

Counts and rates for officer personnel. Table 27 contains the most commonly diagnosed ICD-9 categories within the Musculoskeletal Disorders chapter for inpatient officers overall, as well as split out by females and males. The most commonly diagnosed ICD-9 category for the overall population was intervertebral disc disorders, which paralleled the enlisted data.

Table 27

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Musculoskeletal Disorders Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Intervertebral disc disorders	284	1.3	57	1.5	227	1.2
Osteoarthritis and related disorders	157	**	22	0.6	135	0.7
Spondylosis and allied disorders	112	**	25	0.6	87	0.4
Disorder muscle, ligament, and fascia	70	**	14	0.4	56	0.3
Other disorder of cervical region	52	**	12	0.3	40	0.2

Note. **= Numbers too small to test for significant difference.

The only inpatient ICD-9 category among officers that had over 30 cases in both females and males was intervertebral disc disorders. Female officers were 1.3 times more likely to be diagnosed in an inpatient setting with intervertebral disc disorders when compared to male officers.

Although all ICD-9 categories had small numbers of cases, Figure 54 shows the top five categories for female officers within the Musculoskeletal Disorders chapter, alongside male comparison data.

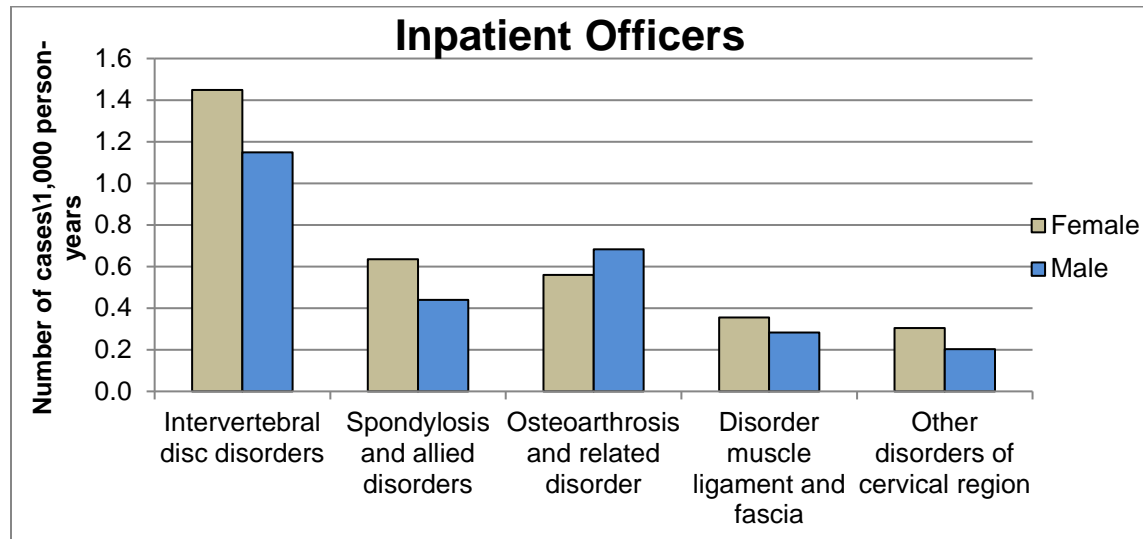


Figure 54. Top five diagnosed ICD-9 categories for inpatient female officer personnel within the Musculoskeletal Disorders chapter, alongside male comparison data.

There were not enough cases across service branches to report female to male rate ratios for officers. Due to the small number of cases ($n < 30$ for all diagnoses in all branches), statistical significance tests could only be performed on the intervertebral disc disorders category (1.3 rate ratio females to males).

ICD-9 chapter rate ratios of women to men in the inpatient setting. None of the female to male rate ratios for inpatient ICD-9 categories within the Musculoskeletal Disorders chapter were above 2.0. Female enlisted personnel were significantly more likely to be diagnosed with other disorders of bone and cartilage (1.5 times more likely), and other and unspecified disorders of joint (1.4 times more likely), relative to their male counterparts. Female officers were significantly more likely to be diagnosed with intervertebral disc disorders (1.3 times more likely) relative to their male peers.

Further Analysis of the Injury and Poisoning ICD-9 Chapter

Outpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Injury and Poisoning chapter were calculated for enlisted and officer personnel in the outpatient ambulatory setting.

Counts and rates for enlisted personnel. Table 28 contains the most commonly diagnosed ICD-9 categories within the Injury and Poisoning chapter for outpatient enlisted service members overall, as well as split out for females and males. Sprains and strains of joints and adjacent muscles was by far the most common injury overall.

Table 28

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Enlisted Personnel within the Injury and Poisoning Chapter

Outpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Sprains and strains, joints and adjacent muscles	301,188	1.2	52,626	323.7	248,562	264.5
Trauma complications and unspecified injuries	49,677	1.0	7,389	45.5	42,288	45.0
Fracture of upper limb	48,892	0.7	5,098	31.4	43,794	46.6
Fracture of lower limb	38,710	1.0	5,703	35.1	33,007	35.1
Superficial injury	35,683	1.5	7,271	44.7	28,412	30.2

Figure 55 shows the top 5 diagnosed conditions for female enlisted personnel, alongside male data. The most commonly diagnosed condition for men and women within the Injury and Poisoning ICD-9 chapter was ‘sprains and strains of joints and adjacent muscles’.

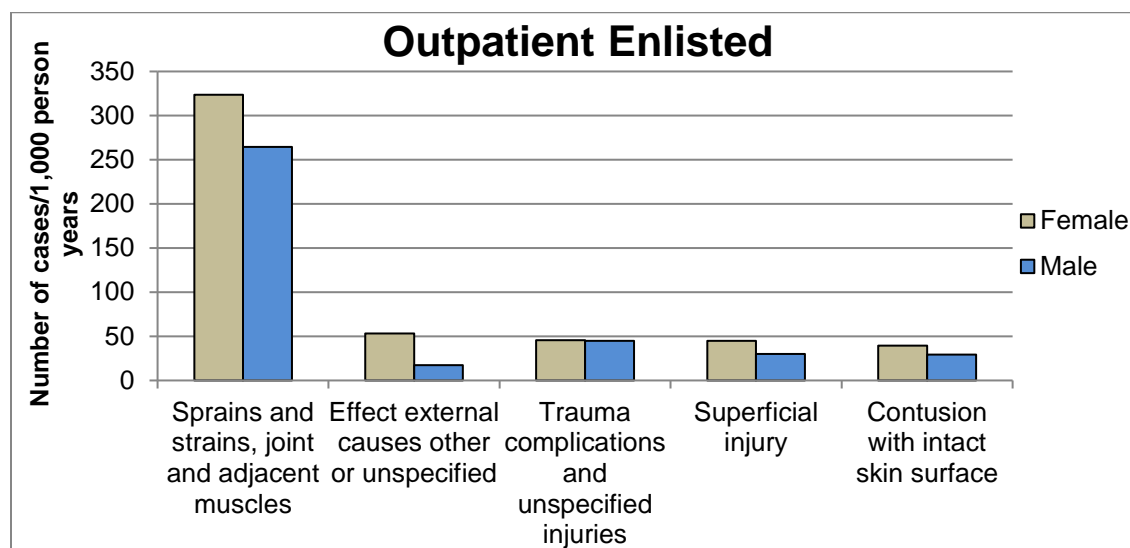


Figure 55. Top five diagnosed ICD-9 categories for outpatient female enlisted personnel within the Injury and Poisoning chapter, alongside male comparison data.

Male enlisted service members were significantly more likely to be diagnosed with fractures of the skull (2.2 times more likely), injury to blood vessels (1.8 times more likely), late effect of injury, poison, toxin and other external cause (1.8 times more likely), intracranial injury, excluding skull fractures (1.6 times more likely), and open wound, head, neck and trunk (1.6 times more likely), relative to their female counterparts.

In Table 29, female to male rate ratios are shown by service branch, with the top three highlighted for each service. Across all three service branches shown, women were consistently 2 to 5 times more likely to be diagnosed with 'effect external causes, other or unspecified' and 'poisoning by drugs, medicinal, or biological substances' than men.

Table 29

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Injury and Poisoning Chapter for Female Enlisted Personnel by Service Branch

ICD-9 Diagnostic Category	Army (n = 410,835)	Navy (n = 266,237)	Air Force (n = 256,712)	Marine Corps (n = 168,346)
Effect external causes, other or unspecified	3.8	4.7	2.7	2.7
Poisoning by drugs, medicinal and biological substances	2.2	5.0	2.7	3.4
Superficial injury	1.7	2.4		1.8
Complications of surgical and medical care, not elsewhere specified	1.5	2.7	2.1	1.4
Toxic effect of a chiefly nonmedicinal substance	1.5	2.1	1.1	3.7

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches.

Male enlisted personnel in the Air Force and the Marine Corps were significantly more likely to be diagnosed with the ICD-9 category 'internal injury of thorax, abdomen, and pelvis' relative to their female peers (rate ratio of 3.1, and 2.1, respectively).

Further exploration of enlisted data. Sprains and strains of joints and adjacent muscles were the most common diagnosis for both males and females in all branches of service. The most common sprains and strains were of the ankle and foot (32.1 cases per 1,000 enlisted service women; 27.0 cases per 1,000 enlisted service men), knee and leg (29.6 cases per 1,000 service women; 22.7 cases per 1,000 enlisted service men) and other and unspecified parts of back (26.0 cases per 1,000 enlisted service women; 19.0 cases per 1,000 enlisted service men).

Under the category of 'effect external cause, other or unspecified' the two subcategories with the highest rate of cases among female enlisted personnel were 'allergy, unspecified' (7.8 cases per 1,000 enlisted female service members) and 'other specified adverse effects' (6.3 cases per 1,000 enlisted female service members). The subclassification under 'other specified adverse effects' with the most cases among enlisted female service members was 'adult sexual abuse' (673 diagnoses, 4.1 cases per 1,000).

The category of 'poisoning by drugs, medicinals and biological substances,' was further explored among enlisted female personnel. The most common subcategory was 'poisoning by other and unspecified drugs and medicinal substances' with 1.9 cases per 1,000 enlisted service women. The next most common subcategories were 'poisoning by analgesics, anti-pyretics and anti-rheumatics' (1.0/1,000 enlisted service women) and 'poisoning by psychotropic agents' (0.9/1,000 enlisted service women). The most common subcategory under 'toxic effect of other substances, chiefly nonmedicinal' was toxic effect of venom with 2.2 diagnoses per 1,000 person-years; among Marine females particularly, there were 5.0 diagnoses per 1,000 person-years.

Counts and rates for officer personnel. Table 30 contains the most commonly diagnosed outpatient ICD-9 categories within the Injury and Poisoning chapter among officers overall, as well as split out by women and men. The number one most commonly diagnosed ICD-9 category among officers was 'sprains and strains of joints and adjacent muscles,' paralleling the enlisted data.

Table 30

Top Five Most Commonly Diagnosed Outpatient ICD-9 Categories for Officer Personnel within the Injury and Poisoning Chapter

Outpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (n = 39,321)		Male Officer (n = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Sprains and strains, joints and adjacent muscles	46,419	1.1	8,608	218.9	37,811	191.4
Trauma complications and unspecified injuries	6,727	1.0	1,075	27.3	5,652	28.6
Fracture of lower limb	6,643	1.4	1,437	36.5	5,206	26.4
Dislocation	6,237	0.6	685	17.4	5,552	28.1
Fracture of upper limb	6,087	1.0	989	25.2	5,098	25.8

Figure 56 shows the top 5 diagnosed ICD-9 categories for female officers, alongside male data. Again, the most common diagnosis for male and female officers was sprains and strains of joints and adjacent muscles, which paralleled the outpatient enlisted data.

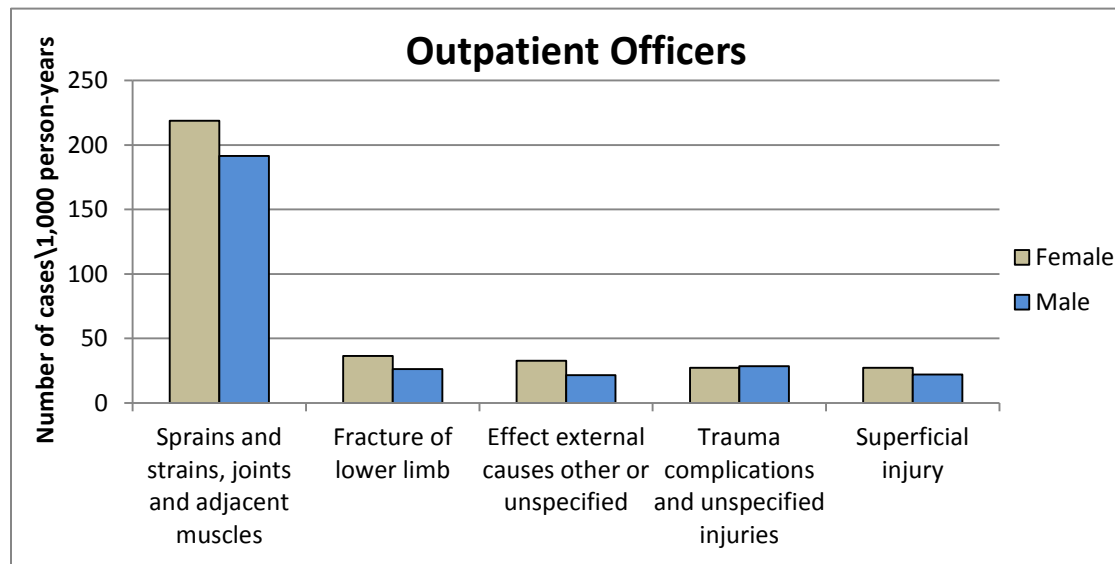


Figure 56. Top five diagnosed ICD-9 categories for outpatient female officers within the Injury and Poisoning chapter, alongside male comparison data.

Male officers were significantly more likely to be diagnosed with fracture of neck and trunk (1.9 times more likely), open wound, head, neck and trunk (1.7 times more likely), dislocation (1.6 times more likely), open wound lower limb (1.4 times more likely), and fractures of the skull (1.3 times more likely), relative to their female peers.

In Table 31, female to male rate ratios are shown by service branch, with the top three highlighted for each service. Partly as the result of small cell sizes, there was little ICD-9 category overlap between services.

Table 31

Top Three Rate Ratios of Outpatient ICD-9 Categories within the Injury and Poisoning Chapter for Female Officer Personnel by Service Branch.

ICD-9 Diagnostic Category	Army (n = 98,086)	Navy (n = 54,122)	Air Force (n = 63,429)	Marine Corps (n = 21,193)
Poisoning by drugs, medicinal and biological substances	3.5	**	**	**
Injury to nerves and spinal cord	3.0	**	**	**
Effect external cause, other or unspecified	2.3	1.7	***	**
Superficial Injury	1.2	1.3	1.2	1.4
Contusion with intact skin surface	1.2	1.2	1.2	1.6
Late effect injury, poison, toxin and other external cause	1.4	**	3.7	4.0
Intracranial injury, excludes skull fractures	1.1	0.4	3.1	2.1
Complications surgical and medical care, not elsewhere specified	1.5	1.2	2.2	**

Note. Highlighting indicates that a diagnosis was in the top three diagnoses for that branch. Other values are provided for comparisons between branches. **= Numbers too small to test for significant difference. ***= No significant difference between males and females in rate of diagnosis.

Of interest, one of the highest rate ratios for female officers in the Air Force and the Marine Corps was ‘intracranial injury, excluding skull fractures’ which was negatively associated with rate ratios for female Navy officers. In other words, male Navy officers were more likely to receive the outpatient ICD-9 category of intracranial injury compared to female Navy officers, while Air Force and Marine Corps female officers were more likely than their male counterparts to receive the ICD-9 category of intracranial injury. Male Navy officers were 2.4 times as likely to be diagnosed with ‘intracranial injury, excluding skull fractures’ than their female counterparts.

Further exploration of officer data. Examining sprains and strains of the joints and adjacent muscles more closely for both female and male officers, the most common sprains and strains were of the ankle and foot (16.8 cases per 1,000 service women; 13.9 cases per 1,000 service men).

ICD-9 category rate ratios of women to men in the outpatient setting. Figure 57 shows the ICD-9 categories within the Injury and Poisoning chapter where the rate ratio for women to men was over 2.0. Both female officers and enlisted personnel were 2-3 times more likely to be diagnosed with the ICD-9 category of 'poisoning by drugs, medicinal, or biological substances.' Additionally, female enlisted personnel were over 3 times more likely to be diagnosed with the ICD-9 category of 'effect external causes, other or unspecified.' Based on the deeper exploration of enlisted data for 'effect external causes', the top two subcategories were 'allergy, unspecified' and 'other specified adverse effects.' The top subclassification within 'other specified adverse effects' was 'adult sexual abuse.' These diagnosis codes may indicate diagnostic clusters of concern for military women.

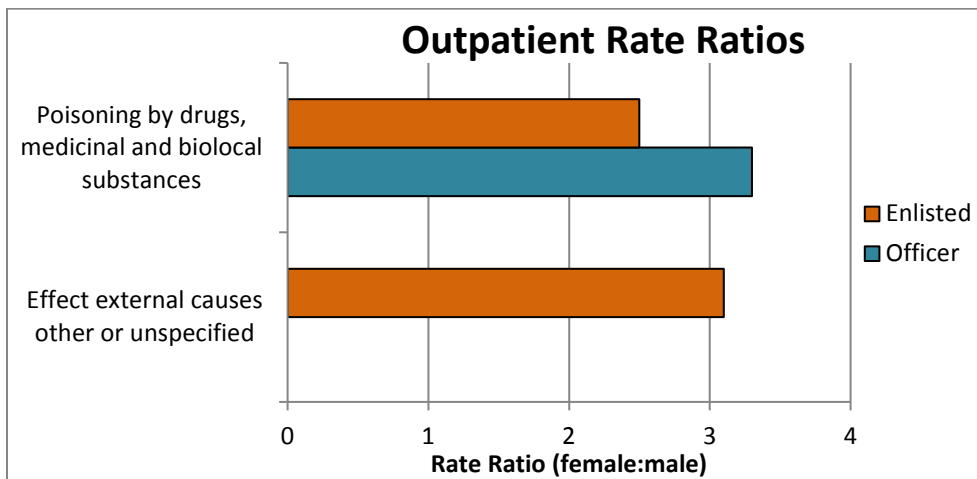


Figure 57. Rate ratios greater than 2.0 (female: male) within the outpatient Injury and Poisoning ICD-9 chapter for enlisted and officer service women.

Inpatient setting. Counts and rates for commonly diagnosed ICD-9 categories within the Injury and Poisoning chapter were calculated for enlisted and officer personnel in the inpatient hospital setting.

Counts and rates for enlisted personnel. Table 32 contains the most commonly diagnosed inpatient ICD-9 categories within the Injury and Poisoning chapter among enlisted overall, as well as split out by women and men. The most commonly diagnosed ICD-9 category for both male and female service members was 'complications, surgical and medical.'

Table 32

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Enlisted Personnel within the Injury and Poisoning Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Enlisted (n = 162,556)		Male Enlisted (n = 939,574)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Complications surgical and medical	1,294	1.2	216	1.3	1,078	1.2
Fracture lower limb	880	0.7	101	0.6	779	0.8
Poisoning by drugs, medicinal and biological substances	571	2.5	173	1.1	398	0.4
Fracture of upper limb	520	0.4	36	0.2	484	0.5
Fractures of skull	431	**	24	0.2	407	0.4

Note. **= Numbers too small to test for significant difference.

Figure 58 shows the top five diagnosed inpatient ICD-9 categories within the Injury and Poisoning chapter for enlisted women, alongside male data. The second most common diagnosis for enlisted women was poisoning by drugs, medicinal, and biological substances; this was also a common diagnosis in the outpatient setting.

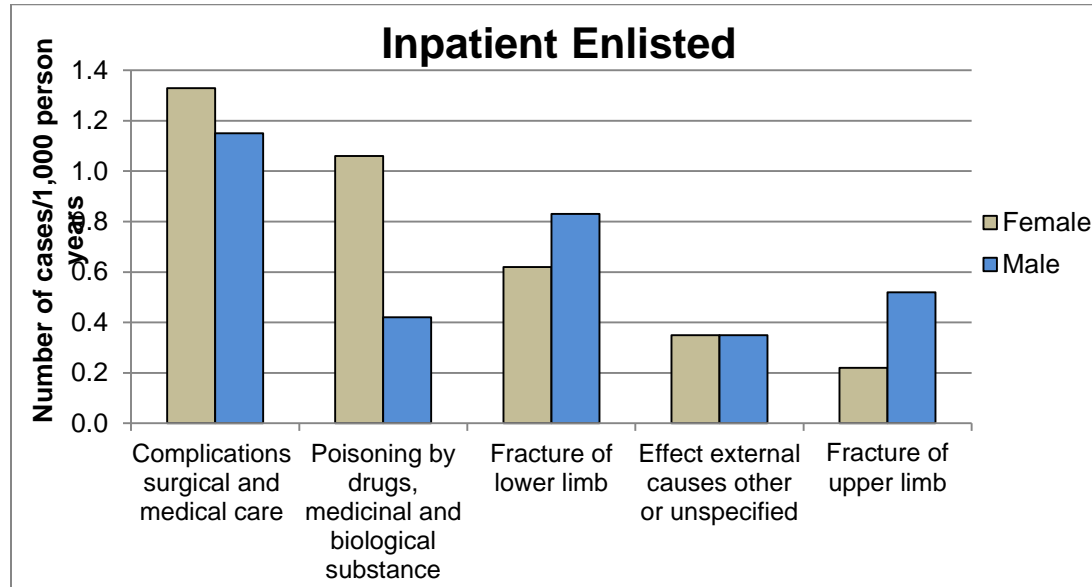


Figure 58. Top five diagnosed ICD-9 categories for inpatient female enlisted personnel within the Injury and Poisoning chapter, alongside male comparison data.

Overall male enlisted service members in the inpatient setting were significantly more likely to be diagnosed with fracture of upper limb (2.5 times more likely than female enlisted personnel), fracture of neck and trunk (1.7 times more likely) and fracture of lower limb (1.4 times more likely), relative to their female peers.

In Table 33, female to male rate ratios are shown by service branch, with the top three highlighted for each service. Due to small numbers of inpatient injury and poisoning diagnoses, few statistically significant service differences were noted.

Table 33

Top Three Rate Ratios of Inpatient ICD-9 Categories within the Mental Disorders Chapter for Female Enlisted Personnel by Service Branch

ICD-9 Diagnostic Category	Army (<i>n</i> = 98,086)	Navy (<i>n</i> = 54,122)	Air Force (<i>n</i> = 63,429)
Poisoning by drugs, medicinal and biological substance	2.0	4.3	**
Complications of surgical and medical care	***	***	1.4

Note. Highlighting indicates the top diagnoses for that branch. The Marine Corps had no more than 30 cases in both males and females; consequently, no rate ratios are reported. ** = Numbers too small to test for significant difference. *** = No significant difference between males and females in rate of diagnosis

Further exploration of enlisted data. Upon further investigation, the top subcategory within ‘poisoning by drugs, medicinal, or biological substances’ was ‘poisoning by analgesics, anti-pyretics and anti-rheumatics’ (0.3 cases per 1,000 service women), followed by ‘poisoning by psychotropic agents’ with 0.3 cases per 1,000 service women.

Counts and rates for officer personnel. Table 34 contains the most commonly diagnosed inpatient ICD-9 categories within the Injury and Poisoning chapter among officers overall, as well as split out by women and men. The top ICD-9 category overall was ‘complications of surgical and medical care.’

Table 34

Top Five Most Commonly Diagnosed Inpatient ICD-9 Categories for Officer Personnel within the Injury and Poisoning Chapter

Inpatient ICD-9 Diagnostic Category	Overall Population Cases	Rate Ratio (F : M)	Female Officer (<i>n</i> = 39,321)		Male Officer (<i>n</i> = 197,509)	
			Number of cases	Rate per 1,000	Number of cases	Rate per 1,000
Complications surgical and medical care	234	1.3	49	1.3	185	0.9
Fracture of lower limb	128	**	16	0.4	112	0.6
Effect external causes other or unspecified	74	**	3	0.1	71	0.4
Sprains and strains, joints and adjacent muscles	62	**	8	0.2	54	0.3
Fracture of upper limb	60	**	9	0.2	51	0.3

Note. * = Numbers too small to test for significant difference.

Although all ICD-9 categories had small numbers of cases, Figure 59 shows the top five diagnosed conditions for female officers, alongside male comparison data.

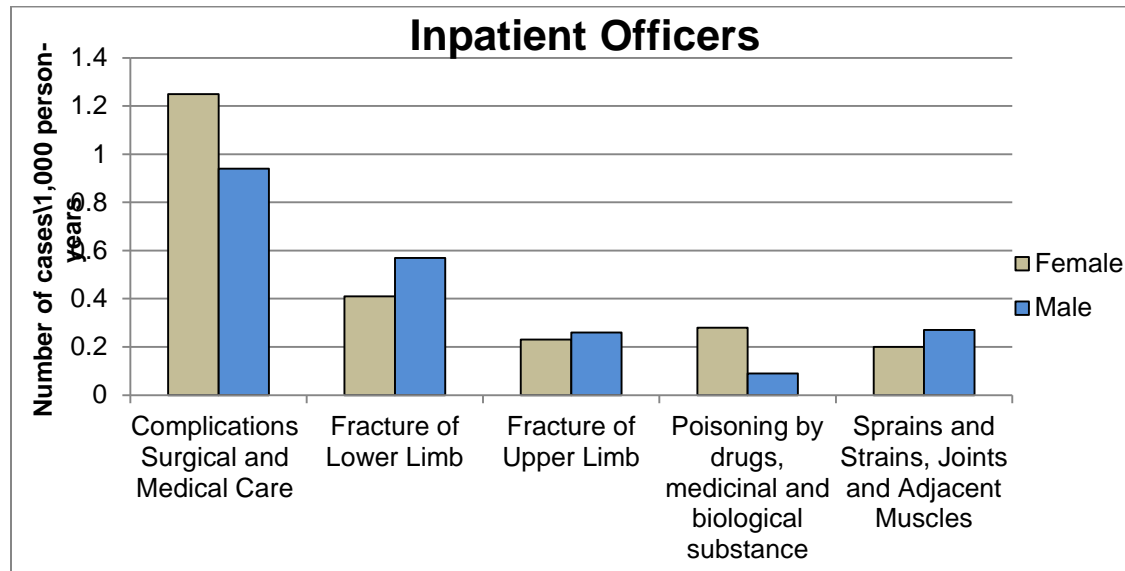


Figure 59. Top five diagnosed ICD-9 categories for inpatient female officers within the Injury and Poisoning chapter, alongside male comparison data.

The only injury or poisoning diagnosis in an inpatient setting with more than 30 cases in both female and male officers was ‘complications of surgical and medical care, not elsewhere classified.’ There were 49 cases among female officers and 185 cases among male officers. Female officers were 1.3 times more likely to receive an inpatient diagnosis of complications of surgical and medical care. Except in the category of ‘complications of surgical and medical care,’ there were not enough cases across service branches to report female to male rate ratios for enlisted personnel.

ICD-9 category rate ratios of women to men in the inpatient setting. Figure 60 shows the one inpatient ICD-9 category within the Injury and Poisoning chapter where the rate ratio for women to men was greater than 2.0. None of the rate ratios for officers were above 2.0. Female enlisted personnel in the inpatient setting were significantly more likely to be diagnosed with 'poisoning by drugs, medicinal, or biological substances' than male enlisted personnel. This may indicate a diagnostic cluster of concern for enlisted service women.

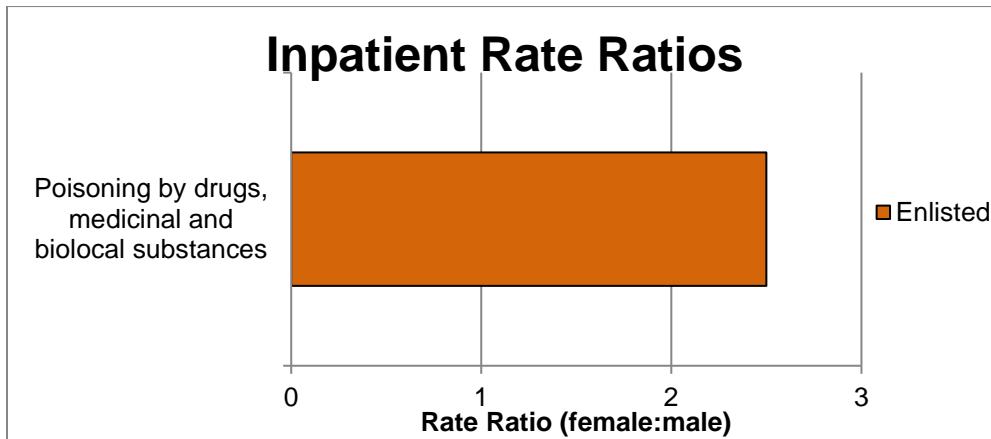


Figure 60. Rate ratios greater than 2.0 (female: male) within the inpatient Injury and Poisoning ICD-9 chapter for enlisted service women.

DMED Summary

Musculoskeletal Disorders and Mental Disorders are commonly diagnosed conditions for enlisted and officer personnel in both inpatient and outpatient settings. Although there were some marked differences between utilization patterns for men and women, there is overlap in many of the top ICD-9 diagnostic chapters. In outpatient settings, females were overall significantly more likely than their male colleagues to be diagnosed with a condition within each of the 15 ICD-9 chapters examined.

Within the Mental Disorders ICD-9 chapter, the top 5 conditions diagnosed in outpatient settings for officers and enlisted personnel were remarkably similar; even the rank order was the same for female enlisted and officer personnel. Adjustment reactions and neurotic disorders were among the top 5 most commonly diagnosed ICD-9 categories in both inpatient and outpatient settings for female enlisted and officer personnel.

Analysis of the Musculoskeletal Disorders chapter showed that the overall top 5 diagnostic categories in outpatient settings were identical for enlisted and officer personnel. Nonspecific joint and back disorders were the top two categories for men and women. Intervertebral disc disorders were more commonly diagnosed in enlisted men than their female peers, but the same category was more commonly diagnosed in female officers than in male officers. Across rank in the outpatient setting, women were 5 to 6 times more likely than men to be diagnosed with a condition in the diffuse connective tissue disease category.

Within the Injury & Poisoning chapter, sprains & strains were by far the most common diagnosis for both enlisted and officer personnel in the outpatient setting. Lower extremity sprains and strains were the most prevalent across ranks. In the inpatient setting, the most common ICD-9 category across ranks was Surgical and Medical Complications. Female enlisted personnel in the inpatient and outpatient setting were 2.5 times more likely to be diagnosed with poisoning than their male peers.

Limitations. One inherent limitation of using the DMED data comes from the nature of medical encounter data; someone must seek medical care in order to be included within the database. Thus, some cases of disease may be missed by patients who ignore symptoms, self-treat, or seek care outside the military health system. This limitation is especially problematic for mental health diagnoses, which carry a certain stigma, such that service members may want to hide these concerns from their chain of command.

The data within DMED was initially intended to be used for billing purposes; although this data is amenable to research, this data was not primarily designed for research purposes. Conversely, one strength of the data is that it was primarily used for reimbursement; that purpose would tend to incentivize correct and timely documentation of all disease conditions. The massive amounts of data within DMED were challenging to organize, and translate into clear tables and figures. With such a broad scope, it was also sometimes difficult to decide if and when further data collection was warranted.

PDTs Healthcare Services Usage by Gender

Population descriptive statistics. A total of 4,826 different prescription products dispensed in 2010 were examined. All of the information included in this section reflects data from calendar year 2010. Exactly 177,199 female service members, and 936,956 male service members, received at least one prescription. Among those that received at least one prescription, females received an average of 12.71 prescriptions a year (*SD*: 12.63) and males received an average of 7.93 prescriptions a year (*SD*: 10.34).

The total DoD force strength for calendar year 2010 included 203,536 female person years and 1,213,895 male person years, which is the epidemiological reporting format that DMED uses. In Table 35, the individual service branch populations are broken out by gender. Based on this data, 87% of service women and 77% of service men were issued at least one prescription in 2010.

Table 35

Person Year Population Totals by Service Branch and Gender

	Women (person years)	Men (person years)
Army	75,382	484,666
Air Force	63,770	267,187
Marines	13,348	189,164
Navy	51,036	272,878
Total	203,536	1,213,895

Gender analysis by therapeutic class. Table 36 shows the rates of utilization across the 22 pharmacologic therapeutic class categories investigated in this report. This data is shown for service personnel overall, as well as split out by women and men. There was only one TCC where men were more likely to receive a prescription than women, and that was in the cardiovascular drugs TCC.

Table 36

Therapeutic Class Category Prescription Data for Service Members, 2010

Therapeutic Class Category	Overall Population Cases	Rate Ratio (F : M)	Women (N = 203,536)		Men (N = 1,213,895)	
			n	Rate ⁺	n	Rate ⁺
Contraceptives	4,834	83.57	4,512	22.2	322	0.3
Blood Formation, Coagulation, and Thrombosis Agents	16,949	10.41	10,774	52.9	6,175	5.1
Vitamins / Dietary Supplements	53,014	10.00	33,214	163.2	19,800	16.3
Hormones and Synthetic Substitutes	184,853	6.74	98,124	482.1	86,729	71.4
Smooth Muscle Relaxants	3,459	4.29	1,447	7.1	2,012	1.7
Electrolytic, Caloric, and Water Balance Agents	50,701	3.78	19,655	96.6	31,046	25.6
Antineoplastic Agents	3,660	3.72	1,406	6.9	2,254	1.9
Pharmaceutical Aids	4,915	2.57	1,482	7.3	3,433	2.8
Skin and Mucous Membrane Preparations	264,757	1.96	65,461	321.6	199,296	164.2
Medical Devices	25,242	1.87	6,023	29.6	19,219	15.8
Gastrointestinal Drugs	276,426	1.79	63,886	313.9	212,540	175.1
Serums, Toxoids, and Vaccines	14,280	1.79	3,296	16.2	10,984	9.0

Table 36 (continued)

Therapeutic Class Category Prescription Data for Service Members, 2010

Therapeutic Class Category	Overall Population Cases	Rate Ratio (F : M)	Women (N = 203,536)		Men (N = 1,213,895)	
			n	Rate ⁺	n	Rate ⁺
Antihistamines	288,507	1.75	65,441	321.5	223,066	183.8
Respiratory Tract Agents	258,258	1.50	51,849	254.7	206,409	170.0
Anti-Infectives	577,033	1.43	111,635	548.5	465,398	383.4
Eye, Ear, Nose and Throat Preparations	406,060	1.36	75,433	370.6	330,627	272.4
Autonomic Drugs	354,419	1.34	65,187	320.6	289,232	238.3
Central Nervous System Drugs	838,949	1.18	138,332	679.6	700,617	577.2
Miscellaneous Therapeutic Agents	65,921	1.13	10,477	51.5	55,444	45.7
Cardiovascular Drugs	118,865	0.65	11,645	57.2	107,220	88.3

Note. Excludes Gold Compounds, Heavy Metal Antagonists, Radioactive Agents, Enzymes, Dental Agents, Disinfectants, Blood Derivatives, and Oxytocics. ⁺= Rate per 1,000 person years.

The contraceptives class was the top TCC in which women were more likely to be prescribed a medication than men. Women were 83.6 times more likely to receive at least one prescription in this category compared to men. Women were 10.4 times more likely to receive a prescription within the blood formation, coagulation and thrombosis TCC compared to men. The third most commonly prescribed TCC was vitamins; women were exactly 10 times more likely to receive a prescription in this category compared to men.

Table 37 shows the top three most commonly prescribed medications within the three most utilized TCCs for military women, alongside male comparison data. The most common therapeutic class category (TCC) in 2010 for both men and women was central nervous system agents (679.6 per 1,000 person years for women and 577.2 per 1,000 person years for men). The most common medications in this category for both women and men were ibuprofen, acetaminophen, and naproxen. The second most common TCC for both male and female service members was anti-infective agents (548.5 per 1,000 person years for women vs. 383.4 per 1,000 person years for men). The most common prescriptions in this category for women were azithromycin, doxycycline, and metronidazole. Metronidazole was a top prescription for women, but was not a top prescription for men. The most common prescriptions in this category for men were doxycycline, azithromycin, and bicillin LA (in the penicillin family, data not shown).

Table 37

Top Three Most Commonly Prescribed Medications Within the Three Most Highly Utilized TCCs for Women, Alongside Male Comparison Data

	Women 203,536 person years		Men 1,213,895 person years	
	<i>n</i>	Rate ⁺	<i>N</i>	Rate ⁺
<i>Central Nervous System Agents</i>				
Ibuprofen	84,937	417.3	377,593	311.1
Acetaminophen	40,681	199.9	161,113	132.7
Naproxen	37,438	183.9	175,023	144.2
<i>Anti-Infective Agents</i>				
Azithromycin	29,538	145.1	104,389	86.0
Doxycycline hyclate	19,776	97.2	129,198	106.4
Metronidazole	18,656	91.7	*	*
<i>Hormones and synthetic substitutes</i>				
Yaz	13,727	67.4	N/A	N/A
NuvaRing	12,113	59.5	N/A	N/A
Prednisone	9,025	43.4	36,380	30.0

Note. ⁺= Rate per 1,000 person years. *=Not one of the top three prescriptions for men.

The third most common TCC differed for men and women. Hormones and synthetic substitutes were the third most common TCC for women. The rate for women receiving a prescription in this category was 482.1 per 1,000 person years, compared to 71.4 per 1,000 person years per men. For women, the most common prescriptions in this category were Yaz, NuvaRing, and prednisone. For men, the most common prescriptions were prednisone, methylprednisolone, and synthroid.

For males, the third most common TCC was Eye, Ear, Nose and Throat (EENT) Preps. Although EENT Preps were not in the top 3 TCCs for women, military women were prescribed them in higher rates (370.6 per 1,000 person years), than military men (274.4 per 1,000 person years). The most common prescriptions in this category for women were Cepacol Sore Throat, Flonase, and Nasal Decongestant. The most common prescriptions for men were Cepacol Sore Throat, Flonase, and Periogard.

Descriptive statistics by branch of service. Figure 61 shows the prescription utilization rates for men and women across all branches of service, with specific details for the Central Nervous System (CNS) TCC. Within the CNS TCC, women in the Marine Corps had the highest prescription utilization rates compared to women in any of the other service branches (795.4 per 1,000 person years). Men in the Army had the highest prescription utilization rates within the CNS TCC when compared to men in the other service branches (639.9 per 1,000 person years). This pattern was similar for the Anti-Infective Agents TCC.

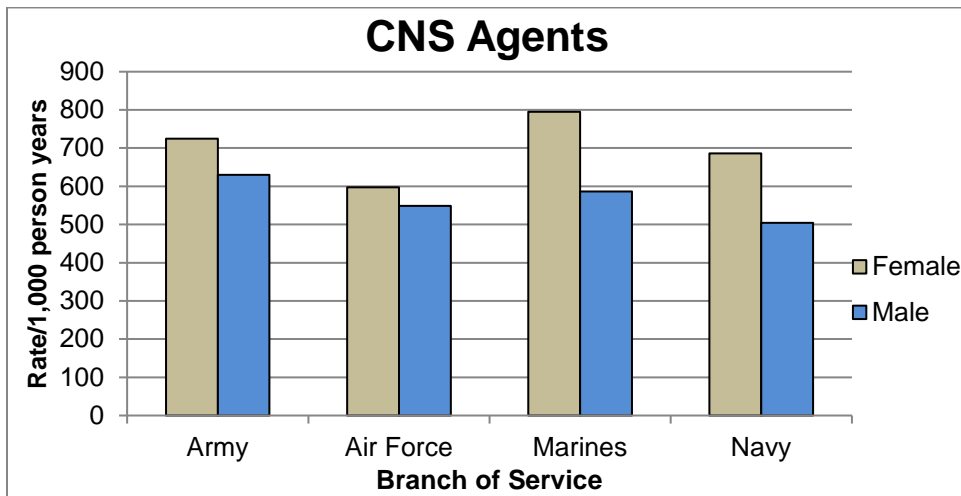


Figure 61. Service members receiving at least one Central Nervous System Agent Prescription.

Gender analysis by individual prescriptions. Figure 62 shows the top 5 most commonly prescribed over-the-counter (OTC) medications for military women, alongside male comparison data. The most common OTC prescription for both men and women was ibuprofen, (417.31 per 1,000 person years for females and 311.06 per 1,000 person years for males). The top three OTC prescriptions (ibuprofen, acetaminophen, and naproxen) are generally prescribed for pain and/or inflammation. The fourth and fifth most common prescriptions are generally prescribed for cold and flu related symptoms. Across all five top OTC medications, women were more likely than men to be prescribed one of these medications.

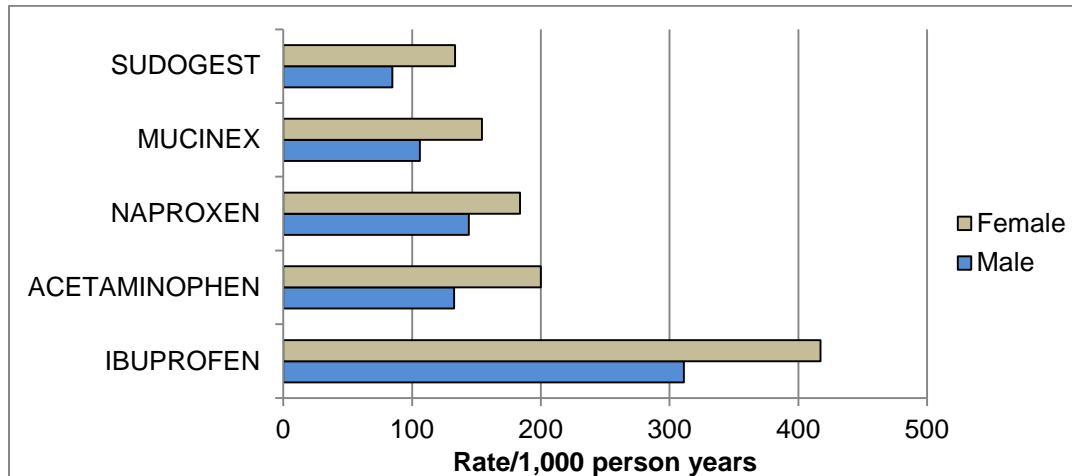


Figure 62. The top five most commonly prescribed OTC medications for military women, alongside male comparison data.

Figure 63 shows the top six most common prescription medications for military women, alongside comparison data for military men. The top two most common medication prescriptions were for opioid analgesics that are generally prescribed for pain (hydrocodone-acetaminophen and oxycodone-acetaminophen). Females were more likely to be prescribed these medications than males. Two other highly utilized medications were azithromycin and doxycycline hyclate; both are anti-infective agents. Cyclobenzaprine HCL, a muscle relaxant, was the fourth most common prescription for males; however, females still had higher prescription rates compared to males.

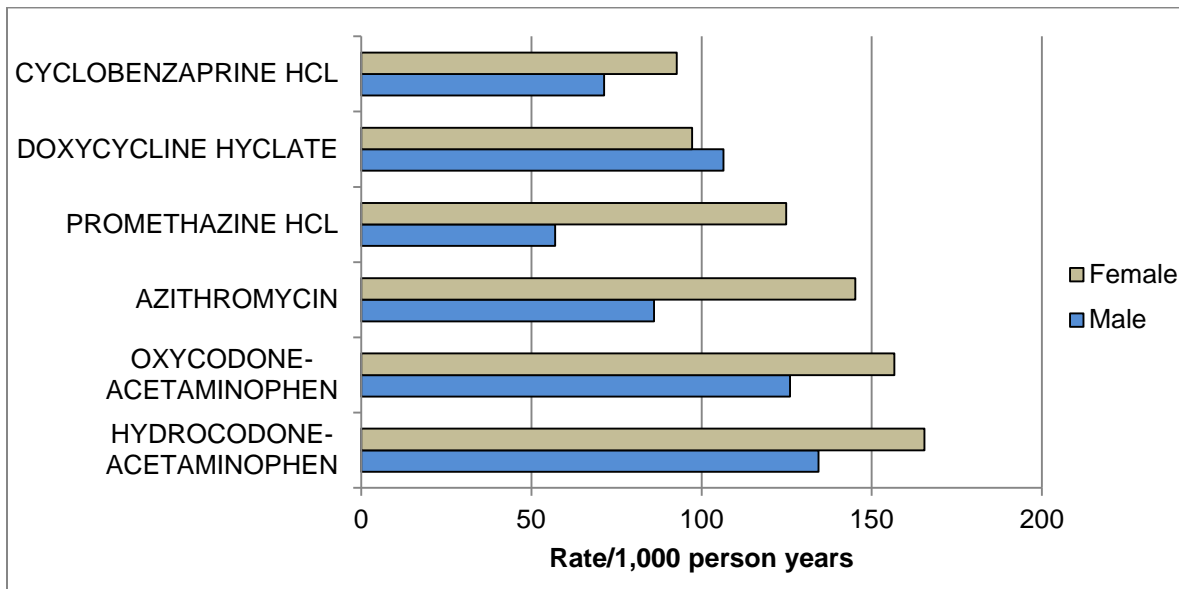


Figure 63. The top six most commonly prescribed non-OTC medications for military women, alongside male comparison data.

PDTS Summary

The most common therapeutic class categories (TCC) in 2010 for both men and women were central nervous system agents and anti-infective agents. On average, women received more prescriptions than men. Across all but one of 22 TCCs of medications, women were more likely than men to receive a prescription in each of the TCCs. The one category in which men were more likely to receive a prescription than women was the cardiovascular TCC. Women were 83.6 times more likely to be prescribed a medication in the contraceptives TCC than men. Women in the Marine Corps had the highest prescription utilization rates compared to women in any other service branch. Overall, the most commonly prescribed medications (both OTC and non-OTC) were medications most commonly prescribed for pain and/or inflammation.

Limitations. The PDTS extract used in this research did not link prescriptions to specific diagnoses. As a result, the data available was applicable to very broad categories, precluding more specific analyses. Specific prescription information would have been useful to make more robust gender comparisons across disease categories. In addition, because the PDTS dataset was not linked to personnel data, it was not possible to conduct analyses that included pertinent demographic information, such as paygrade and age. There was also no information available on prescriptions obtained through non-TRICARE sources, or prescriptions issued in-theater during combat deployments. Lastly, although personnel were prescribed the medications found in PDTS, there is no guarantee that they consumed them.

Denominator data for PDTS analyses were obtained from DMED, and included the cumulative person-years calculated from longitudinal personnel data. As a result, it was not possible to independently verify the accuracy of the denominator, or determine whether the PDTS sample was included in the denominator calculation. In addition, the PDTS data was obtained from 2010, and it would have been optimal to have had data from 2014 to match the DMED information collected.

PDTS data is a comprehensive secondary data source and common data-quality issues inherent to large administrative healthcare databases are relevant. Specifically, miscoding errors or failure to document dispensed prescriptions may impact the overall quality of PDTS and the data cannot be independently verified. However, because PDTS is primarily used for reimbursement, hospitals, clinics, and pharmacies have an incentive to correctly document all prescriptions as they are dispensed.

Methods - Question 4: Are there Research Gaps that Need to be Addressed?

Population Selection

The articles were selected as noted in Methods – Question 1, quality data was extracted and calculated as noted in Methods – Question 2, and healthcare utilization data was extracted as noted in Methods – Question 3.

Data Extraction

There are few clear guidelines on how to conduct a gap analysis within the research literature; many of the existing resources are from the business or organizational quality literature (Agency for Healthcare Research and Quality, 2016; Bunse, Vodicka, Schönsleben, Brühlhart, & Ernst, 2011; Hawes, 2009; Mikoluk, 2013; Pusnik, Al-Mansour, Sucic, & Gubina, 2016). Common elements of these types of gap analysis methodologies include evaluation of the current status of the existing element under review, determination of the desired future status of the target element, and development of steps to bridge that gap. Other sources compare existing supply of products or personnel to future demand in order to identify gaps (Hanser, Miller, Shukiar, & Newsome, 2008; Riedel, Roehrling, Czepionka, & Kasper, 2014). Resources on conducting gap analyses within the research literature are less common (Carey et al., 2012; Robinson, Saldanha, & Mckoy, 2011), particularly when the primary data is from a scoping review (Bragge et al., 2011; Daudt, van Mossel, & Scott, 2013). Common elements from these resources suggest that determination of insufficient information on a topic may be one way to identify gaps in the research literature. However, little guidance is provided on how to determine whether the existing information is sufficient.

Because of the paucity of gap analysis resources, the research team strategized how to conduct a reliable gap assessment with the large amounts of data collected so far. The team included some of the gap analysis elements listed above, such as assessment of insufficient information on a topic, or comparison of the supply of research articles on a topic with the demand demonstrated in the healthcare utilization data. Gap Analysis Matrices (GAMs) were developed to aggregate the various forms of data and improve data visualization for reliable gap identification. These GAMs included data on subtopic article frequency and quality (Question 1 and 2) as well as recent healthcare utilization data (Question 3). Data that were extracted from the scoping review included the following: subtopic definition, number of articles within each subtopic, and percentage of both excellent and low quality articles within each subtopic. DMED data were extracted by ICD-9 diagnostic clusters (i.e. chapters, categories, subcategories, sub-classifications) and matched to appropriate subtopics within the scoping review. When applicable to the subtopic, PDTS data were extracted by specific pharmacologic therapeutic class category (TCC).

Additionally, evaluation of differences in subtopic representation by branch was reviewed in terms of branch force strength. According to the 2014 Demographics Profile of the Military Community (DoD, 2015), the force strength of each branch is as follows: Army at 47.3%, Air Force at 21.3%, Navy at 17.4%, Marines at 12.1%, and Coast Guard at 2.0%. Following a method that is similar to

evaluating for clinical importance (LeFebvre, 2011; Leung, 2001; Man-Son-Hing et al., 2002), branches of service were considered to be over or under represented within a given subtopic if the percentage of articles in that subtopic was $\pm 15\%$ from the force strengths listed above. Since the U.S. Coast Guard has such a small footprint in the military research literature, Coast Guard samples were further highlighted if representation within a topic was at or above 4%.

However, one gap analysis element that was lacking from the data collected was the input of expert organizational stakeholders with perspective on military women's healthcare research. Ideally, expert stakeholders would provide guidance to determine how the data collected so far aligned with current military women's health priorities. The funding constraints of this project made an in-person conference with subject matter expert consultation untenable. Therefore, a comprehensive search of online resources was performed to identify military female-specific healthcare and research priorities identified by reputable national organizations. The following sources were used: recent literature review findings from the Department of Veterans Affairs (VA) (Bean-Mayberry et al., 2011; Yano et al., 2011), the Defense Health Affairs (DHA) report to Congress on Women's Health Deployment (Office of the Assistant Secretary of Defense Health Affairs, 2015), recent publication data from the American College of Obstetrics and Gynecology (ACOG) on healthcare for military women (American College of Obstetricians and Gynecologists (ACOG), 2012), data from the Department of Defense (DoD) (Deployment Health Clinical Center (DHCC), 2011), recommendations from the Institute of Medicine (IOM) for research on military women's health (Institute of Medicine (IOM), 1995), report findings from the Committee on Body Composition, Nutrition, and Health (IOM, 1998), and priorities from the Defense Women's Health Research Program (Military Operational Medicine Research Program (MOMRP), 1994). The specific priorities were collated into one document for use while evaluating if a subtopic was specifically highlighted by any one organization or report.

Analyses of Data

Gap Analysis Matrices (GAMs) allowed for the aggregation of all relevant data on each subtopic to more easily determine whether a gap existed. Important elements from the scoping review (Questions 1 and 2), the healthcare utilization data (Question 3), and the organizational priority lists were selected for inclusion in the GAMs (Appendix K). Within the gap assessment for each subtopic, nine specific criteria were considered (listed below). If any of the following criteria were met, this was considered important in determining whether a gap existed.

Scoping Review:

- The number of articles within a subtopic was at or below 20
- The percentage of low quality articles was at or above 20%
- The number of excellent quality articles was at or below 10%

Healthcare Utilization Data:

- Subtopics mapped to the top 5 most commonly utilized ICD-9 diagnostic chapters and categories for women

- Female to male ratios were at or above 2.0 in those diagnostic clusters
- The prescription therapeutic class category (TCC) was in the top 10 most highly utilized categories for women
- Female to male ratios were at or over 2.0 in those TCCs

Organizational Priorities:

- If three or more organizations listed a subtopic as a priority
- If at least one organization in the past 10 years highlighted a subtopic as a priority

Each of the criteria listed above were considered in aggregate. Meeting any one of the criteria did not necessarily mean that a gap existed for that subtopic. The combined criteria were used to determine if a gap existed within each subtopic. Many subtopics could not be mapped onto DMED or PDTS data; in these cases, more consideration was given to the scoping review items and the organizational priorities when making gap analysis determinations. For each one of the 73 subtopics, one of the following three recommendations was made:

None at this time: This recommendation was made when research on the subtopic appeared sufficient, and/or the subtopic was one in which men were diagnosed more often than women (e.g. alcohol use), and/or the subtopic was too broad to make a recommendation (e.g. other organ systems), and/or the subtopic did not require gender-inclusive research (e.g. aeromedical evacuations).

Continue Ongoing Research Trajectory: This recommendation was used for a subtopic that had a robust body of research literature, and was important to the health and readiness of service women. This recommendation was made for a subtopic in which women were diagnosed at least two times more often than men, and/or when a subtopic had been highlighted as a priority within the past 10 years, and/or when a subtopic posed significant harm to military women and men (e.g. IPV, suicide). This recommendation indicated that research on a subtopic should be continued, but the subtopic was not considered a gap in the literature.

Gap Identified in the Existing Research: This recommendation was used for subtopics that were identified as gaps in the existing literature based on meeting multiple criteria within the aggregated data from the scoping review, healthcare utilization data, and existing organizational priorities. Research on these subtopics should be considered as highly relevant to the health of military women, and can guide future research agendas and funding organizations.

Quality Assurance

After entry of all pertinent data into each subtopic GAM, team meetings were held to discuss gap analysis evaluations. Each GAM was evaluated and discussed on at least two different occasions. GAMs for each subtopic were reviewed by all members of the research team and gap analysis determinations were made by unanimous decision. If all research team members did not agree on a determination, group discussions continued until a determination could be made. For each subtopic

GAM where gap analysis determinations were unclear or borderline, group discussion occurred on at least four separate occasions. All GAM evaluations were required to be unanimous in order for a gap analysis recommendation to be final.

Results and Discussion – Question 4: Are there Research Gaps that Need to be Addressed?

After collection of all study data, a comprehensive gap analysis of the literature was conducted. This analysis incorporated the scoping review results, the healthcare utilization data, and past organizational reports on priorities for military women's health and research. The results of this comprehensive gap analysis are summarized below.

Research Gap Overview

Figure 64 represents the number of articles in each research topic area across the service branches. Data is represented as a line even though there was no time trend component to the data in order to clearly show the differences among service branches by topic. In comparison to other services, there were a larger number of articles containing a U.S. Army sample in every major topic covered by this analysis. This is likely due to the relatively larger size of the U.S. Army force.

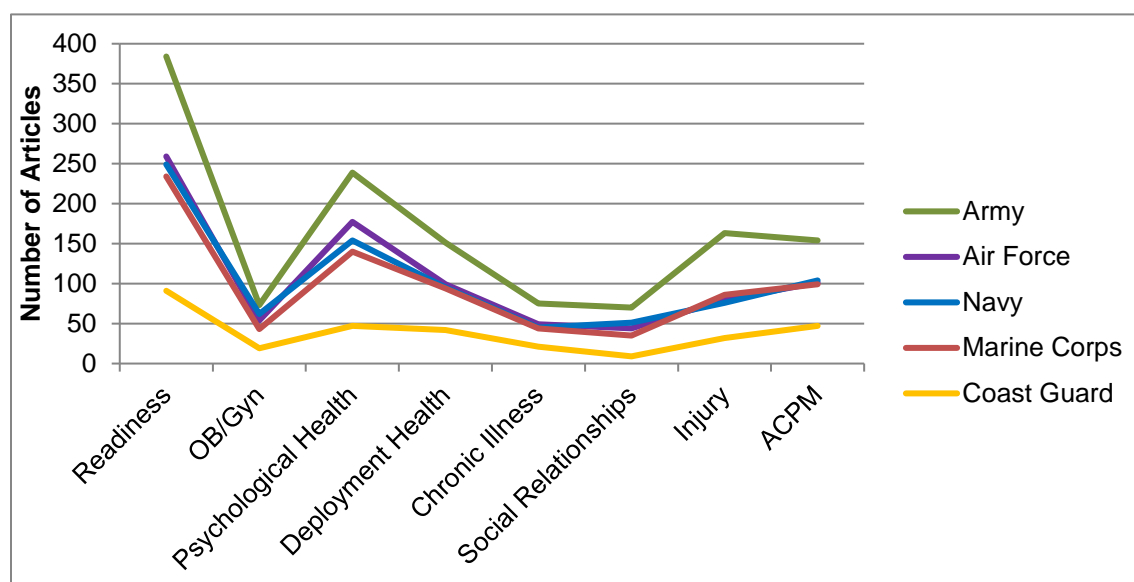


Figure 64. Number of articles by topic, stratified by service branch.

However, in the area of obstetrical and gynecological (OB/Gyn) health, there were approximately the same number of articles containing an Army sample as there were containing a sample from the other branches of service. The number of articles on this topic was also proportionately small compared to the number of articles on other topics. One striking comparison was that the number of articles about OB/Gyn topics was approximately similar to the number of articles on Chronic Illness. Due to the relatively young and healthy military population, it is not surprising that there are comparatively few articles about chronic illness. It is, however, surprising that OB/Gyn articles were not more prolific considering that the military has a substantial young, healthy population of women who are mostly in their prime reproductive years.

The following sections are broken out by the 8 major topic areas identified in the scoping review. Each main topic area includes analyses of branch specific frequencies of articles by subtopic. Subtopics which were evaluated as gaps within the current literature were also discussed in relation to service branch data. Brief synopses of the rationale behind research gap determinations in each topic area are given. Supplemental analyses are also included, where applicable.

Additionally, Gap Analysis Matrices (GAMs) for all subtopics with an identified gap (n=26) follow each topic summary to provide full transparency. The following are abbreviations found within the matrices: ACOG (American College of Obstetrics and Gynecology), DHA (Defense Health Affairs), DoD (Department of Defense), IOM (Institute of Medicine), MOMRP (Military Operational Medicine Research Program), and VA (Department of Veterans Affairs). The GAMs provide a visual representation of how the research team identified gaps in the existing literature. To view the GAMs for each one of the 73 subtopics, please see Appendix K.

Psychological Health: Research Gap Analysis

Representation among the service branches. Figure 65 displays all Psychological Health subtopics by service branch. Within the Psychological Health topic, the Marine Corps was consistently over-sampled in all areas relative to force strength. Similarly, Navy samples were over-represented in the following categories: TAD, mood disorders & anxiety, general mental disorders, mental healthcare utilization, and resilience factors. Despite their small size, Coast Guard samples were over-represented in all topics in which they were included. The Air Force was over-represented within the TAD, distress, resilience factors, and suicide subtopics, but under-represented in the PTSD subtopic. Finally, the Army was under-represented in every category shown, except for cognition research. The Army was over-represented in this area, and this was the one area in which the Navy was under-represented.

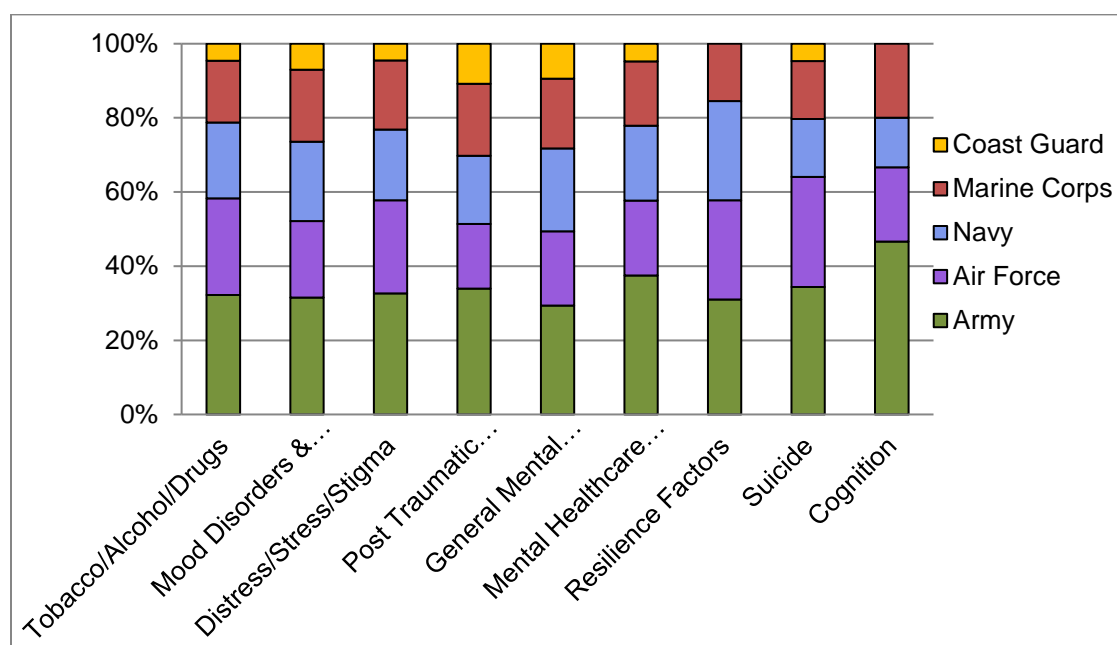


Figure 65. Psychological Health subtopics by service branch.

Note. Tobacco/Alcohol/Drug includes all articles from the Tobacco, Alcohol, or Drug subtopics. Distress/Stress/Stigma includes all articles from the Distress, Stress, and Stigma subtopics. General Mental Disorders includes all articles from the Adjustment Disorders, Personality Disorders, Eating Disorders, and Other Mental Disorders subtopics.

Gaps in research. Table 38 shows the identified gaps within the Psychological Health topic. Other than the Army, general mental disorders were relatively well-represented across service branches. However, the number of articles related to adjustment, eating, and personality disorders (included within “general mental disorders”) was quite small ($n = 10$, $n = 6$, $n = 10$ respectively). Within the ICD-9 Mental Disorders chapter, the top diagnostic category for women across ranks (enlisted and officer) and across settings (inpatient and outpatient) was adjustment disorders. Furthermore, women in both enlisted and officer ranks were two times more likely to be diagnosed with an adjustment disorder across settings than their male peers. The outpatient diagnostic category of

'special symptoms' (of which eating disorders is a subcategory) was in the top 5 within the Mental Disorders chapter for women across ranks. In addition, outpatient female enlisted personnel were 4 times more likely to be diagnosed with eating disorders than their male peers. Personality disorder diagnoses were the number 2 inpatient ICD-9 category within the Mental Disorders chapter for female enlisted personnel. Females across ranks were approximately 3 times more likely to be diagnosed with a personality disorder in outpatient settings than their male peers, and between 6 and 8 times more likely to be diagnosed with a personality disorder in inpatient settings than their male peers. Other than the Army, all service branches were well-represented in research related to distress/stress/stigma. However, the actual number of articles published on the stigma subtopic was quite small ($n = 13$). The mental health of service members, as well as the associated stigma of seeking care, is of particular concern because it can impact individual, as well as socially-accepted, beliefs about mental health and treatment-seeking behavior. These are areas of concern, and further high-quality research is needed.

Table 38

Identified gaps within the Psychological Health topic

Psychological Health
Stigma
Adjustment Disorders
Personality Disorders
Eating Disorders

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Stigma	Topic Psychological Health	ICD-9 Chapter N/A	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DoD (2016)	There was no DMED or PDTS data on this subtopic. Mental health was recognized as a research priority by 6 out of the 7 research priority lists consulted for this project, with 3 highlighting mental health within the past 5 years. Although the quality of the existing research on this subtopic is good to excellent overall, the number of articles in this area is scant. This means that female service members may not be well-studied in terms of mental health stigma.		
	Number of Articles 13	Top 5 Utilized N/A				
	Excellent Quality 38%	F:M ratio N/A		Based on this information, there is a significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 0%					
	Definition Self-reported individual barriers to seeking mental healthcare	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

Figure 66. Gap Analysis Matrix for the Stigma subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis			
Subtopic: Adjustment Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DoD (2016)	Mental and behavioral disorders were in the top most utilized ICD-9 chapters, and adjustment disorders were one of the top most utilized ICD-9 categories. Women were close to two times more likely to be diagnosed with an adjustment disorder than men across setting and rank. Six organizations highlighted mental/psychological disorders as a research priority and four of these were within the past six years. Although the quality for all articles was good to excellent, the number of articles is extremely low. This means that female service members may not be well-studied in terms of adjustment disorders.			
	Number of Articles 10	ICD-9 Category Adjustment Reaction (309)					
	Excellent Quality 30%	Top 5 Utilized Chapter & Category					
	Low Quality 0%	F:M ratio Adjustment Reaction (309) <i>Outpatient</i> Enlisted: 1.7 Officer: 1.9					
	Definition Diagnosis and treatment of adjustment disorders	<i>Inpatient</i> Enlisted: 1.6 Officer: 2.1		TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26	Based on this information, there is a significant gap in the existing literature on adjustment disorders.		
		F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13					
					Recommendations		
		Gap identified in existing research	Continue ongoing research trajectory	None at this time			

Figure 67. Gap Analysis Matrix for the Adjustment Disorders subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTs)	Organizational Priorities	Reviewer Synthesis
Subtopic: Personality Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Personality Disorders (301)	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DoD (2016)	<p>This subtopic falls within the top 5 diagnosed chapters and categories within DMED data. Personality disorders were the 2nd most common diagnosis within the Mental Disorders chapter for enlisted women. Women across ranks and settings were much more likely to be diagnosed with a personality disorder than men. CNS agents were the top most utilized therapeutic class category. Mental health continues to be highlighted as a research priority for the military by many organizations.</p> <p>Bearing this information in mind, the scant number of articles in this subtopic is alarming. There is a significant gap in the existing gender-inclusive literature on personality disorders.</p>
	Number of Articles 10	Top 5 Utilized Chapter & Category		
	Excellent Quality 30%	F:M ratio Personality Disorders (301)		
	Low Quality 0%	<i>Outpatient</i> Enlisted: 2.8 Officer: 3.2		
	Definition Diagnosis and treatment of personality disorders (e.g. Antisocial Personality, Narcissistic Personality Disorder)	<i>Inpatient</i> Enlisted: 8.3 Officer: 6.3		
		TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26		
F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13				
Recommendations				
		Gap identified in existing research	Continue ongoing research trajectory	None at this time

Figure 68. Gap Analysis Matrix for the Personality Disorders subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Eating Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Special Symptoms, not elsewhere classified (307) ICD-9 Subcategories Eating Disorders (307.5)	Eating Disorders * IOM (1995) * VA (2011) * DOD (2016)	Service members may be at a higher risk for disordered eating. They are held to pre-determined physical fitness and weight criteria throughout their career, and can be separated from service if these criteria are not consistently met.		
	Number of Articles 6	Anorexia Nervosa (307.1)				
	Excellent Quality 50%	Top 5 Utilized Chapter & Category		Bearing this in mind, the scant number of articles within this subtopic is very concerning. There is a significant gap in the existing gender-inclusive literature on eating disorders.		
	Low Quality 0%	F:M ratio Eating Disorders & Anorexia Nervosa (307.1 & 307.5) <i>Outpatient</i> Enlisted: 4.1				
	Definition Specific risk factors for, and diagnosis and treatment of, eating disorders	TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26		Recommendations		
		F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13				

Figure 69. Gap Analysis Matrix for the Eating Disorders subtopic

Readiness: Research Gap Analysis

Representation among the service branches. Figure 70 displays all Readiness subtopics by service branch. Within the Readiness topic, the Marine Corps was consistently over-sampled in all areas relative to force strength. The Coast Guard was over-represented in healthcare utilization, health behaviors, and sleep. These areas were also over-represented within Navy samples, in addition to the areas of work environment, and mortality. Conversely, the Army was under-represented in every area in which the Navy was over-represented. The Navy and Air Force were both under-represented in the areas of physical fitness and training, but the Army was over-sampled relative to force strength in the area of training.

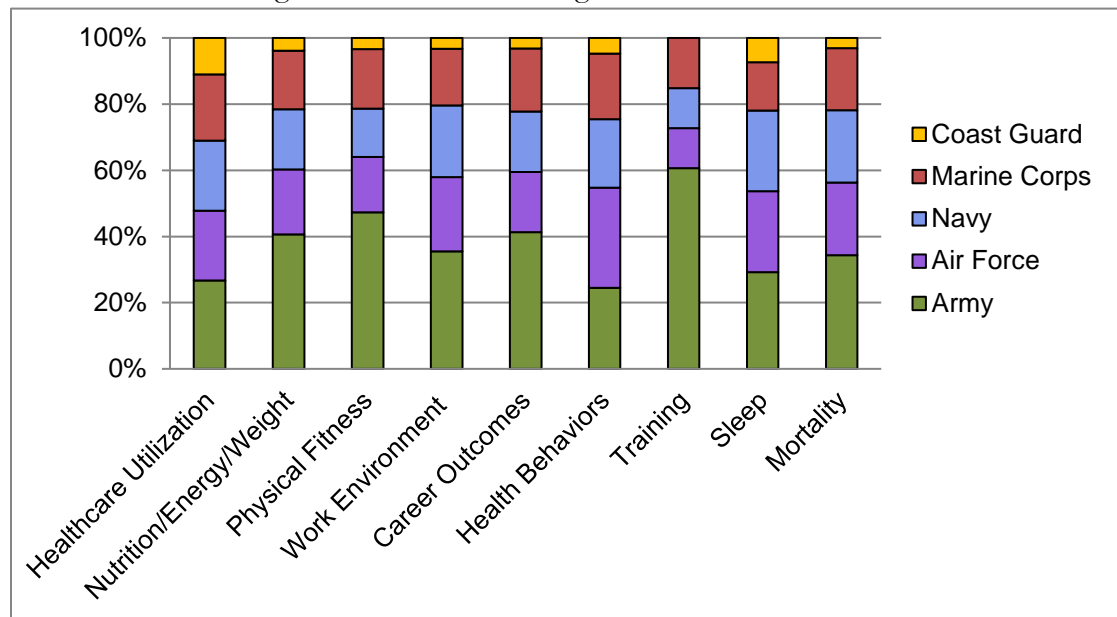


Figure 70. Readiness subtopics by service branch.

Gaps in research. Table 39 shows the identified gaps within the Readiness topic. Besides the Army, all other service branches were well-represented in sleep research, but the actual number of articles published on this subtopic was very small ($n = 19$). Within the ICD-9 Mental Disorders chapter, the outpatient diagnostic category of ‘special symptoms’ (of which sleep is a subcategory) was in the top 5 for women across ranks; furthermore, sleep disorder diagnoses were in the top 5 conditions within this subcategory for outpatient women across ranks. Sleep is critical for physical health, mental health, work and home safety, as well as quality of life (Institute of Medicine (IOM) Committee on Sleep Medicine and Research, 2006). Service members may be particularly susceptible to sleep difficulties due to stress, duty schedules, and other characteristics of the military environment. The lack of gender-inclusive evidence in this area is concerning and further research is needed.

Table 39

Identified gaps within the Readiness topic

Readiness
Sleep

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sleep	Topic Readiness	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Sleep * VA (2011) Performance * MOMRP (1994) * IOM (1995)	While shift work and variable sleeping schedules are common in both civilian and military sectors, service personnel may be more susceptible to sleep difficulties by virtue of their unpredictable work schedules and locations.		
	Number of Articles 16	ICD-9 Category Special Symptoms, not elsewhere classified (307) ICD-9 Subcategory Specific disorders of sleep of nonorganic origin (307.4)				
	Excellent Quality 25%	Top 5 Utilized Chapter & Category		Sleep disorders were in the top 5 most utilized chapters and categories for outpatient officers. Three organizations highlighted sleep and performance as a military priority, one in the past six years. While over 90% of the research was of good to excellent quality, the number of articles in this area were scant, which may indicate that service women are not well studied in terms of sleep.		
	Low Quality 6%	F:M ratio Specific disorders of sleep of nonorganic origin (307.4) <u>Outpatient</u> Officer: 1.2				
	Definition Factors contributing to alteration in sleeping habits or circadian rhythm	TCC Rank #1 Central Nervous System Agents		Recommendations		
		F:M Rate Ratio 1.18				

Figure 71. Gap Analysis Matrix for the Sleep subtopic

Injury: Research Gap Analysis

Representation among the service branches. Figure 72 displays all Injury subtopics by service branch. Within the Injury topic, the Marine Corps was consistently over-sampled in all areas relative to force strength. This was also true of the Coast Guard, except in the area of musculoskeletal injury. The Army and Air Force were not under-represented in any area. The Navy was over-represented within the traumatic brain injury (TBI) subtopic, but under-represented in the general injury subtopic. The Air Force was also under-represented in the general injury subtopic, as well as in the traumatic injury and deployment injury areas. Finally, the Army was also under-represented in the traumatic injury and deployment injury areas, as well as in the TBI, heat/cold/altitude, and eye/ear injury subtopics.

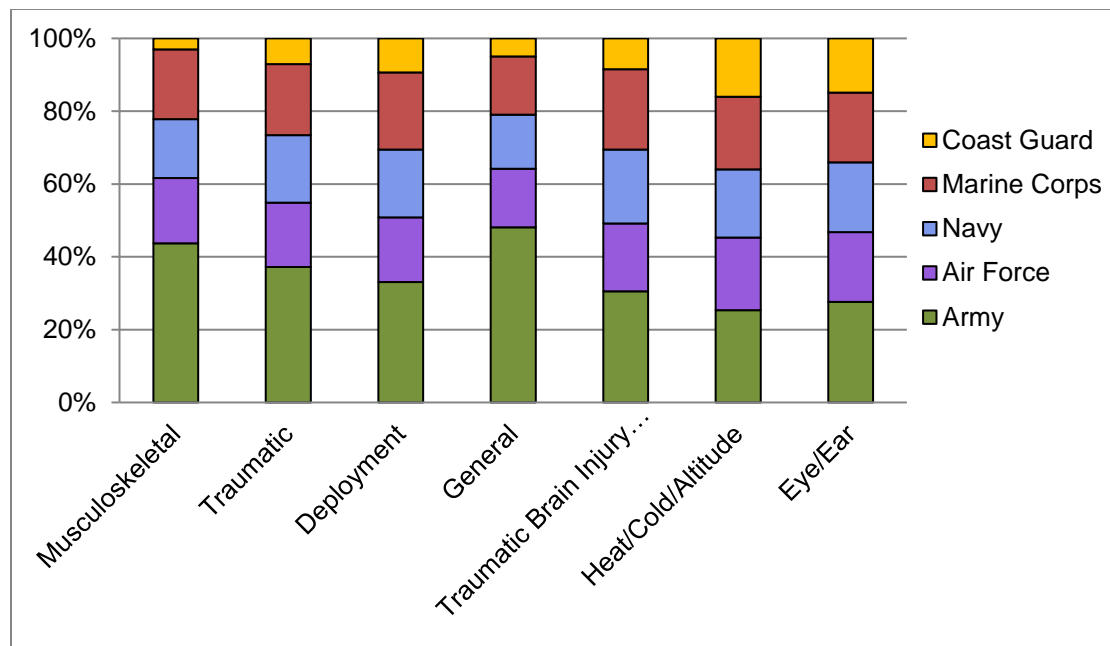


Figure 72. Injury subtopics by service branch.

Gaps in research. Table 40 shows that no research gap areas were identified within the Injury topic. Injury research was found to be robust, as evidenced by the high quality and high volume research in this field, and the close alignment with healthcare utilization data. In addition, the field of injury research aligns well with military priorities for returning injured service members back to duty in a timely manner.

Table 40

Identified gaps within the Injury topic

Injury
No gaps identified

Acute Care & Preventive Medicine: Research Gap Analysis

Representation among the service branches. Figure 73 displays all Acute Care and Preventive Medicine (ACPM) subtopics by service branch. Within the ACPM topic, the Marine Corps and the Coast Guard were consistently over-sampled in all subtopics relative to force strength. By contrast, the Army was under-represented in every subtopic, except cardiovascular health. The Air Force was under-represented in the subtopics of cardiovascular health and sexually transmitted infections. Conversely, the Navy was over-sampled in the subtopics of STIs, other organ systems, infectious disease, and vaccinations.

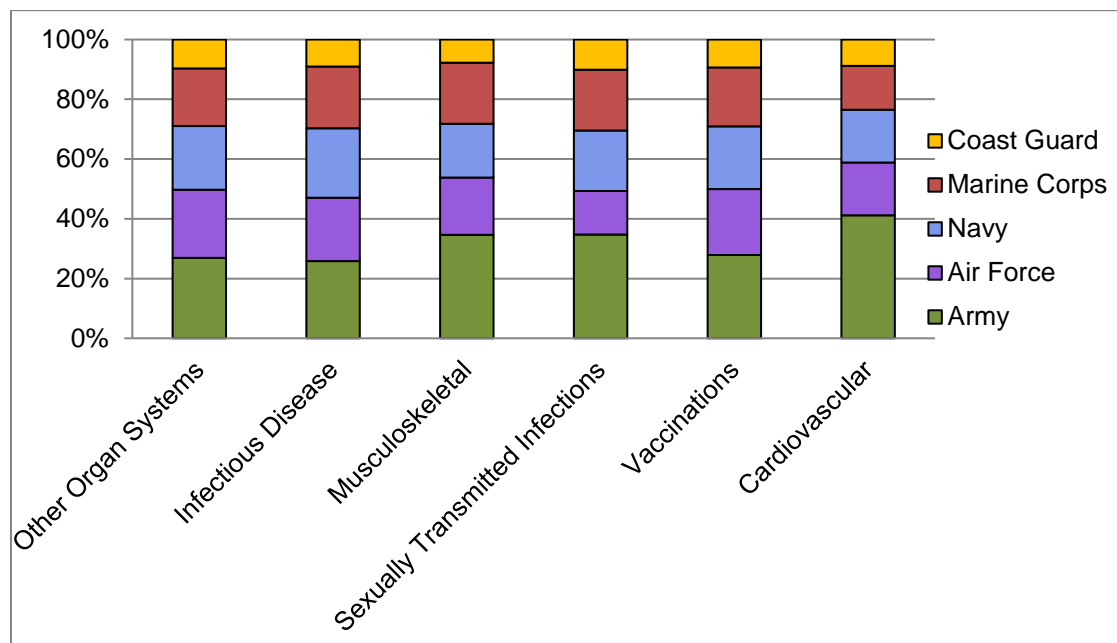


Figure 73. Acute Care & Preventive Medicine subtopics by service branch.

Gaps in research. Table 41 shows that STIs were one of the identified gaps within the ACPM topic. Other than the Air Force and Army, all other service branches were well- represented in research related to STIs. However, considering this is an area that has been highlighted by multiple organizations, the actual number of articles published on this subtopic was relatively minimal ($n = 37$), with almost 15% being of low quality. Of particular concern are diagnosis rates for chlamydia; women across ranks are 3.3 to 5.0 times more likely to be diagnosed with chlamydia than their male peers. STIs are prevalent among military and civilian populations. However, service members may be at greater risk of contracting such infections given certain environmental factors (e.g. long deployments, close living quarters). This is an area of concern and further research is needed.

Table 41

Identified gaps within the Acute Care & Preventive Medicine topic

Acute Care & Preventive Medicine (ACPM)
Sexually Transmitted Infections (STI)

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Sexually Transmitted Infections	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter Infectious and Parasitic Diseases (001-139) ICD-9 Categories Other diseases due to viruses and chlamydiae (070-079) Chlamydia (078-079) Syphilis and other venereal diseases (090-099) Gonococcal (098) Venereal disease (099)	Gynecological/genitourinary health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)	<p>Although this subtopic is not in the top utilized ICD-9 chapters/categories, outpatient women across rank were much more likely to be diagnosed with an STI than men. Anti-infective medications were also the 2nd most highly prescribed TCC for women. Five organizations highlighted various areas of reproductive health as priorities for military populations. Of these organizations, three were within the past 10 years. The number of articles in this area was relatively light given the high priority given to this subtopic by multiple organizations.</p> <p>Based on this information, there is a significant gap in the existing gender-inclusive literature on STIs.</p>								
	Number of Articles 37	Top 5 Utilized N/A	Reproductive health * IOM (1995) * VA (2011) * ACOG (2012)									
	Excellent Quality 19%	F:M ratio <i>Outpatient</i> Syphilis (090-099) Enlisted: 2.3	Sexually Transmitted Diseases (STDs) * MOMRP (1994) * IOM (1995)	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory	None at this time									
	Low Quality 14%	Officer: 0.8 Viral Warts (078.1) Enlisted: 0.8 Officer: 0.9 Chlamydia (078.88) Enlisted: 3.3 Officer: 0.7 Other chlamydia (079.88) Enlisted: 3.5 Officer: 5.0 Unspecified chlamydial (079.98) Enlisted: 4.7 Officer: 2.0	Communicable diseases * IOM (1995)									
Definition Sexually transmitted infections including Trichomonas vaginalis, chlamydia, and genital warts; excludes HIV and Hepatitis A/B/C	TCC Rank #2 Anti-Infectives											
	F:M Rate Ratio 1.43											

Figure 74. Gap Analysis Matrix for the Sexually Transmitted Infections (STI) subtopic

Deployment Health: Research Gap Analysis

Representation among the service branches. Figure 75 displays all Deployment Health subtopics by service branch. Within the Deployment Health topic, the Army was the only service branch to be consistently under-sampled in all areas relative to force strength. The Coast Guard was consistently over-represented in all areas; the Marine Corps was also over-represented in all areas, except for gynecological care during deployment. The Navy was over-represented in gynecological care, symptomatic conditions, aeromedical evacuations, and mental health. The Air Force was over-represented in gynecological care, symptomatic conditions, aeromedical evacuations, and mental health. The Air Force was not over- or under-represented in any of the areas.

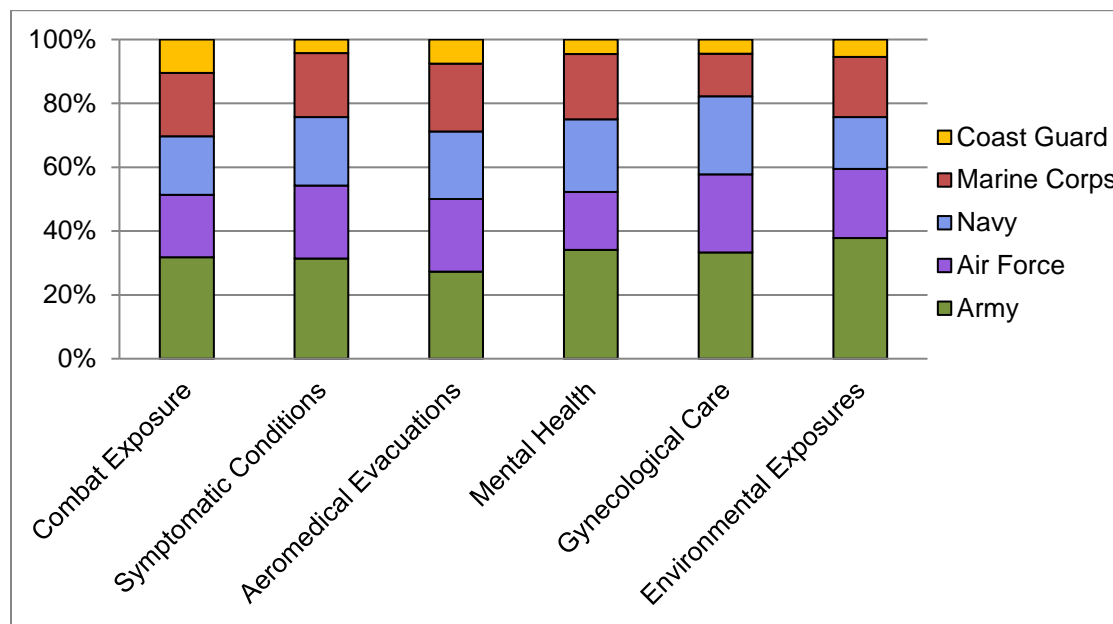


Figure 75. Deployment Health subtopics by service branch.

Gaps in research. Table 42 shows that gynecological care was the one identified gap in the Deployment Health topic. Other than the Army, all other service branches were well-represented in research related to deployment gynecological care; however, the actual number of articles published on this subtopic was scant ($n = 19$). Healthcare utilization data in DMED showed that Diseases of the Genitourinary System were in the top 5 most commonly diagnosed ICD-9 chapters for women across ranks and across settings. Additionally, women are between 5 and 7 times more likely to be diagnosed with a condition in this chapter than their male counterparts across rank and across setting. The importance of gender-inclusive research in this area cannot be over-emphasized; more evidence to guide long-range healthcare and policy is needed.

Table 42

Identified gaps within the Deployment Health topic

Deployment Health
Gynecological Care

Additional analyses. Figure 76 shows how deployment related research has shifted over time. Each bar represents all of the articles about a deployment setting that were published within a given year. As expected, the trend in the location of deployment research dramatically changed in the years following the initiation of Operations Enduring Freedom, Iraqi Freedom, and New Dawn (OEF/OIF/OND). Across the years of this report, many deployment-related studies did not report a specific location of engagement. Although this may have been intentional due to the sensitive nature of military operations, it is lost data that might have been able to clarify how different deployments impact the health of service members in various ways. Stating that research was conducted in a generic deployment setting does not allow for fine-grained and accurate interpretation of results.

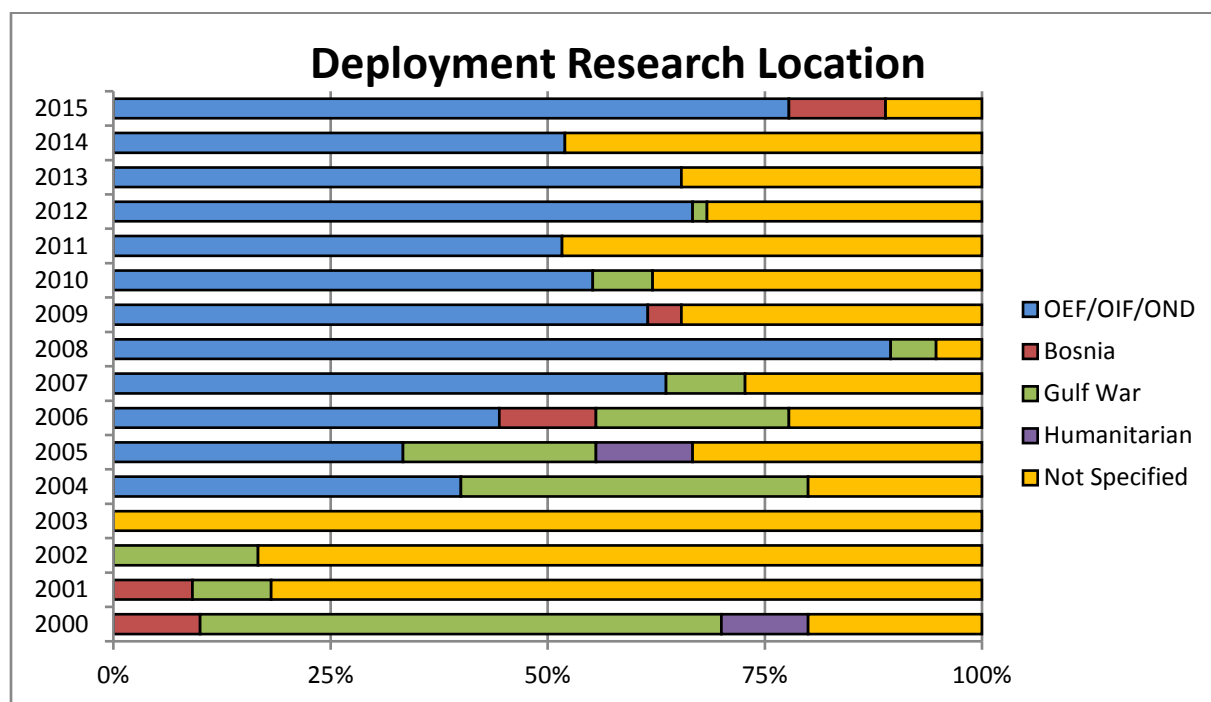


Figure 76. Percent of articles about each deployment setting by publication year

Also of note is the very small body of research that has been conducted on humanitarian deployments. Over the 10 year period, only 2 articles were published on how humanitarian deployments may impact the health of female service members. The mental and physical exposures of humanitarian deployments differ from combat deployments. Considering U.S. military forces are often deployed to support natural disaster relief efforts and provide humanitarian assistance, the lack of research on humanitarian deployments presents a significant research gap. It should also be noted that although the Gulf War ended in 1991, gender-focused research on that engagement is still being conducted, specifically looking at long-term health outcomes of service personnel.

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Gynecological Care	Topic Deployment Health	ICD-9 Chapter Disease of the genitourinary system (580-629)	Bacterial Vaginosis * ACOG (2012) * DHA (2015)	The ICD-9 chapter for Diseases of the Genitourinary System is among the top utilized chapters. Women were far more likely to be diagnosed with genitourinary conditions than men. Three different organizations, two within the past 5 years, have identified gynecological care in deployment as a research priority. The number of articles for this subtopic was scant, which may indicate that service women are not well-studied in relation to deployment gynecological health. Additionally, 21% of the articles in this subtopic were of low quality.					
	Number of Articles 19	Top 5 Utilized Chapter	Cervical Cancer Screening * ACOG (2012)						
	Excellent Quality 11%	F:M ratio Disease of the genitourinary system (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5	Contraception * ACOG (2012) * DHA (2015)	Based on the current information, there is a significant gap in the existing gender-inclusive literature.					
	Low Quality 21%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4	Facilities and Hygiene in Deployment * ACOG (2012) * DHA (2015)						
	Definition Gynecological care during deployment, includes access to care or necessary supplies		Gynecological/ Genitourinary Health in Deployment * DHA (2015) * MOMRP (1994)	Recommendations					
		TCC Rank N/A	Menstruation * ACOG (2012) * DHA (2015)				Gap identified in existing research	Continue ongoing research trajectory	None at this time
		F:M Rate Ratio N/A	Pregnancy * ACOG (2012) * DHA (2015)						

			UTIs * ACOG (2012) * DHA (2015)			
--	--	--	--	--	--	--

Figure 77. Gap Analysis Matrix for the Gynecological Care subtopic

Social Relationships: Research Gap Analysis

Representation among the service branches. Figure 78 displays all Social Relationships subtopics by service branch. Within the Social Relationships topic, the Coast Guard was over-sampled in all areas in which it was represented. The Navy was also over-represented in every subtopic, except for military work relationships. The Air Force was under-represented in the areas of sexual harassment, child abuse, and physical assault, and over-represented in the area of intimate partner violence. For the first time, the Marine Corps was under-represented, and this was in the area of intimate partner violence. Also unique to this topic, the Marine Corps was not over-represented in every other category, but only in the areas of sexual assault, military family relationships, military work relationships, and sexual harassment. The Army was under-represented in every subtopic, except in the areas of child abuse and physical assault.

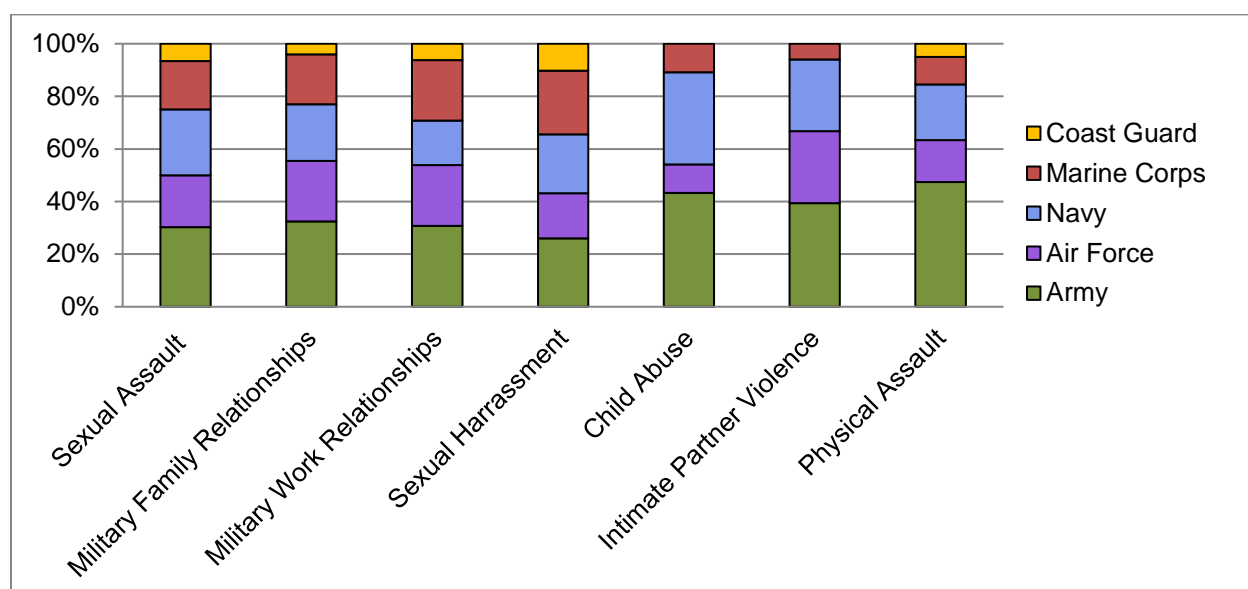


Figure 78. Social Relationships subtopics by service branch.

Gaps in research. Table 43 shows the two identified gaps within the Social Relationships topic: sexual assault and physical assault. Other than the Army, all other service branches were well-represented in research related to sexual assault. This area has been highlighted by multiple organizations as a priority topic. The amount of research published in the area of sexual assault was relatively modest ($n = 47$), with over one third of the articles being of excellent quality. It was not possible to specifically characterize sexual assault within the DMED data, but the category of ‘adult sexual abuse’ was used as a proxy. Within the healthcare utilization data, the most commonly diagnosed outpatient category within the ICD-9 Injury and Poisoning chapter was ‘other and unspecified effects of external causes’ within which the diagnosis of ‘adult sexual abuse’ occurs. Women across ranks in the outpatient setting were between 22 and 25 times more likely to be diagnosed with ‘adult sexual abuse’ than their male peers. This is of concern, and more research is called for in this area.

Table 43

Identified gaps within the Social Relationships topic

Social Relationships
Sexual Assault
Physical Assault

Other than the Air Force, all other service branches were well-represented in research related to physical assault. However, the number of articles within this topic area was scant ($n = 12$). It was not possible to specifically characterize physical assault within the DMED data, but similar to sexual assault above, the category of 'adult physical abuse' was used as a proxy. Women across ranks in the outpatient setting were approximately 3 times more likely to be diagnosed with 'adult physical abuse' than men. Additionally, the ICD-9 Injury and Poisoning chapter is among the top most commonly diagnosed chapters across ranks in the inpatient setting, and the Musculoskeletal Disorders chapter (which includes diagnoses for potential post-physical assault symptoms) is within the top five most commonly diagnosed chapters for women across settings and across rank. This is an area of concern, and further research is needed.

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Sexual Assault	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999)	Military Sexual Trauma * VA (2011) Sexual Assault * MOMRP (1994) * IOM (1995) * ACOG (2012) Intimate Relationships * DOD (2016) Intimate Partner Violence * DOD (2016)	There was no PDTS data for this subtopic. There were a fair number of articles on this subtopic and over 85% were of good to excellent quality. However, this subtopic was in the most utilized ICD-9 chapters. Women were far more likely to receive a sexual assault diagnosis compared to men, and rate ratios were significantly higher for women compared to men. Sexual assault has been highlighted by five different organizations, three in the past six years.					
	ICD-9 Categories Other and Unspecified Effects (990-995)	Based on the current information, there is a significant gap in the existing gender-inclusive literature on this subtopic.							
	Number of Articles 47				ICD-9 Subcategory Certain adverse effects (995)	Recommendations			
	Excellent Quality 34%	ICD-9 Subclassification Other specified adverse effects, not otherwise specified (995.8)		Gap identified in existing research	Continue ongoing research trajectory				None at this time
	Low Quality 13%	ICD-9 Subclassification Adult sexual abuse (995.83)							
	Definition Sexual assault experienced or perpetrated by military populations, includes military sexual trauma	Top 5 Utilized Chapter							
	F:M ratio Adult sexual abuse (995.83) <i>Outpatient</i> Enlisted: 24.6 Officer: 22.3								
	TCC Rank N/A								
	F:M Rate Ratio N/A								

Figure 79. Gap Analysis Matrix for the Sexual Assault subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Physical Assault	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Categories Injury and Poisoning Other and Unspecified Effects (990-995) ICD-9 Subcategory Certain adverse effects (995.8) ICD-9 Subclassification Adult physical abuse (995.81)	N/A	<p>There was no PDTS data on physical assault. This subtopic was within the top 5 most utilized ICD-9 chapters. Females were over twice as likely as males to be diagnosed with physical abuse in an outpatient setting. Physical assault would also be coded clinically specific to particular bodily injuries, and as the potential diagnoses would be so wide-ranging, rate ratios in other diagnostic clusters could not be calculated. No organizations referenced in this report highlighted physical assault as a research priority for military populations. The number of articles in this area was scant, meaning that only 6 of the 12 articles in this subtopic were of excellent quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-inclusive literature on this subtopic.</p>		
	Number of Articles 12	Top 5 Utilized Chapter				
	Excellent Quality 50%					
	Low Quality 8%					
	Definition Violence experienced or perpetrated by military members, excludes violence from/against partners or children	F:M ratio Adult physical abuse (995.81) <i>Outpatient:</i> Enlisted: 2.8 Officer: 3.5				
		Female rate is 1.77 per 1,000 years				
		TCC Rank N/A				
	F:M Rate Ratio N/A		Recommendations			
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

Figure 80. Gap Analysis Matrix for the Physical Assault subtopic

Obstetrics and Gynecology: Research Gap Analysis

Representation among the service branches. Figure 81 displays all Ob/Gyn subtopics by service branch. Within the Ob/Gyn topic, the Army was consistently under-represented in all areas relative to force strength, except in the area of general obstetrics. By contrast, the Navy was over-represented in all areas except uterine health. For only the second time across any topic, the Marine Corps was under-represented; this was in the breast health area. Also atypical of prior results, the Marine Corps was not over-represented in every other category, but only in the areas of uterine health, family planning, pregnancy, sexual health, and birth outcomes & infant health. The Coast Guard was over-represented in every area, except sexual health, birth outcomes & infant health, and general obstetrics. The Air Force was under-represented in the areas of sexual health and general obstetrics, but over-represented in the area of breast health.

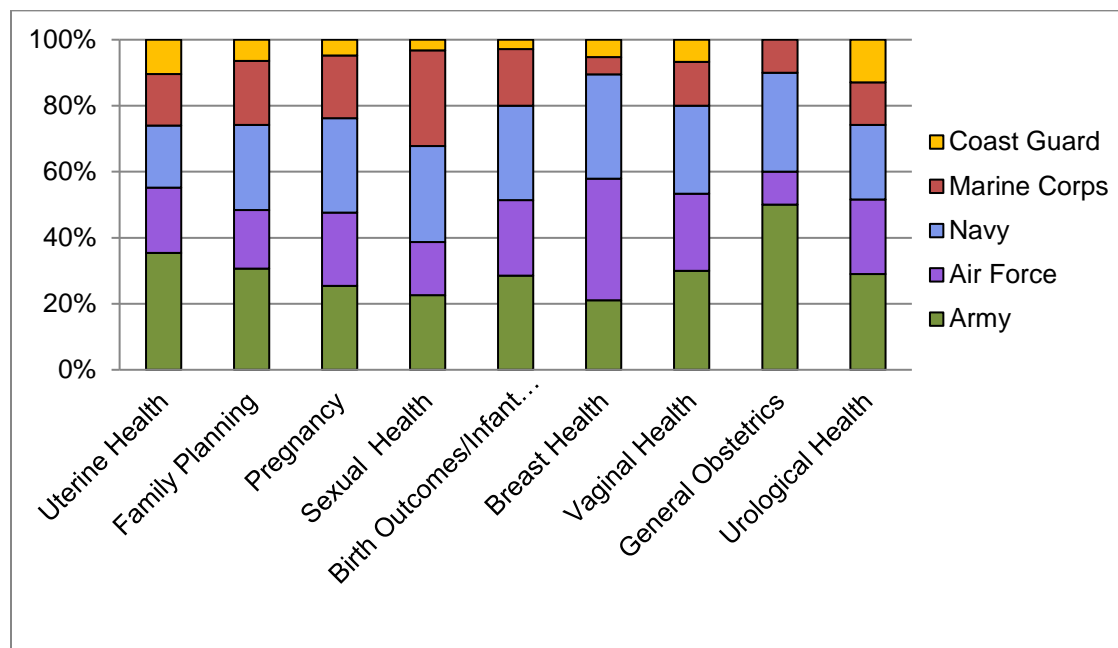


Figure 81. Obstetrics and Gynecology (Ob/Gyn) subtopics by service branch.

Note. Family Planning includes all articles from the Contraception, Unplanned Pregnancy, and Fertility subtopics. Uterine Health includes all articles from the Uterine Wellness, Menstruation, and Menstrual Suppression subtopics. Pregnancy includes all articles from the Postpartum, Antepartum, and Intrapartum subtopics. Breast Health includes all articles from the Breast Wellness and Breastfeeding subtopics.

Gaps in research. Table 44 shows all of the identified gaps found within the Ob/Gyn main topic. Every subtopic except sexual health was identified as a research gap. The combination of scant research in these subtopics with a high proportion of low quality articles highlighted many subtopic areas as having insufficient information. Further high quality research is needed.

Table 44

Identified gaps within the Obstetrics and Gynecology topic

Obstetrics and Gynecology (OB/Gyn)
Contraception
Uterine Wellness
Menstruation
Menstrual Suppression
Antepartum
Intrapartum
Postpartum
Birth Outcomes/Infant Health
Vaginal Health
General OB
Urological health
Unplanned Pregnancy
Breast Wellness
Breastfeeding
Fertility

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Contraception	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Contraception * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015)	There was no DMED data for this subtopic. PDTS data showed that women were overwhelmingly more likely to be prescribed contraception compared to men. Five organizations, three within the past six years, highlighted contraception as a research priority for military populations. There were a relatively light number of articles on contraception, and of these, 31% were of low quality.		
	Number of Articles 29	Top 5 Utilized N/A				
	Excellent Quality 21%	F:M ratio N/A		Recommendations		
	Low Quality 31%					
	Definition Contraception used for any purpose (e.g. birth control, menstrual suppression), including male condoms	TCC Rank Hormones and synthetic substitutes #3 of 26 Contraceptives #16 of 26		Continue ongoing research trajectory		
		F:M Rate Ratio Hormones: 6.74 Contraceptives: 83.6				

Figure 82. Gap Analysis Matrix for the Contraception subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Uterine Wellness	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the genitourinary system (580-629)	Cervical Cancer Screening * VA (2011) * ACOG (2012)	<p>There was no PDTS data on uterine wellness. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were over five times more likely to be diagnosed with genitourinary diseases compared to men across setting and rank. Two organizations within the past six years highlighted uterine wellness as a research priority. The number of articles in this area was light with over 30% of articles being of low quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-specific literature on this subtopic.</p>		
	Number of Articles 24	Top 5 Utilized Chapter				
	Excellent Quality 17%	F:M ratio Diseases of the genitourinary system (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5				
	Low Quality 33%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4				
	Definition Health outcomes involving the uterus or cervix, including pap smears	TCC Rank N/A				
		F:M Rate Ratio N/A				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

Figure 83. Gap Analysis Matrix for the Uterine Wellness subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Menstruation	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the genitourinary system (580-629)	Menstruation * MOMRP (1994) * IOM (1995) * ACOG (2012) * DHA (2015)	<p>There was no PDTS data on menstruation. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were over five times more likely to be diagnosed with a genitourinary disease compared to men across setting and rank. Four organizations, two within the past five years, highlighted menstruation as a research priority. The number of articles on menstruation research is scant and an alarming 47% of those articles were of low quality.</p> <p>Based on this information, there is a significant gap in the existing gender-specific literature on this subtopic.</p>		
	Number of Articles 17	Top 5 Utilized Chapter				
	Excellent Quality 18%	F:M ratio Diseases of the genitourinary system (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5				
	Low Quality 47%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4				
	Definition Menstruation, but not menstrual suppression	TCC Rank N/A				
		F:M Rate Ratio N/A				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

Figure 84 . Gap Analysis Matrix for the Menstruation subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Menstrual Suppression	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Menstruation *MOMRP (1994) * IOM (1995) * ACOG (2012) * DHA (2015) Contraception * IOM (1995) * ACOG (2012) * DHA (2015)	No DMED data was available on the subtopic of menstrual suppression. Women were over six times more likely to be prescribed hormones and synthetic substitutes compared to men. Four organizations, two within the past five years, highlighted this subtopic as a research priority. There were very few articles on menstrual suppression with an alarming 60% being of low quality.		
	Number of Articles 10	Top 5 Utilized N/A				
	Excellent Quality 10%	F:M ratio N/A		Based on the current information, there is a significant gap in the gender-specific existing literature on this subtopic.		
	Low Quality 60%					
	Definition Menstrual suppression and/or regulation	TCC Rank Hormones and Synthetic Substitutes #3 of 26		Recommendations		
	F:M Rate Ratio 6.74	Gap identified in existing research	Continue ongoing research trajectory			

Figure 85. Gap Analysis Matrix for the Menstrual Suppression subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Antepartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	There was no DMED data for antepartum diagnoses; however, women were more likely to be prescribed vitamins/dietary supplements than men which may reflect the use of prenatal vitamins in the antepartum period. Seven organizations highlighted pregnancy as a research priority; four within the past six years. The number of articles in this area was extremely low and 27% were of low quality.		
	Number of Articles 11	Top 5 Utilized N/A				
	Excellent Quality 9%	F:M ratio N/A		Recommendations		
	Low Quality 27%					
	Definition Medical care given during pregnancy but before the mother is in active labor	TCC Rank #10 Vitamins/ Dietary Supplements		Continue ongoing research trajectory		
		F:M Rate Ratio 1.63				

Figure 86 . Gap Analysis Matrix for the Antepartum subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Intrapartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMR (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	There was no DMED or PDTS data for this subtopic. Seven organizations, four within the past six years, highlighted pregnancy as a research priority. The number of articles on intrapartum health outcomes was very low and 50% were of low quality.		
	Number of Articles 6	Top 5 Utilized N/A				
	Excellent Quality 0%	F:M ratio N/A		Based on this information, there is a significant gap in the existing gender-specific literature.		
	Low Quality 50%					
	Definition Medical care given during the period from the start of active labor to delivery of an infant	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

Figure 87. Gap Analysis Matrix for the Intrapartum subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Postpartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Birth and Postpartum Outcomes * MOMRP (1994) * IOM (1995) * IOM (1998) * ACOG (2012)	There was no DMED or PDTS data for this subtopic. Four organizations, one within the past five years, highlighted birth and postpartum outcomes as a research priority. The number of articles in this area is scant with only 6% being of excellent quality.		
	Number of Articles 16	Top 5 Utilized N/A				
	Excellent Quality 6%	F:M ratio N/A		Recommendations		
	Low Quality 19%					
	Definition Medical care given following the delivery of the child	F:M Rate Ratio N/A				

Figure 88. Gap Analysis Matrix for the Postpartum subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Birth Outcomes/Infant Health	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Birth and postpartum outcomes * MOMRP (1994) * IOM (1995) * IOM (1998) * ACOG (2012)	There was no DMED or PDTS data on this subtopic. Four organizations, one within the past five years, highlighted birth and postpartum outcomes as a research priority. There were a scant number of articles on this subtopic and 25% were of low quality.		
	Number of Articles 16	Top 5 Utilized N/A				
	Excellent Quality 6%	F:M ratio N/A		Recommendations		
	Low Quality 25%					
	Definition Delivery of the baby, and health outcomes for both the mother and baby	F:M Rate Ratio N/A				

Figure 89 . Gap Analysis Matrix for the Birth Outcomes/Infant Health subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Vaginal Health	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Bacterial Vaginosis * MOMRP (1994) * ACOG (2012) * DHA (2015)	<p>There was no PDTS data on vaginal health. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were five to seven times more likely to be diagnosed with genitourinary diseases than men across setting and rank. Five organizations, three within the past six years, highlighted various genitourinary concerns as research priorities. There were a very scant number of research articles on this area and over 40% were of low quality.</p> <p>Based on this information, there is a significant gap in the existing gender-specific literature.</p>		
	Number of Articles 12	Top 5 Utilized Chapter				
	Excellent Quality 8%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5	Facilities and hygiene * MOMRP (1994) * ACOG (2012) * DHA (2015)	<p>Recommendations</p>		
	Low Quality 42%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4				
	Definition Related to the vaginal health of the female genital tract, as well as related conditions and diseases	TCC Rank N/A	Gynecological/ Genitourinary Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)	Gap identified in existing research	Continue ongoing research trajectory	None at this time
		F:M Rate Ratio N/A				

Figure 90. Gap Analysis Matrix for the Vaginal Health subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: General Obstetrics	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Gynecological/ Genitourinary Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Reproductive Health * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	There was no DMED data for general obstetrics; women were more likely to be prescribed vitamins than men. Seven organizations, four within the past six years, highlighted gynecological and pregnancy topics as priorities for research. There were a very low number of articles on general obstetrics and 22% of them were of low quality. Based on the current information there is a significant gap in the existing gender-specific literature.		
	Number of Articles 9	Top 5 Utilized N/A				
	Excellent Quality 11%	F:M ratio N/A				
	Low Quality 22%					
	Definition Non-medical care aspects of pregnancy	TCC Rank Vitamins/ Dietary Supplements #10 of 26		Recommendations		
		F:M Rate Ratio 1.63				

Figure 91. Gap Analysis Matrix for the General Obstetrics subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Urological Health	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	UTIs * MOMRP (1994) * ACOG (2012) * DHA (2015) Gynecological/ Genitourinary Health * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)	There was no PDTS data on urological health. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were five to seven times more likely to be diagnosed with genitourinary diseases compared to men across settings and rank. Five organizations, three within the past six years, highlighted priorities on urological health. A very low number of articles were reported on this subtopic, and 22% were of low quality.								
	Number of Articles 9	Top 5 Utilized Chapter					Based on the current information, there is a significant gap in the existing gender-inclusive literature.					
	Excellent Quality 22%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i>		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>						Recommendations		
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory					None at this time					
	Low Quality 22%	<i>Enlisted: 7.0</i> <i>Officer: 5.5</i> <i>Inpatient</i>										
Definition Male and female urinary tracts and related medical conditions, such as urinary tract infections (UTIs) and urinary stones	<i>Enlisted: 6.3</i> <i>Officer: 5.4</i> TCC Rank N/A											
	F:M Rate Ratio N/A											

Figure 92. Gap Analysis Matrix for the Urological Health subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Unplanned Pregnancy	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Unintended Pregnancy * ACOG (2012) * DHA (2015)	There was no DMED or PDTS data for unplanned pregnancy. Two organizations within the past five years highlighted this subtopic as a research priority. There were an extremely low number of articles in this area and 29% were of low quality, and none were of excellent quality.		
	Number of Articles 7	Top 5 Utilized N/A				
	Excellent Quality 0%	F:M ratio N/A		More research is needed to reduce the number of unintended pregnancies, and to promote family planning and health birth spacing. Based on current information there is significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 29%					
	Definition Rates, and prevention of, unintended pregnancies	TCC Rank N/A		Recommendations		
F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory			

Figure 93. Gap Analysis Matrix for the Unplanned Pregnancy subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Breast Wellness	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Breast Cancer Screening/Care * VA (2011)	Breast Wellness was within the top 5 most utilized ICD-9 chapters. One organization with the past six years highlighted breast care as a research priority. The number of articles on this subtopic was scant; the 7 articles within the subtopic were of good to excellent quality.		
	Number of Articles 7	Top 5 Utilized Chapter				
	Excellent Quality 43%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i>		Based on this information, there is a significant gap in the existing gender-inclusive literature.		
	Low Quality 0%	<i>Enlisted: 7.0</i> <i>Officer: 5.5</i> <i>Inpatient</i>				
	Definition Breast cancer and breast examinations, such as mammograms	<i>Enlisted: 6.3</i> <i>Officer: 5.4</i>		Recommendations		
		TCC Rank Antineoplastic Agents #21 of 26				
	F:M Rate Ratio 3.72	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

Figure 94. Gap Analysis Matrix for the Breast Wellness subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Breastfeeding	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Breastfeeding/ Lactation * IOM (1995) * IOM (1998)	<p>There was no DMED or PDTS data for this subtopic. Two organizations highlighted breastfeeding/lactation as a research priority; however, both organizations cited this priority near two decades ago. There were an extremely low number of research articles on this subtopic and 40% were of low quality, and none were of excellent quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-specific literature.</p>		
	Number of Articles 5	Top 5 Utilized N/A				
	Excellent Quality 0%	F:M ratio N/A				
	Low Quality 40%					
	Definition Breastfeeding practices, including studies of breastfeeding experiences, and rates of breastfeeding					
		TCC Rank N/A		Recommendations		
	F:M Rate Ratio N/A	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

Figure 95. Gap Analysis Matrix for the Breastfeeding subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Fertility	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Reproductive Health * IOM (1995) * VA (2011) * ACOG (2012) Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Gynecological/ Genitourinary Health * IOM (1995) * VA (2011) * ACOG (2012)	There was no PDTS data on this subtopic. Fertility was within the top 5 most utilized ICD-9 chapters. Seven organizations, four within the past six years, highlighted pregnancy and/or reproductive health as research priorities. The number of articles in this area was miniscule; all 3 articles on this subtopic were of good or excellent quality. Based on this information, there is a significant gap in the existing gender-inclusive literature on this subtopic.					
	Number of Articles 3	Top 5 Utilized Chapter							
	Excellent Quality 33%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5		Recommendations					
	Low Quality 0	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4							
	Definition Rates of infertility among active duty service women	TCC Rank N/A		<table border="1"> <tr> <td rowspan="2" style="background-color: #f4a460;">Gap identified in existing research</td> <td rowspan="2">Continue ongoing research trajectory</td> <td rowspan="2">None at this time</td> </tr> <tr> </tr> </table>			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Gap identified in existing research	Continue ongoing research trajectory							
	F:M Rate Ratio N/A								

Figure 96. Gap Analysis Matrix for the Fertility subtopic

Chronic Illness: Research Gap Analyses

Representation among the service branches. Figure 97 displays all Chronic Illness subtopics by branch of service. Within the Chronic Illness topic, Marine Corps samples were consistently over-sampled relative to force strength. Similarly, Coast Guard samples were over-represented in all areas, except for musculoskeletal chronic illness. The Army was under-represented in the following areas: other organ systems, multisystem illness, cancer, and pain. The Air Force was also under-represented in pain, as well as cardiovascular chronic illness. The Air Force was over-represented in multisystem illness, and cancer. Navy samples were also over-represented in cancer, and other organ systems.

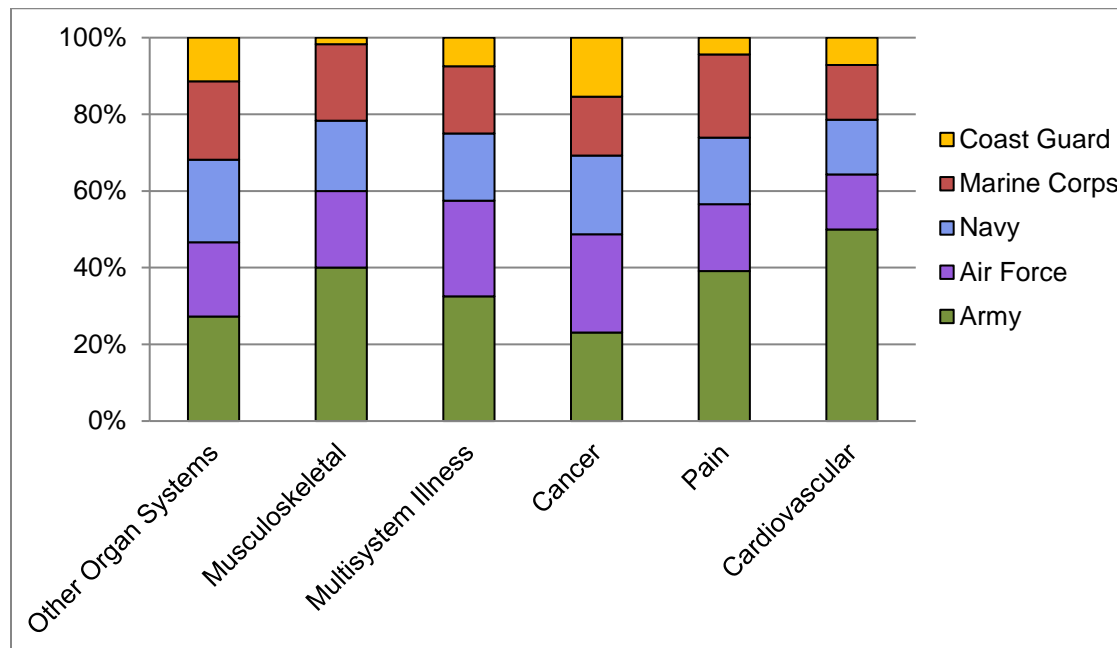


Figure 97. Chronic Illness subtopics by branch of service.

Gaps in research. Table 45 shows the two subtopic areas within Chronic Illness that were identified as gaps: cancer and multisystem illness. Despite the relative over-representation among the services for cancer research, the actual number of gender-inclusive articles published on this topic was quite small ($n = 14$). Across the 15 ICD-9 chapters reviewed for this project, the Neoplasms chapter was the number one diagnosis for inpatient female officers; additionally, women across ranks in the inpatient setting were approximately 4 times more likely to be diagnosed with cancer than their male peers. This is concerning, and further research is need in this area.

Table 45

Identified gaps within the Chronic Illness topic

Chronic Illness
Cancer
Multisystem Illness

The Army was the only branch in which multisystem illness was under-represented. This subtopic mostly encompassed studies on HIV and Gulf War Syndrome. The combined published number of articles on these two disease entities was scant ($n = 20$). There was no healthcare services data available, but the quality analysis of the existing articles showed that only 10% were of excellent quality, and 35% were of low quality. These complicated diagnostic clusters are challenging to treat; more high quality research with gender-inclusive samples is needed in these areas.

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Cancer	Topic Chronic Illness	ICD-9 codes Neoplasms (140-239)	Chronic disease * VA (2011) Cervical Cancer screening * VA (2011) * ACOG (2012)	Neoplasms were among the top 5 most utilized ICD-9 chapters. Women were more likely than men to be diagnosed with neoplasms across rank and setting. Two organizations within the past six years highlighted cancer as a research priority. Despite the fact that all of the articles in this subtopic were of good to excellent quality, the scant number of articles ($n = 14$) may indicate that service women are not well-studied in relation to cancer diagnoses.		
	Number of Articles 14	Top 5 Utilized Chapter (Inpatient)				
	Excellent Quality 29%	F:M ratio Neoplasms (140-239) <i>Outpatient</i> Enlisted: 2.0		Based on this information, there is a significant gap in the existing gender-inclusive literature.		
	Low Quality 0%	Officer: 1.7 <i>Inpatient</i> Enlisted: 3.9 Officer: 4.8				
	Definition Diagnosis and treatment of any type of cancer	TCC Rank Antineoplastic Agents #21 of 26		Recommendations		
		F:M Rate Ratio 3.72		Gap identified in existing research	Continue ongoing research trajectory	None at this time

Figure 98. Gap Analysis Matrix for the Cancer subtopic

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Multisystem Illness	Topic Chronic Illness	ICD-9 Chapter N/A	Chronic Disease * VA (2011) Chronic physical conditions * MOMRP (1994)	<p>There was no DMED or PDTS data for this subtopic. Two organizations, one within the past six years, highlighted multisystem illness as a research priority. There were a scant number of articles on this topic and 35% were of low quality.</p> <p>Based on this information, there is a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 20	Top 5 Utilized N/A				
	Excellent Quality 10%	F:M ratio N/A				
	Low Quality 35%					
	Definition Non-specific chronic illness (e.g. Gulf War syndrome) or a chronic illness that affects multiple body systems (e.g. HIV/AIDS)					
		TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

Figure 99. Gap Analysis Matrix for the Multisystem Illness subtopic

Limitations of Research Gap Analyses

Looking at results by force distribution was not entirely representative, as numbers of articles in some categories were very low; additionally, if one service branch was under-represented, it was inevitable within a 100% total, that another service branch would be over-represented. This could lead to misleading interpretations of findings. However, the GAMs provided overall perspective, as they aggregated data from multiple sources. While the research gaps discovered using this particular methodology were comprehensive, it is possible that there are additional gaps in more specific areas that were not identified within the existing topic and subtopic categorizations.

It is beyond the scope of this review to compare the military-specific body of literature to civilian literature, or to delineate the many possible factors which could explain the article frequency or level of quality within each subtopic. The data elements for each subtopic were considered in aggregate to make the most well-informed determinations on research gaps, given the broad scope of the literature on military women's health. Organizational research priorities were included in the gap analysis in order to provide a measure of expert stakeholder opinion on priority research areas.

Not all subtopics were addressed by the various organizational reports that were included for pertinence, and some of these organizational reports were more than 20 years old. The Defense Women's Health Research Program, a special Congressional appropriation in FY94, is now defunct. This is alarming, since full gender integration of men and women is ongoing in the military, and there is a need for cutting edge research on treatment of military women's health issues. Another limitation related to the organizational reports is that despite searching across more than 25 different reputable national organizations, there were only 7 found which addressed military women's health priorities, and of these, only 4 had published reports within the past 10 years. This is a limitation, but also a concern for military women's health research.

The process of determining research gaps includes some subjectivity. The GAMs were developed as an objective way to collect many sources of information in one place, allowing for easier identification of research gaps. In addition, each GAM was reviewed by a multidisciplinary team of health researchers and clinicians. However, not all subtopics could be matched to healthcare utilization data for several reasons: either because a subtopic was not a diagnosable condition (e.g. Physical Fitness), or the subtopic was too broad to determine an appropriate diagnosis (e.g. Other Organ Systems), or because the available healthcare utilization data could not address the subtopic (e.g. Deployment Injury). When a subtopic was matched to healthcare utilization data, the ICD-9 diagnostic clusters were sometimes imperfectly aligned; sometimes the specific ICD-9 clusters of interest were not part of the analytic data pool for comparison. Pharmaceutical data was not illuminating in most areas, as this data was not tied to diagnoses, and the data available was only applicable to very broad areas. Some subtopics included sparse numbers of articles, and some subtopics were not always considered of interest in relation to gender-focused or gender-inclusive research.

Military Women's Health Gap Study

Conclusion

The scope of this research project was vast; this was an intentional decision. The end goal was to survey the landscape of military women's health research, and identify the peaks and valleys within the science. Because of this wide-lens focus, multiple modalities and sources of information were used to obtain the report presented here. It is important to reiterate here the critical nature of the need to distinguish not only whether research was being conducted in a specific area, but whether the quality of that existing research was sufficient. From this report it is clear that the field of obstetrics and gynecology could benefit from high-quality research in a wide range of areas. Psychological health for military women has been highlighted as an area of concern by many organizations, and the data in this report shows that this research priority is still current, on target, and relevant. Many smaller subtopics within the other larger topic areas were also identified as gaps. Injury was the only topic area in which no gaps were identified, indicating that this area of research has a robust base of activity, conducted by scientists with solid and stable funding.

Limitations

No project of this scope can be conducted without the presence of limitations in staff turnover and logistics. However, the investigators were diligent in ensuring that limitations in the scientific methodology and analyses were minimized. The quality instrument that was developed for the scoping review (the QIC) was adapted from several existing quality instruments, but has not been assessed for validity or reliability. Research staff with varying degrees of experience extracted data for each article within the scoping review; however, quality assurance measures were employed to ensure reliable extraction. Within the healthcare utilization data, cases of disease may have been missed by patients who ignored symptoms, self-treated, or sought care outside the military health system. This limitation is especially problematic for mental health diagnoses, which continue to carry a certain stigma, such that service members may want to hide these concerns. For the gap analysis, the Gap Analysis Matrices (GAMs) were developed as a way to collect all of the pertinent information in one place, and make reliable assessments regarding research gaps. However, not all subtopics could be matched to healthcare utilization data, and not all subtopics were addressed by the various organizational reports that were consulted; some of these publications were more than 20 years old. In addition, the determination of research gaps is by nature a subjective process. The GAMs were developed as an objective way to collect many sources of information in one place, allowing for easier identification of research gaps. For greater reliability, each GAM was reviewed by a multi-disciplinary team of healthcare researchers and clinicians. Despite its limitations, this report conclusively provides direction to clinicians, researchers, and policy makers on what research has already been done, and where the future leads.

Scoping Review: Content and Quality of Research

The scoping review winnowed the initial search from 14,999 articles down to 979 specific articles that included female-only samples, or included males and females, with gender-specific analyses. All

979 articles dealt with some aspect of military women's health, and these articles were then categorized into 8 large topic areas, with smaller subtopics within each of them. The 8 main topic areas were: Psychological Health, Readiness, Injury, Acute Care & Preventive Medicine (ACPM), Deployment Health, Social Relationships, Obstetrics and Gynecology (Ob/Gyn), and Chronic Illness. Overall, only 10.2% of the 979 articles were determined to be of low quality. However, within the area of Ob/Gyn health, 21% were of low quality. This was notably more striking than in any other area: the two topics with the next highest percentage of low quality articles were Readiness and Chronic Illness, both with 11%. This considerable difference in quality married with the presence of only 17% excellent quality articles presents a concern for Ob/Gyn research, and can have implications for the health of military women. In contrast, the two topics with the highest percentage of excellent quality articles were Social Relationships and Injury with 36% and 32%, respectively. These areas were identified as having healthy and robust research, in addition to being timely and relevant to the health of military women and men.

Healthcare Utilization Analyses by Gender

The healthcare utilization data assessed both diagnostic and pharmaceutical information across gender. From this analysis, several significant findings were noted. Overall, women were at least three times more likely than men to be diagnosed with Diseases of the Genitourinary System, and Neoplasms. Within the Mental Disorders category, enlisted women were more than two times as likely to be diagnosed with personality disorders compared with their male peers, across both inpatient and outpatient settings. Within the Musculoskeletal Disorders category, both female enlisted and officer personnel were at least five times more likely than their male counterparts to be diagnosed with diffuse disease of the connective tissue in the outpatient setting. Within the Injury and Poisoning category, enlisted women were more than twice as likely to be diagnosed with poisoning by drugs, medicinal, or biological substances as their male peers across inpatient and outpatient settings. These areas may indicate diagnostic clusters of concern for military women. Across gender, the top two prescribed over-the-counter (OTC) medications were ibuprofen and acetaminophen, and the top two prescription medications were hydrocodone-acetaminophen, and oxycodone-acetaminophen. The most common indication for these highly prescribed medications is pain and/or inflammation. These pharmaceutical findings provide strong evidence to support the current direction of the high frequency and quality of research that has been performed within the Injury topic.

Analyses of Research Gaps

Research gaps were identified in 7 out of 8 major topic areas; 26 out of 73 specific subtopics were determined to have insufficient evidence. These gaps are summarized in Table 46, below. This data shows that more high quality research is needed in the Ob/Gyn and Psychological Health major topic areas, but also in the smaller subtopic areas of sleep, sexually transmitted infections, deployment gynecological care, sexual and physical assault, multisystem illness, and cancer.

Table 46.

Identified gaps within each of the 8 major topic areas

Psychological Health
Stigma
Adjustment Disorders
Personality Disorders
Eating Disorders
Readiness
Sleep
Injury
No gaps identified
Acute Care & Preventive Medicine (ACPM)
Sexually Transmitted Infections (STI)
Deployment Health
Gynecological Care
Social Relationships
Sexual Assault
Physical Assault
Obstetrics and Gynecology (OB/Gyn)
Contraception
Uterine Wellness
Menstruation
Menstrual Suppression
Antepartum
Intrapartum
Postpartum
Birth Outcomes/Infant Health
Vaginal Health
General OB
Urological health
Unplanned Pregnancy
Breast Wellness
Breastfeeding
Fertility
Chronic Illness
Cancer
Multisystem Illness

Future Directions

While this research has served a vital purpose in being the first of its kind to thoroughly examine the state of research in military women's health, it is only the beginning. Forging ahead with progress in specific fields of research requires additional systematic reviews and meta-analyses on targeted healthcare questions highlighted by this report. Systematic reviews and meta-analyses can specifically address research questions within a subtopic area, such as mental health stigma or contraception, using methods to minimize bias, while synthesizing outcomes from the research, and illuminating more clearly where precise gaps in the research lie. This type of targeted analysis was outside the scope of this review. The aim of this project was to describe trends and patterns in the scientific literature, and by using multiple sources of data, to highlight research gaps related to the health of U.S. military women.

This report and the online repository of 979 gender-specific and gender-inclusive research articles can be useful to researchers, practitioners and policy makers in many ways. It is an invaluable resource that can be used by DoD health policy makers and funding organizations when developing long range strategies for research prioritization, as it highlights areas of research that are currently inadequately studied. Additionally, the online repository of articles reviewed for this report (<http://triservicenursing.org/database/womenshealth/>) provides clinicians with an easily accessible entry-point into the existing peer-reviewed literature within their clinical specialties to aid them in making evidence-based decisions to help improve the health outcomes of their patients. This report also helps health researchers by outlining the existing literature within specific fields of inquiry, and providing a reminder that more gender-focused and gender-inclusive research is needed in future endeavors.

This report and the online data repository provide a unique contribution to military medical research through a scientifically sound approach to assessing the status of military women's health, which is instrumental to all organizations and personnel who form the critical components of the Military Health System. Targeted research can ensure that the health needs of service women and men are being properly studied, which in turn optimizes the wellbeing and readiness of the entire military force.

References

- Agency for Healthcare Research and Quality. (2016, February 2017). Gap Analysis Facilitator's Guide. Retrieved from <http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/candor/module3-facguide.html>
- AHFS Clinical Drug Information. (2017). AHFS Pharmacologic-Therapeutic Classification. Retrieved from <http://www.ahfsdruginformation.com/ahfs-pharmacologic-therapeutic-classification/#1455225455483-38135b76-9975>
- American College of Obstetricians and Gynecologists (ACOG). (2012). Health Care for Women in the Military and Women Veterans. Committee Opinion No. 547. *Obstet Gynecol*(120), 1538–1542.
- Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32. doi:10.1080/1364557032000119616
- Armed Forces Health Surveillance Branch. (2016). Absolute and relative morbidity burdens attributable to various illnesses and injuries, non-service member beneficiaries of the Military Health System, 2015. *Medical Surveillance Monthly Report*, 23(4), 28-35.
- Bean-Mayberry, B., Yano, E. M., Washington, D. L., Goldzweig, C., Batuman, F., Huang, C., . . . Shekelle, P. G. (2011). Systematic Review of Women Veterans' Health: Update on Successes and Gaps. *Women's Health Issues*, 21(4, Supplement), S84-S97. doi:<http://dx.doi.org/10.1016/j.whi.2011.04.022>
- Beller, E. M., Chen, J. K., Wang, U. L., & Glasziou, P. P. (2013). Are systematic reviews up-to-date at the time of publication? *Syst Rev*, 2, 36. doi:10.1186/2046-4053-2-36
- Bragge, P., Clavisi, O., Turner, T., Tavender, E., Collic, A., & Gruen, R. L. (2011). The Global Evidence Mapping Initiative: Scoping research in broad topic areas. *BMC Med Res Methodol*, 11(1), 92. doi:10.1186/1471-2288-11-92
- Brien, S. E., Lorenzetti, D. L., Lewis, S., Kennedy, J., & Ghali, W. A. (2010). Overview of a formal scoping review on health system report cards. *Implement Sci*, 5, 2. doi:10.1186/1748-5908-5-2
- Bunse, K., Vodicka, M., Schönsleben, P., Brühlhart, M., & Ernst, F. O. (2011). Integrating energy efficiency performance in production management – gap analysis between industrial needs and scientific literature. *Journal of Cleaner Production*, 19(6–7), 667-679. doi:<http://dx.doi.org/10.1016/j.jclepro.2010.11.011>
- Carey, T., Yon, A., Beadles, C., & Wines, R. (2012). Prioritizing future research through examination of research gaps in systematic reviews. *Prepared for the Patient-Centered Outcomes Research Institute*.
- Clarivate Analytics. (2017). EndNote X7. Retrieved from <http://endnote.com/>
- Colquhoun, H. L., Levac, D., O'Brien, K. K., Straus, S., Tricco, A. C., Perrier, L., . . . Moher, D. (2014). Scoping reviews: time for clarity in definition, methods, and reporting. *J Clin Epidemiol*, 67(12), 1291-1294. doi:10.1016/j.jclinepi.2014.03.013
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (Third ed.): Sage publications.
- Daudt, H. M., van Mossel, C., & Scott, S. J. (2013). Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC Med Res Methodol*, 13(1), 48. doi:10.1186/1471-2288-13-48
- Defense Health Agency (DHA). (2016). *Evaluation of the TRICARE Program: Access, Cost, and Quality. Fiscal Year 2016 Report to Congress*. Retrieved from Washington D.C.:
- Department for International Development (DFID). (2014). *How to Note: Assessing the Strength of Evidence*.
- Department of the Army. (2015). *Revised Breastfeeding and Lactation Support*. (AD 2015-43).
- Deployment Health Clinical Center (DHCC). (2011). Research on Women's Mental Health in the U.S. Military. Retrieved from <http://www.pdhealth.mil/topics/women-s-mental-health/research>
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: theory, research, and practice* (Fourth ed.). San Francisco, CA: John Wiley & Sons.

- Gough, D., Thomas, J., & Oliver, S. (2012). Clarifying differences between review designs and methods. *Syst Rev*, 1, 28. doi:10.1186/2046-4053-1-28
- Greenland, S., & O'Rourke, K. (2008). Meta-Analysis. In K. J. Rothman & S. Greenland (Eds.), *Modern Epidemiology* (pp. 652-682). Philadelphia, PA: Lippincott Williams & Wilkins.
- Hanser, L. M., Miller, L. W., Shukiar, H. J., & Newsome, B. (2008). *Developing Senior Navy Leaders: Requirements for Flag Officer Expertise Today and in the Future*. Retrieved from Santa Monica, CA:
- Hawes, T. (2009, 04/15/2009). Five Steps for Gap Analysis. Retrieved from <http://blog.jthawes.com/2009/04/15/5-steps-for-gap-analysis/>
- Health.mil. Pharmacy Analytics Support Section Retrieved from <http://www.health.mil/About-MHS/Defense-Health-Agency/Operations/Pharmacy-Division/Pharmacy-Analytics-Support-Section>
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *Br J Addict*, 86(9), 1119-1127.
- Institute of Medicine (IOM). (1995). *Recommendations for Research on the Health of Military Women: Bibliographies*. Retrieved from Washington, D.C.:
- Institute of Medicine (IOM). (1998). *Assessing Readiness in Military Women: The Relationship of Body Composition, Nutrition, and Health*. Retrieved from Washington, D.C.:
- Institute of Medicine (IOM) Committee on Sleep Medicine and Research. (2006). *Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem*. Retrieved from Washington, DC:
- Institute of Medicine (IOM) Subcommittee on Military Weight, M. (2004) *Weight Management: State of the Science and Opportunities for Military Programs*. Washington (DC): National Academies Press (US)
- Kastner, M., Tricco, A. C., Soobiah, C., Lillie, E., Perrier, L., Horsley, T., . . . Straus, S. E. (2012). What is the most appropriate knowledge synthesis method to conduct a review? Protocol for a scoping review. *BMC Med Res Methodol*, 12, 114. doi:10.1186/1471-2288-12-114
- Klein, R. J., Proctor, S. E., Boudreault, M. A., & Turczyn, K. M. (2002). Healthy People 2010 criteria for data suppression. *Statistical notes*, 24.
- Leepson, M. (1981). *Women in the Military*. Retrieved from Washington, DC: <http://library.cqpress.com/cqresearcher/cqresrre1981071000>
- LeFebvre, R. (2011). *P Values, Statistical Significance & Clinical Significance*.
- Leung, W. C. (2001). Balancing statistical and clinical significance in evaluating treatment effects. *Postgrad Med J*, 77(905), 201-204.
- Man-Son-Hing, M., Laupacis, A., O'Rourke, K., Molnar, F. J., Mahon, J., Chan, K. B., & Wells, G. (2002). Determination of the clinical importance of study results. *J Gen Intern Med*, 17(6), 469-476.
- Manning, L., & Women's Research Education Institute. (2014). *Women in the Military: Where They Stand* (Alliance for National Defense (AND) Ed.): WREI.
- Mays, N., Roberts, E., & Popay, J. (2001). Synthesising research evidence. In N. Fulop, Allen, P., Clarke, A., & Black, N. (Ed.), *Studying the organisation and delivery of health services: Research methods* (pp. 188-220). London: Routledge.
- McGraw, K., Koehlmoos, T. P., & Ritchie, E. C. (2016). Women in Combat: Framing the Issues of Health and Health Research for America's Servicewomen. *Mil Med*, 181(1 Suppl), 7-11. doi:10.7205/milmed-d-15-00223
- Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-Based Practice in Nursing and Healthcare: A Guide to Best Practice* (2nd ed.). Philadelphia: Lippincott Williams & Wilkins.
- Mikoluk, K. (2013). Gap Analysis Template: The 3 Key Elements of Effective Gap Analysis. Retrieved from <https://blog.udemy.com/gap-analysis-template/>
- Military Operational Medicine Research Program (MOMRP). (1994). Defense Women's Health Research Program (DWHRP). Retrieved from https://momrp.amedd.army.mil/dwhrp_index.html
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., . . . Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev*, 4, 1. doi:10.1186/2046-4053-4-1
- National Defense Authorization Act for Fiscal Year 1994, Pub. L. No. 103-160 § 252 (1993).

- National Institutes of Health Revitalization Act of 1993, Pub. L. No. 103-43, 107, 122 Stat. (1993).
- Newhouse, R. P., Dearholt, S. L., Poe, S. S., Pugh, L. C., & White, K. M. (2007). *Johns Hopkins nursing evidence-based practice model and guidelines*: Sigma Theta Tau International Honor Society of Nursing.
- Nutley, S. M., Powell, A. E., & Davies, H. T. O. (2013). What counts as good evidence.
- Office of the Assistant Secretary of Defense Health Affairs. (2015). *House Report 113-446, Page 164:Deployment Health for Women*.
- Patten, E., & Parker, K. (2011). *Women in the U.S. Military: Growing Share, Distinctive Profile*. Retrieved from <http://www.pewsocialtrends.org/2011/12/22/women-in-the-u-s-military-growing-share-distinctive-profile/>
- Pusnik, M., Al-Mansour, F., Sucic, B., & Gubina, A. F. (2016). Gap analysis of industrial energy management systems in Slovenia. *Energy*, 108, 41-49. doi:<http://dx.doi.org/10.1016/j.energy.2015.10.141>
- Research Triangle Institute (RTI) International. (2009). *2008 Department of Defense Survey of Health Related Behaviors Among Active Duty Personnel*. Retrieved from
- Riedel, M., Roehrling, G., Cypionka, T., & Kasper, S. (2014). A gap analysis for future supply of and demand for psychiatrists in Austria. *J Ment Health Policy Econ*, 17(1), 9-18.
- Robinson, K., Saldanha, I., & Mckoy, N. (2011). *Frameworks for Determining Research Gaps During Systematic Reviews*. Retrieved from Rockville, MD: <https://www.ncbi.nlm.nih.gov/books/NBK62478/>
- Rosenberg, M., & Philipps, D. (2015). All Combat Roles Now Open to Women, Defense Secretary Says. *The New York Times*. Retrieved from http://www.nytimes.com/2015/12/04/us/politics/combat-military-women-ash-carter.html?_r=0
- Ross, J. S., Mocanu, M., Lampropulos, J. F., Tse, T., & Krumholz, H. M. (2013). Time to publication among completed clinical trials. *JAMA Intern Med*, 173(9), 825-828. doi:10.1001/jamainternmed.2013.136
- Sandman, D., Simantov, E., & An, C. (2000). *Out of Touch: American Men and the Health Care System*. Retrieved from
- SurveyGizmo. (2005-2017). SurveyGizmo. Retrieved from <https://www.surveygizmo.com/>
- Tanielian, T., Haycox, L. H., Schell, T. L., Marshall, G. N., Burnam, M. A., Eibner, C., . . . Vaiana, M. E. (2008). *Invisible wounds of war. Summary and recommendations for addressing psychological and cognitive injuries*. Retrieved from
- The Henry J. Kaiser Family Foundation. (2013). *The U.S. Department of Defense and Global Health: Infectious Disease Efforts*. Retrieved from Menlo Park, CA:
- Tilghman, A. (2015). All combat jobs open to women in the military. *Military Times*. Retrieved from <http://www.militarytimes.com/story/military/pentagon/2015/12/03/carter-telling-military-open-all-combat-jobs-women/76720656/>
- Trego, L., Rychnovsky, J., Wilson, C., Steele, N., & CHARs. (2015). *A systematic review of the literature on military women's health, 2000-2010*
- Troxel, W. M., Regina A. Shih, Eric R. Pedersen, Lily Geyer, Michael P. Fisher, Beth Ann Griffin, Ann C. Haas, Jeremy Kurz and Paul S. Steinberg. (2015). *Sleep in the Military: Promoting Healthy Sleep Among U.S. Servicemembers*. Retrieved from Santa Monica, CA: http://www.rand.org/pubs/research_reports/RR739.html
- U.S. Assistant Secretary of Defense. (2008). *Report to Congress in Response to the National Defense Authorization Act for Fiscal Year 2007, House Report 109-452. Comprehensive Approach to Psychological Health and Traumatic Brain Injury*. Retrieved from Washington D.C.:
- U.S. Department of Defense (DoD). (2010). *Hearing Conservation Program (HCP)*. (6055.12). Washington D.C.
- U.S. Department of Defense (DoD). (2002). *DoD Physical Fitness and Body Fat Programs Procedures*. (1308.3).
- U.S. Department of Defense (DoD). (2013). *2011 Health Related Behaviors Survey of Active Duty Military Personnel*.
- U.S. Department of Defense (DoD). (2014a). *Individual Medical Readiness*. (DoDI 6025.19).
- U.S. Department of Defense (DoD). (2014b). *Problematic Substance Abuse by DoD Personnel*. (1010.04). Washington D.C.
- U.S. Department of Defense (DoD). (2015). 2014 Demographics Profile of the Military Community. Retrieved from <http://download.militaryonesource.mil/12038/MOS/Reports/2014-Demographics-Report.pdf>

- U.S. Department of Defense (DoD). (2016). *Clinical Practice Guidelines for Access to Methods of Contraception and Contraceptive Counseling (DHA-IPM 16-003)*. Washington, DC: Office of the Assistant Secretary of Defense.
- U.S. General Accounting Office (U.S. GAO). (1990). *Women in the Military: Attrition and Retention*. (NSIAD-90-87BR).
- U.S. General Accounting Office (U.S. GAO). (2000). *Military Personnel: First-term recruiting and attrition continue to require focused attention*. Retrieved from Washington DC:
<http://www.gao.gov/archive/2000/ns00102t.pdf>
- U.S. Government Accountability Office (GAO). (2013a). *DoD Health Care: Domestic health care for female servicemembers*. (GAO-13-205).
- U.S. Government Accountability Office (GAO). (2013b). *Military Personnel: DoD has taken steps to meet the health needs of deployed servicewomen, but actions are needed to enhance care for sexual assault victims*. (GAO-13-182).
- U.S. Government Accountability Office (GAO). (2016). *Defense Health Care: Availability and Quality Measurement of Women's Health Care Services in U.S. Military Hospitals*. (GAO 16-596).
- Walker, E., Hernandez, A. V., & Kattan, M. W. (2008). Meta-analysis: Its strengths and limitations. *Cleve Clin J Med*, 75(6), 431-439.
- Wang, Y., Hunt, K., Nazareth, I., Freemantle, N., & Petersen, I. (2013). Do men consult less than women? An analysis of routinely collected UK general practice data. *BMJ Open*, 3(8). doi:10.1136/bmjopen-2013-003320
- World Health Organization (WHO). (2008). *The Global Burden of Disease 2004 Update*.
- World Health Organization (WHO). (2009). *Women and Health: Today's Evidence, Tomorrow's Agenda*.
- World Health Organization (WHO). (2014). *Ensuring human rights in the provision of contraceptive information and services: Guidance and Recommendations*. Retrieved from
- Yano, E. M., Bastian, L. A., Bean-Mayberry, B., Eisen, S., Frayne, S., Hayes, P., . . . Washington, D. L. (2011). Using Research to Transform Care for Women Veterans: Advancing the Research Agenda and Enhancing Research–Clinical Partnerships. *Women's Health Issues*, 21(4, Supplement), S73-S83. doi:<http://dx.doi.org/10.1016/j.whi.2011.04.002>

Appendix A: Gender-Specific and Gender-Inclusive Articles (n = 979)

- Abraham, J. H., DeBaakey, S. F., Reid, L., Zhou, J., & Baird, C. P. (2012). Does deployment to Iraq and Afghanistan affect respiratory health of US military personnel? *J Occup Environ Med*, 54(6), 740-745. doi:10.1097/JOM.0b013e318252969a
- Acute pelvic inflammatory disease, active component, U.S. Armed Forces, 2002-2011. (2012). *MSMR*, 19(7), 11-13.
- Adams, R. S., Larson, M. J., Corrigan, J. D., Horgan, C. M., & Williams, T. V. (2012). Frequent binge drinking after combat-acquired traumatic brain injury among active duty military personnel with a past year combat deployment. *J Head Trauma Rehabil*, 27(5), 349-360. doi:10.1097/HTR.0b013e318268db94
- Adams, R. S., Larson, M. J., Corrigan, J. D., Ritter, G. A., & Williams, T. V. (2013). Traumatic brain injury among U.S. active duty military personnel and negative drinking-related consequences. *Subst Use Misuse*, 48(10), 821-836. doi:10.3109/10826084.2013.797995
- Adler, A. B., Huffman, A. H., Bliese, P. D., & Castro, C. A. (2005). The impact of deployment length and experience on the well-being of male and female soldiers. *J Occup Health Psychol*, 10(2), 121-137. doi:10.1037/1076-8998.10.2.121
- Agazio, J., Hillier, S. L., Throop, M., Goodman, P., Padden, D., Greiner, S., & Turner, A. (2013). Mothers going to war: the role of nurse practitioners in the care of military mothers and families during deployment. *J Am Assoc Nurse Pract*, 25(5), 253-262. doi:10.1111/j.1745-7599.2012.00811.x
- Agazio, J. G., & Buckley, K. M. (2010). Finding a balance: health promotion challenges of military women. *Health Care Women Int*, 31(9), 848-868. doi:10.1080/07399332.2010.486095
- Agazio, J. G., Ephraim, P. M., Flaherty, N. B., & Gurney, C. A. (2002). Health promotion in active-duty military women with children. *Women Health*, 35(1), 65-82. doi:10.1300/J013v35n01_05
- Ajene, A., Bohnker, B., Malakooti, M. A., Riegodedios, A., & Sack, D. M. (2004). Neoplasms in the Navy, 1998-2000: a descriptive analysis of the Physical Evaluation Board database. *Mil Med*, 169(9), 707-711.
- Ake, J., Scott, P., Wortmann, G., Huang, X. Z., Barber, M., Wang, Z., . . . Lesho, E. (2011). Gram-negative multidrug-resistant organism colonization in a US military healthcare facility in Iraq. *Infect Control Hosp Epidemiol*, 32(6), 545-552. doi:10.1086/660015
- Albright, T. S., Gehrich, A. P., Buller, J. L., & Davis, G. D. (2005). Acute dysuria among female soldiers. *Mil Med*, 170(9), 735-738.
- Albright, T. S., Gehrich, A. P., Wright, J., Jr., Lettieri, C. F., Dunlow, S. G., & Buller, J. L. (2007a). Pregnancy during Operation Iraqi Freedom/Operation Enduring Freedom. *Mil Med*, 172(5), 511-514.
- Albright, T. S., Gehrich, A. P., Wright, J., Jr., Lettieri, C. F., Dunlow, S. G., & Buller, J. L. (2007b). Utility of ultrasound in the combat theater: experiences of a gynecologist during Operation Iraqi Freedom/Operation Enduring Freedom. *Mil Med*, 172(5), 507-510.
- Alcohol-related diagnoses, active component, U.S. Armed Forces, 2001-2010. (2011). *MSMR*, 18(10), 9-13.
- Aldous, W. K., Robertson, J. L., Robinson, B. J., Hatcher, C. L., Hospenthal, D. R., Conger, N. G., & Murray, C. K. (2011). Rates of gonorrhea and Chlamydia in U.S. military personnel deployed to Iraq and Afghanistan (2004-2009). *Mil Med*, 176(6), 705-710.
- Alpers, J. P., & Jones, L. K., Jr. (2010). Natural history of exertional rhabdomyolysis: a population-based analysis. *Muscle Nerve*, 42(4), 487-491. doi:10.1002/mus.21740
- Altarac, M., Gardner, J. W., Popovich, R. M., Potter, R., Knapik, J. J., & Jones, B. H. (2000). Cigarette smoking and exercise-related injuries among young men and women. *Am J Prev Med*, 18(3 Suppl), 96-102.
- Ambulatory visits among members of the active component, U.S. Armed Forces, 2010. (2011). *MSMR*, 18(4), 16-21.
- Ambulatory visits among members of the active component, U.S. Armed Forces, 2011. (2012). *MSMR*, 19(4), 17-22; discussion 22.
- Ambulatory visits among members of the active component, U.S. Armed Forces, 2012. (2013). *MSMR*, 20(4), 18-23; discussion 23.

- Ambulatory visits among members of the active component, U.S. Armed Forces, 2013. (2014). *MSMR*, 21(4), 15-20; discussion 20.
- Ames, G. M., Cunradi, C. B., & Moore, R. S. (2002). Alcohol, tobacco, and drug use among young adults prior to entering the military. *Prev Sci*, 3(2), 135-144.
- Ames, G. M., Cunradi, C. B., Moore, R. S., & Stern, P. (2007). Military culture and drinking behavior among U.S. Navy careerists. *J Stud Alcohol Drugs*, 68(3), 336-344.
- Amputations of upper and lower extremities, active and reserve components, U.S. Armed Forces, 2000-2011. (2012). *MSMR*, 19(6), 2-6.
- Andersen, N. E., Karl, J. P., Cable, S. J., Williams, K. W., Rood, J. C., Young, A. J., . . . McClung, J. P. (2010). Vitamin D status in female military personnel during combat training. *Journal of the International Society of Sports Nutrition*, 7. doi:10.1186/1550-2783-7-38
- Anderson, A. D., Baker, T. R., Littrell, A. C., Mott, R. L., Niebuhr, D. W., & Smoak, B. L. (2011a). Seroepidemiologic survey for *Coxiella burnetii* among hospitalized US troops deployed to Iraq. *Zoonoses Public Health*, 58(4), 276-283. doi:10.1111/j.1863-2378.2010.01347.x
- Anderson, A. D., Baker, T. R., Littrell, A. C., Mott, R. L., Niebuhr, D. W., & Smoak, B. L. (2011b). Seroepidemiologic Survey for *Coxiella burnetii* Among Hospitalized US Troops Deployed to Iraq*. *Zoonoses Public Health*, 58(4), 276-283. doi:10.1111/j.1863-2378.2010.01347.x
- Anderson, M. K., Grier, T., Canham-Chervak, M., Bushman, T. T., & Jones, B. H. (2014). Risk factors associated with higher body fat in US Army female soldiers. *US Army Med Dep J*, 75-82.
- Andreotti, G., Lange, J. L., & Brundage, J. F. (2001). The nature, incidence, and impact of eye injuries among US military personnel: implications for prevention. *Arch Ophthalmol*, 119(11), 1693-1697.
- Andrews, A. M., & Kantor, M. A. (2010). Oxidative stress increases in overweight individuals following an exercise test. *Mil Med*, 175(12), 1014-1019.
- Anestis, M. D., & Bryan, C. J. (2013). Means and capacity for suicidal behavior: a comparison of the ratio of suicide attempts and deaths by suicide in the US military and general population. *J Affect Disord*, 148(1), 42-47. doi:10.1016/j.jad.2012.11.045
- Antczak, A. J., & Brininger, T. L. (2008). Diagnosed eating disorders in the U.S. Military: a nine year review. *Eat Disord*, 16(5), 363-377. doi:10.1080/10640260802370523
- Anxiety disorders, active component, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(10), 2-6; discussion 4-6.
- Appendicitis and appendectomies, active and reserve components, U.S. Armed Forces, 2002-2011. (2012). *MSMR*, 19(12), 7-12.
- Applewhite, L., Keller, N., & Borah, A. (2012). Mental health care use by soldiers conducting counterinsurgency operations. *Mil Med*, 177(5), 501-506.
- Appolonio, K. K., & Fingerhut, R. (2008). Postpartum depression in a military sample. *Mil Med*, 173(11), 1085-1091.
- Araneta, M. R., Kamens, D. R., Zau, A. C., Gastanaga, V. M., Schlangen, K. M., Hiliopoulos, K. M., & Gray, G. C. (2004). Conception and pregnancy during the Persian Gulf War: the risk to women veterans. *Ann Epidemiol*, 14(2), 109-116. doi:10.1016/j.annepidem.2003.08.006
- Arm and shoulder conditions, active component, U.S. Armed Forces, 2003-2012. (2013). *MSMR*, 20(6), 18-22.
- Armistead-Jehle, P., & Buican, B. (2012). Evaluation context and Symptom Validity Test performances in a U.S. Military sample. *Arch Clin Neuropsychol*, 27(8), 828-839. doi:10.1093/arclin/acs086
- Armitage, N. H., Severtsen, B. M., Vandermause, R., & Smart, D. A. (2014). Training for the Air Force Fitness Assessment: The Experience of Postpartum Women. *Mil Med*, 179(7), 766-772. doi:10.7205/milmed-d-13-00437
- Armitage, N. H., & Smart, D. A. (2012). Changes in Air Force fitness measurements pre- and post-childbirth. *Mil Med*, 177(12), 1519-1523.
- Arsenault, J. E., & Cline, A. D. (2000). Nutrient intakes and characteristics of normal weight, female military personnel consuming foods reduced in fat or energy content. *Appetite*, 34(3), 227-233. doi:10.1006/appe.1999.0315

- Associations between repeated deployments to Iraq (OIF/OND) and Afghanistan (OEF) and post-deployment illnesses and injuries, active component, U.S. Armed Forces, 2003-2010. Part II. Mental disorders, by gender, age group, military occupation, and "dwell times" prior to repeat (second through fifth) deployments. (2011). *MSMR*, 18(9), 2-11.
- Austin, K. G., Carvey, C. E., Farina, E. K., & Lieberman, H. R. (2013). Predictors of the relationships between nutritional supplement use and weight-modification goals of U.S. Army soldiers. *Int J Sport Nutr Exerc Metab*, 23(4), 322-335.
- Bachynski, K. E., Canham-Chervak, M., Black, S. A., Dada, E. O., Millikan, A. M., & Jones, B. H. (2012). Mental health risk factors for suicides in the US Army, 2007--8. *Inj Prev*, 18(6), 405-412. doi:10.1136/injuryprev-2011-040112
- Bacterial skin infections, active component, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(12), 2-7.
- Bagnell, M. E., LeardMann, C. A., McMaster, H. S., Boyko, E. J., Smith, B., Granado, N. S., & Smith, T. C. (2013). The association of predeployment and deployment-related factors on dimensions of postdeployment wellness in U.S. military service members. *Am J Health Promot*, 28(2), e56-66. doi:10.4278/ajhp.120727-QUAN-366
- Bales, K., Washburn, J., & Bales, J. (2012). Breastfeeding rates and factors related to cessation in a military population. *Breastfeed Med*, 7(6), 436-441. doi:10.1089/bfm.2011.0113
- Barker, T. L., Richards, A. L., Laksono, E., Sanchez, J. L., Feighner, B. H., McBride, W. Z., . . . Hyams, K. C. (2001). Serosurvey of *Borrelia burgdorferi* infection among US military personnel: A low risk of infection. *American Journal of Tropical Medicine and Hygiene*, 65(6), 804-809.
- Barnett, S. D., & Brundage, J. F. (2001). Incidence of recurrent diagnoses of *Chlamydia trachomatis* genital infections among male and female soldiers of the US Army. *Sex Transm Infect*, 77(1), 33-36.
- Barrozo, C. P., Russell, K. L., Smith, T. C., Hawksworth, A. W., Ryan, M. A., & Gray, G. C. (2003). National Department of Defense surveillance data for antibiotic resistance and emm gene types of clinical group A streptococcal isolates from eight basic training military sites. *J Clin Microbiol*, 41(10), 4808-4811.
- Bathalon, G. P., McGraw, S. M., Sharp, M. A., Williamson, D. A., Young, A. J., & Friedl, K. E. (2006). The effect of proposed improvements to the Army Weight Control Program on female soldiers. *Mil Med*, 171(8), 800-805.
- Bautista, C. T., Sateren, W. B., Sanchez, J. L., Rathore, Z., Singer, D. E., Bix, D. L., & Scott, P. T. (2006). HIV incidence trends among white and african-american active duty United States Army personnel (1986-2003). *J Acquir Immune Defic Syndr*, 43(3), 351-355. doi:10.1097/01.qai.0000243051.35204.d0
- Bautista, C. T., Singer, D. E., O'Connell, R. J., Crum-Cianflone, N., Agan, B. K., Malia, J. A., . . . Scott, P. T. (2009). Herpes simplex virus type 2 and HIV infection among US military personnel: implications for health prevention programmes. *Int J STD AIDS*, 20(9), 634-637. doi:10.1258/ijsa.2008.008413
- Beck, T. J., Ruff, C. B., Shaffer, R. A., Betsinger, K., Trone, D. W., & Brodine, S. K. (2000). Stress fracture in military recruits: gender differences in muscle and bone susceptibility factors. *Bone*, 27(3), 437-444.
- Beder, J., Coe, R., & Sommer, D. (2011). Women and men who have served in Afghanistan/Iraq: coming home. *Soc Work Health Care*, 50(7), 515-526. doi:10.1080/00981389.2011.554279
- Bedno, S., Hauret, K., Loring, K., Kao, T. C., Mallon, T., & Jones, B. (2014). Effects of Personal and Occupational Stress on Injuries in a Young, Physically Active Population: A Survey of Military Personnel. *Mil Med*, 179(11), 1311-1318. doi:10.7205/milmed-d-14-00080
- Bedno, S. A., Lang, C. E., Daniell, W. E., Wiesen, A. R., Datu, B., & Niebuhr, D. W. (2010). Association of weight at enlistment with enrollment in the Army Weight Control Program and subsequent attrition in the Assessment of Recruit Motivation and Strength Study. *Mil Med*, 175(3), 188-193.
- Bell, N. S., Amoroso, P. J., Yore, M. M., Smith, G. S., & Jones, B. H. (2000). Self-reported risk-taking behaviors and hospitalization for motor vehicle injury among active duty army personnel. *Am J Prev Med*, 18(3 Suppl), 85-95.
- Bell, N. S., Harford, T. C., Amoroso, P. J., Hollander, I. E., & Kay, A. B. (2010). Prior health care utilization patterns and suicide among U.S. Army soldiers. *Suicide Life Threat Behav*, 40(4), 407-415. doi:10.1521/suli.2010.40.4.407

- Bell, N. S., Hunt, P. R., Harford, T. C., & Kay, A. (2011). Deployment to a combat zone and other risk factors for mental health-related disability discharge from the U.S. Army: 1994-2007. *J Trauma Stress*, *24*(1), 34-43. doi:10.1002/jts.20612
- Bell, N. S., Mangione, T. W., Hemenway, D., Amoroso, P. J., & Jones, B. H. (2000). High injury rates among female army trainees: a function of gender? *Am J Prev Med*, *18*(3 Suppl), 141-146.
- Bell, N. S., Schwartz, C. E., Harford, T., Hollander, I. E., & Amoroso, P. J. (2008). The changing profile of disability in the U.S. Army: 1981-2005. *Disabil Health J*, *1*(1), 14-24. doi:10.1016/j.dhjo.2007.11.007
- Bell, N. S., Schwartz, C. E., Harford, T. C., Hollander, I. E., & Amoroso, P. J. (2008). Temporal changes in the nature of disability: U.S. Army soldiers discharged with disability, 1981-2005. *Disabil Health J*, *1*(3), 163-171. doi:10.1016/j.dhjo.2008.05.002
- Bell, N. S., Williams, J. O., Senier, L., Strowman, S. R., & Amoroso, P. J. (2003). The reliability and validity of the self-reported drinking measures in the Army's Health Risk Appraisal survey. *Alcohol Clin Exp Res*, *27*(5), 826-834. doi:10.1097/01.alc.0000067978.27660.73
- Belmont, P. J., Jr., Goodman, G. P., Waterman, B., DeZee, K., Burks, R., & Owens, B. D. (2010). Disease and nonbattle injuries sustained by a U.S. Army Brigade Combat Team during Operation Iraqi Freedom. *Mil Med*, *175*(7), 469-476.
- Belmont, P. J., Jr., Taylor, K. F., Mason, K. T., Shawen, S. B., Polly, D. W., Jr., & Klemme, W. R. (2001). Incidence, epidemiology, and occupational outcomes of thoracolumbar fractures among U.S. Army aviators. *J Trauma*, *50*(5), 855-861.
- Benotsch, E. G., Brailey, K., Vasterling, J. J., Uddo, M., Constans, J. I., & Sutker, P. B. (2000). War zone stress, personal and environmental resources, and PTSD symptoms in Gulf War veterans: a longitudinal perspective. *J Abnorm Psychol*, *109*(2), 205-213.
- Bergman, M. E., Langhout, R. D., Palmieri, P. A., Cortina, L. M., & Fitzgerald, L. F. (2002). The (un)reasonableness of reporting: antecedents and consequences of reporting sexual harassment. *J Appl Psychol*, *87*(2), 230-242.
- Berry-Caban, C. S., Jenkins, J. N., Goorley, E., & Gray, S. (2014). Age of first reported sexual experience among U.S. soldiers. *Int J Adolesc Med Health*, *26*(2), 239-244. doi:10.1515/ijamh-2014-0514
- Besterman-Dahan, K., Gibbons, S. W., Barnett, S. D., & Hickling, E. J. (2012). The role of military chaplains in mental health care of the deployed service member. *Mil Med*, *177*(9), 1028-1033.
- Biggs, R. L., Douglas, B. H., O'Boyle, A. L., & Rieg, T. S. (2009). The impact of pregnancy on the individual and military organization: a postpartum active duty survey. *Mil Med*, *174*(1), 61-75.
- Black, S. A., Gallaway, M. S., Bell, M. R., & Ritchie, E. C. (2011). Prevalence and Risk Factors Associated With Suicides of Army Soldiers 2001-2009. *Military Psychology (Taylor & Francis Ltd)*, *23*(4), 433-451. doi:10.1080/08995605.2011.590409
- Blair, J. A., Possley, D. R., Petfield, J. L., Schoenfeld, A. J., Lehman, R. A., & Hsu, J. R. (2012). Military penetrating spine injuries compared with blunt. *Spine J*, *12*(9), 762-768. doi:10.1016/j.spinee.2011.10.009
- Blank, E., Owens, B. D., Burks, R., & Belmont, P. J., Jr. (2012). Incidence of greater trochanteric pain syndrome in active duty US military servicemembers. *Orthopedics*, *35*(7), e1022-1027. doi:10.3928/01477447-20120621-14
- Bloom, M. S., Hu, Z., Gaydos, J. C., Brundage, J. F., & Tobler, S. K. (2008). Incidence rates of pelvic inflammatory disease diagnoses among Army and Navy recruits potential impacts of Chlamydia screening policies. *Am J Prev Med*, *34*(6), 471-477. doi:10.1016/j.amepre.2008.01.032
- Blume, A. W., Schmalings, K. B., & Russell, M. L. (2010). Stress and alcohol use among soldiers assessed at mobilization and demobilization. *Mil Med*, *175*(6), 400-404.
- Bobo, W. V., Hoge, C. W., Messina, M. A., Pavlovic, F., Levandowski, D., & Grieger, T. (2004). Characteristics of repeat users of an inpatient psychiatry service at a large military tertiary care hospital. *Mil Med*, *169*(8), 648-653.
- Bohnker, B. K., Betts, L. S., Sack, D. M., & Craft, N. (2001). Navy Asbestos Medical Surveillance Program, 1995-1999: demographic characteristics and smoking status. *Mil Med*, *166*(11), 966-971.

- Bohnker, B. K., Page, J. C., Rovig, G., Betts, L. S., Muller, J. G., & Sack, D. M. (2002). U.S. Navy and Marine Corps Hearing Conservation Program, 1995-1999: mean hearing thresholds for enlisted personnel by gender and age groups. *Mil Med*, *167*(2), 132-135.
- Bohnker, B. K., Page, J. C., Rovig, G. W., Betts, L. S., & Sack, D. M. (2004). Navy Hearing Conservation Program: 1995-1999 retrospective analysis of threshold shifts for age, sex, and officer/enlisted status. *Mil Med*, *169*(1), 73-76.
- Bohnker, B. K., Sack, D. M., Wedierhold, L., & Malakooti, M. (2005). Navy physical readiness test scores and body mass index (Spring 2002 cycle). *Mil Med*, *170*(10), 851-854.
- Bolton, E. E., Litz, B. T., Britt, T. W., Adler, A., & Roemer, L. (2001). Reports of prior exposure to potentially traumatic events and PTSD in troops poised for deployment. *J Trauma Stress*, *14*(1), 249-256. doi:10.1023/a:1007864305207
- Booth-Kewley, S., & Larson, G. E. (2005). Predictors of psychiatric hospitalization in the Navy. *Mil Med*, *170*(1), 87-93.
- Booth-Kewley, S., Schmied, E. A., Highfill-McRoy, R. M., Larson, G. E., Garland, C. F., & Ziajko, L. A. (2013). Predictors of psychiatric disorders in combat veterans. *BMC Psychiatry*, *13*, 130. doi:10.1186/1471-244x-13-130
- Bostock, D. J., & Daley, J. G. (2007). Lifetime and current sexual assault and harassment victimization rates of active-duty United States Air Force women. *Violence Against Women*, *13*(9), 927-944. doi:10.1177/1077801207305232
- Bowles, S. V., Picano, J., Epperly, T., & Myer, S. (2006). The LIFE program: a wellness approach to weight loss. *Mil Med*, *171*(11), 1089-1094.
- Boyer, C. B., Pollack, L. M., Becnel, J., & Shafer, M. A. (2008). Relationships among sociodemographic markers, behavioral risk, and sexually transmitted infections in U. S. female Marine Corps recruits. *Mil Med*, *173*(11), 1078-1084.
- Boyer, C. B., Shafer, M. A., Pollack, L. M., Canchola, J., Moncada, J., & Schachter, J. (2006). Sociodemographic markers and behavioral correlates of sexually transmitted infections in a nonclinical sample of adolescent and young adult women. *J Infect Dis*, *194*(3), 307-315. doi:10.1086/506328
- Boyer, C. B., Shafer, M. A., Shaffer, R. A., Brodine, S. K., Pollack, L. M., Betsinger, K., . . . Schachter, J. (2005). Evaluation of a cognitive-behavioral, group, randomized controlled intervention trial to prevent sexually transmitted infections and unintended pregnancies in young women. *Prev Med*, *40*(4), 420-431. doi:10.1016/j.ypmed.2004.07.004
- Boyko, E. J., Jacobson, I. G., Smith, B., Ryan, M. A., Hooper, T. I., Amoroso, P. J., . . . Smith, T. C. (2010). Risk of diabetes in U.S. military service members in relation to combat deployment and mental health. *Diabetes Care*, *33*(8), 1771-1777. doi:10.2337/dc10-0296
- Bray, R. M., Bae, K. H., Federman, E. B., & Wheeless, S. C. (2005). Regional differences in alcohol use among U. S. military personnel. *J Stud Alcohol*, *66*(2), 229-238.
- Bray, R. M., Brown, J. M., Pemberton, M. R., Williams, J., Jones, S. B., & Vandermaas-Peeler, R. (2010). Alcohol use after forced abstinence in basic training among United States Navy and Air Force trainees. *J Stud Alcohol Drugs*, *71*(1), 15-22.
- Bray, R. M., Camlin, C. S., Fairbank, J. A., Dunteman, G. H., & Wheeless, S. C. (2001). The effects of stress on job functioning of military men and women. *Armed Forces & Society*, *27*(3), 397-+. doi:10.1177/0095327x0102700304
- Bray, R. M., & Hourani, L. L. (2007). Substance use trends among active duty military personnel: findings from the United States Department of Defense Health Related Behavior Surveys, 1980-2005. *Addiction*, *102*(7), 1092-1101. doi:10.1111/j.1360-0443.2007.01841.x
- Bray, R. M., Rae Olmsted, K. L., Williams, J., Sanchez, R. P., & Hartzell, M. (2006). Progress toward healthy people 2000 objectives among U.S. military personnel. *Prev Med*, *42*(5), 390-396. doi:10.1016/j.ypmed.2006.01.009
- Brennan, F. H., Jr., Jackson, C. R., Olsen, C., & Wilson, C. (2012). Blisters on the battlefield: the prevalence of and factors associated with foot friction blisters during Operation Iraqi Freedom I. *Mil Med*, *177*(2), 157-162.

- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol*, *68*(5), 748-766.
- Brief report: Polycystic ovary syndrome, active component service women, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, *20*(9), 13-14.
- Brief report: sunburn diagnoses while deployed in Southwest/Central Asia, active component, U.S. Armed Forces, 2008-2013. (2014). *MSMR*, *21*(7), 7-9.
- Broderick, M. P., Hansen, C. J., Irvine, M., Metzgar, D., Campbell, K., Baker, C., & Russell, K. L. (2010). Adenovirus 36 seropositivity is strongly associated with race and gender, but not obesity, among US military personnel. *Int J Obes (Lond)*, *34*(2), 302-308. doi:10.1038/ijo.2009.224
- Brodine, S. K., Starkey, M. J., Shaffer, R. A., Ito, S. I., Tasker, S. A., Barile, A. J., . . . McCutchan, F. E. (2003). Diverse HIV-1 subtypes and clinical, laboratory and behavioral factors in a recently infected US military cohort. *AIDS*, *17*(17), 2521-2527. doi:10.1097/01.aids.0000088221.77946.50
- Brooks, D. E., Agochukwu, U. F., Arrington, E. D., & Mok, J. M. (2013). Psychological distress in the active duty military spine patient. *Mil Med*, *178*(10), 1059-1064. doi:10.7205/milmed-d-13-00162
- Brown, J. M., Bray, R. M., & Hartzell, M. C. (2010). A comparison of alcohol use and related problems among women and men in the military. *Mil Med*, *175*(2), 101-107.
- Brown, M. C., Creel, A. H., Engel, C. C., Herrell, R. K., & Hoge, C. W. (2011). Factors associated with interest in receiving help for mental health problems in combat veterans returning from deployment to Iraq. *J Nerv Ment Dis*, *199*(10), 797-801. doi:10.1097/NMD.0b013e31822fc9bf
- Brundage, J. F., Kohlhase, K. F., & Rubertone, M. V. (2000). Hospitalizations for all causes of U.S. military service members in relation to participation in Operations Joint Endeavor and Joint Guard, Bosnia-Herzegovina, January 1995 to December 1997. *Mil Med*, *165*(7), 505-511.
- Bryan, C. J., & Cukrowicz, K. C. (2011). Associations between types of combat violence and the acquired capability for suicide. *Suicide and Life-Threatening Behavior*, *41*(2), 126-129. doi:10.1111/j.1943-278X.2011.00023.x
- Bryan, C. J., Cukrowicz, K. C., West, C. L., & Morrow, C. E. (2010). Combat experience and the acquired capability for suicide. *J Clin Psychol*, *66*(10), 1044-1056. doi:10.1002/jclp.20703
- Bryan, C. J., Dhillon-Davis, L. E., & Dhillon-Davis, K. K. (2009). Emotional impact of a video-based suicide prevention program on suicidal viewers and suicide survivors. *Suicide Life Threat Behav*, *39*(6), 623-632. doi:10.1521/suli.2009.39.6.623
- Bryan, C. J., Elder, W. B., McNaughton-Cassill, M., Osman, A., Hernandez, A. M., & Allison, S. (2013). Meaning in life, emotional distress, suicidal ideation, and life functioning in an active duty military sample. *Journal of Positive Psychology*, *8*(5), 444-452. doi:10.1080/17439760.2013.823557
- Bryan, C. J., & Heron, E. A. (2015). BELONGING PROTECTS AGAINST POSTDEPLOYMENT DEPRESSION IN MILITARY PERSONNEL. *Depress Anxiety*, *32*(5), 349-355. doi:10.1002/da.22372
- Bryan, C. J., Johnson, L. G., David Rudd, M., & Joiner, T. E., Jr. (2008). Hypomanic symptoms among first-time suicide attempters predict future multiple attempt status. *J Clin Psychol*, *64*(4), 519-530. doi:10.1002/jclp.20445
- Bryan, C. J., McNaughton-Cassill, M., Osman, A., & Hernandez, A. M. (2013). The associations of physical and sexual assault with suicide risk in nonclinical military and undergraduate samples. *Suicide Life Threat Behav*, *43*(2), 223-234. doi:10.1111/sltb.12011
- Bryan, C. J., Morrow, C. E., Etienne, N., & Ray-Sannerud, B. (2013). Guilt, shame, and suicidal ideation in a military outpatient clinical sample. *Depress Anxiety*, *30*(1), 55-60. doi:10.1002/da.22002
- Bryan, C. J., Rudd, M. D., Wertemberger, E., Young-McCaughon, S., & Peterson, A. (2015). Nonsuicidal self-injury as a prospective predictor of suicide attempts in a clinical sample of military personnel. *Compr Psychiatry*, *59*, 1-7. doi:10.1016/j.comppsy.2014.07.009
- Burgi, A. A., Gorham, E. D., Garland, C. F., Mohr, S. B., Garland, F. C., Zeng, K., . . . Lappe, J. M. (2011). High Serum 25-Hydroxyvitamin D Is Associated With a Low Incidence of Stress Fractures. *Journal of Bone and Mineral Research*, *26*(10), 2371-2377. doi:10.1002/jbmr.451

- Burnett-Zeigler, I., Ilgen, M., Valenstein, M., Zivin, K., Gorman, L., Blow, A., . . . Chermack, S. (2011). Prevalence and correlates of alcohol misuse among returning Afghanistan and Iraq veterans. *Addict Behav*, *36*(8), 801-806. doi:10.1016/j.addbeh.2010.12.032
- Burns, B., Grindlay, K., Holt, K., Manski, R., & Grossman, D. (2014). Military sexual trauma among US servicewomen during deployment: a qualitative study. *Am J Public Health*, *104*(2), 345-349. doi:10.2105/ajph.2013.301576
- Calabrese, J. R., Prescott, M., Tamburrino, M., Liberzon, I., Slembariski, R., Goldmann, E., . . . Galea, S. (2011). PTSD comorbidity and suicidal ideation associated with PTSD within the Ohio Army National Guard. *J Clin Psychiatry*, *72*(8), 1072-1078. doi:10.4088/JCP.11m06956
- Calhoun, B. C., Jennings, B. M., Peniston, J., Patience, T., Pulos, E., Hume, R., & Perez, R. (2000). Focused obstetrical clinic for active duty junior enlisted service women: model for improved outcomes. *Mil Med*, *165*(1), 45-48.
- Camarca, M. M., & Krauss, M. R. (2001). Active tuberculosis among U.S. Army personnel, 1980 to 1996. *Mil Med*, *166*(5), 452-456.
- Cameron, K. L., Hsiao, M. S., Owens, B. D., Burks, R., & Svoboda, S. J. (2011). Incidence of physician-diagnosed osteoarthritis among active duty United States military service members. *Arthritis Rheum*, *63*(10), 2974-2982. doi:10.1002/art.30498
- Cameron, K. L., Marshall, S. W., Sturdivant, R. X., & Lincoln, A. E. (2012). Trends in the incidence of physician-diagnosed mild traumatic brain injury among active duty U.S. military personnel between 1997 and 2007. *J Neurotrauma*, *29*(7), 1313-1321. doi:10.1089/neu.2011.2168
- Cameron, K. L., Owens, B. D., & DeBerardino, T. M. (2010). Incidence of ankle sprains among active-duty members of the United States Armed Services from 1998 through 2006. *J Athl Train*, *45*(1), 29-38. doi:10.4085/1062-6050-45.1.29
- Campbell, J. C., Garza, M. A., Gielen, A. C., O'Campo, P., Kub, J., Dienemann, J., . . . Jafar, E. (2003). Intimate partner violence and abuse among active duty military women. *Violence Against Women*, *9*(9), 1072-1092.
- Campbell, K. E., & Brundage, J. F. (2002). Effects of climate, latitude, and season on the incidence of Bell's palsy in the US armed forces, October 1997 to September 1999. *Am J Epidemiol*, *156*(1), 32-39. doi:10.1093/aje/kwf009
- Capone, C., McGrath, A. C., Reddy, M. K., & Shea, M. T. (2013). Trauma-Related Correlates of Alcohol Use in Recently Deployed OEF/OIF Veterans. *J Trauma Stress*, *26*(3), 354-360. doi:10.1002/jts.21817
- Carlson, A. R., Smith, M. A., & McCarthy, M. S. (2013). Diet, physical activity, and bone density in soldiers before and after deployment. *US Army Med Dep J*, 25-30.
- Carlton, J. R., Manos, G. H., & Van Slyke, J. A. (2005). Anxiety and abnormal eating behaviors associated with cyclical readiness testing in a naval hospital active duty population. *Mil Med*, *170*(8), 663-667.
- Carter-Visscher, R., Polusny, M. A., Murdoch, M., Thuras, P., Erbes, C. R., & Kehle, S. M. (2010). Predeployment gender differences in stressors and mental health among U.S. National Guard troops poised for Operation Iraqi Freedom deployment. *J Trauma Stress*, *23*(1), 78-85. doi:10.1002/jts.20481
- Carter, R., 3rd, Chevront, S. N., Williams, J. O., Kolka, M. A., Stephenson, L. A., Sawka, M. N., & Amoroso, P. J. (2005). Epidemiology of hospitalizations and deaths from heat illness in soldiers. *Med Sci Sports Exerc*, *37*(8), 1338-1344.
- Cason, E. M. (2012). Air Force Hearing Conservation Program data 1998-2008: a cross-sectional analysis of positive threshold shifts. *Mil Med*, *177*(5), 589-593.
- Cassler, N. M., Sams, R., Cripe, P. A., McGlynn, A. F., Perry, A. B., & Banks, B. A. (2013). Patterns and perceptions of supplement use by U.S. Marines deployed to Afghanistan. *Mil Med*, *178*(6), 659-664. doi:10.7205/milmed-d-12-00440
- Castellani, J. W., Delany, J. P., O'Brien, C., Hoyt, R. W., Santee, W. R., & Young, A. J. (2006). Energy expenditure in men and women during 54 h of exercise and caloric deprivation. *Med Sci Sports Exerc*, *38*(5), 894-900. doi:10.1249/01.mss.0000218122.59968.eb
- Castro, C. A., Adler, A. B., McGurk, D., & Bliese, P. D. (2012). Mental health training with soldiers four months after returning from Iraq: randomization by platoon. *J Trauma Stress*, *25*(4), 376-383. doi:10.1002/jts.21721

- Castro, C. A., & McGurk, D. (2007). The intensity of combat and behavioral health status. *Traumatology, 13*(4), 6.
- Cater, J. K. (2012). Traumatic amputation: psychosocial adjustment of six Army women to loss of one or more limbs. *J Rehabil Res Dev, 49*(10), 1443-1456.
- Causes of medical evacuations from Operations Iraqi Freedom (OIF), New Dawn (OND) and Enduring Freedom (OEF), active and reserve components, U.S. Armed Forces, October 2001-September 2010. (2011). *MSMR, 18*(2), 2-7.
- Chappelle, W. L., McDonald, K. D., Prince, L., Goodman, T., Ray-Sannerud, B. N., & Thompson, W. (2014). Symptoms of Psychological Distress and Post-Traumatic Stress Disorder in United States Air Force "Drone" Operators. *Mil Med, 179*(8), 63-70. doi:10.7205/milmed-d-13-00501
- Chauhan, S. P., Johnson, T. L., Magann, E. F., Woods, J. Y., Chen, H. Y., Sheldon, I. V., & Morrison, J. C. (2013). Compliance with regulations on weight gain 6 months after delivery in active duty military women. *Mil Med, 178*(4), 406-411. doi:10.7205/milmed-d-12-00394
- Chinevere, T. D., Murray, C. K., Grant, E., Jr., Johnson, G. A., Duerm, F., & Hospenthal, D. R. (2006). Prevalence of glucose-6-phosphate dehydrogenase deficiency in U.S. Army personnel. *Mil Med, 171*(9), 905-907.
- Christensen, B. N., & Yaffe, J. (2012). Factors affecting mental health service utilization among deployed military personnel. *Mil Med, 177*(3), 278-283.
- Chung-Park, M. S. (2007). Contraceptive decision-making in military women. *Nurs Sci Q, 20*(3), 281-287. doi:10.1177/0894318407303432
- Chung-Park, M. S. (2008). Evaluation of a pregnancy prevention programme using the Contraceptive Behavior Change model. *J Adv Nurs, 61*(1), 81-91. doi:10.1111/j.1365-2648.2007.04468.x
- Ciccone, D. S., Chandler, H. K., & Kline, A. (2010). Catastrophic appraisal of acute and chronic pain in a population sample of new jersey national guard troops. *Clin J Pain, 26*(8), 712-721. doi:10.1097/AJP.0b013e3181e724e8
- Ciccone, D. S., & Kline, A. (2012). A longitudinal study of pain and pain catastrophizing in a cohort of National Guard troops at risk for PTSD. *Pain, 153*(10), 2055-2060. doi:10.1016/j.pain.2012.06.015
- Cigrang, J. A., Todd, S. L., & Carbone, E. G. (2000). Stress management training for military trainees returned to duty after a mental health evaluation: effect on graduation rates. *J Occup Health Psychol, 5*(1), 48-55.
- Claassen, J., Hu, Z., & Rohrbeck, P. (2014). Fractures among active component, recruit trainees, and deployed service members, U.S. Armed Forces, 2003-2012. *MSMR, 21*(9), 2-7.
- Clark, K. L., Howell, M. R., Li, Y., Powers, T., McKee, K. T., Jr., Quinn, T. C., . . . Gaydos, C. A. (2002). Hospitalization rates in female US Army recruits associated with a screening program for Chlamydia trachomatis. *Sex Transm Dis, 29*(1), 1-5.
- Clark, L. L., Daniele, D. O., & O'Donnell, F. L. (2015). Incidence of Salmonella infections among service members of the active and reserve components of the U.S. Armed Forces and among other beneficiaries of the Military Health System, 2000-2013. *MSMR, 22*(1), 11-15.
- Clinton-Sherrod, A. M., Barrick, K., & Gibbs, D. A. (2011). Soldier characteristics, alcohol abuse risk, and mental health risk as treatment predictors. *Military Psychology (Taylor & Francis Ltd), 23*(1), 22-35. doi:10.1080/08995605.2011.534408
- Clinton-Sherrod, M., Gibbs, D., Hardison Walters, J., Martin, S., & Johnson, R. (2012). The Impact of Work-Related Factors on Soldiers' Treatment: Providers' Perspectives. *Journal of Social Work Practice in the Addictions, 12*(1), 69-88. doi:10.1080/1533256X.2012.646588
- Cockrill, J. A. (2011). Cruciate ligament injuries, active component, U.S. Armed Forces, 2000-2009. *MSMR, 18*(2), 8-11.
- Cohen, S. P., Brown, C., Kurihara, C., Plunkett, A., Nguyen, C., & Strassels, S. A. (2010). Diagnoses and factors associated with medical evacuation and return to duty for service members participating in Operation Iraqi Freedom or Operation Enduring Freedom: a prospective cohort study. *Lancet, 375*(9711), 301-309. doi:10.1016/s0140-6736(09)61797-9
- Cohen, S. P., Kapoor, S. G., Anderson-Barnes, V. C., McHenry, M., Nguyen, C., Rao, D., & Plunkett, A. (2011). Noncardiac chest pain during war. *Clin J Pain, 27*(1), 19-26. doi:10.1097/AJP.0b013e3181f06b06

- Cohen, S. P., Kapoor, S. G., Nguyen, C., Anderson-Barnes, V. C., Brown, C., Schiffer, D., . . . Plunkett, A. (2010). Neck pain during combat operations: an epidemiological study analyzing clinical and prognostic factors. *Spine (Phila Pa 1976)*, *35*(7), 758-763. doi:10.1097/BRS.0b013e3181bb11a8
- Cohen, S. P., Plunkett, A. R., Wilkinson, I., Nguyen, C., Kurihara, C., Flagg, A., 2nd, . . . Galvagno, S. M., Jr. (2012). Headaches during war: analysis of presentation, treatment, and factors associated with outcome. *Cephalalgia*, *32*(2), 94-108. doi:10.1177/0333102411422382
- Cold weather injuries, active and reserve components, U.S. Armed Forces, July 2008-June 2013. (2013). *MSMR*, *20*(10), 12-17; discussion 16-17.
- Conkin, J., Gernhardt, M. L., Abercromby, A. F., & Feiveson, A. H. (2013). Probability of hypobaric decompression sickness including extreme exposures. *Aviat Space Environ Med*, *84*(7), 661-668.
- Conlin, A. M., Bukowinski, A. T., Sevick, C. J., DeScisciolo, C., & Crum-Cianflone, N. F. (2013). Safety of the pandemic H1N1 influenza vaccine among pregnant U.S. military women and their newborns. *Obstet Gynecol*, *121*(3), 511-518. doi:10.1097/AOG.0b013e318280d64e
- Conlin, A. M., DeScisciolo, C., Sevick, C. J., Bukowinski, A. T., Phillips, C. J., & Smith, T. C. (2012). Birth outcomes among military personnel after exposure to documented open-air burn pits before and during pregnancy. *J Occup Environ Med*, *54*(6), 689-697. doi:10.1097/JOM.0b013e31824fe154
- Conner, K. R., McCarthy, M. D., Bajorska, A., Caine, E. D., Tu, X. M., & Knox, K. L. (2012). Mood, anxiety, and substance-use disorders and suicide risk in a military population cohort. *Suicide and Life-Threatening Behavior*, *42*(6), 699-708. doi:10.1111/j.1943-278X.2012.00125.x
- Conway, T. L., Hammer, P. S., Galarneau, M. R., Larson, G. E., Edwards, N. K., Schmied, E. A., . . . Ghaed, S. G. (2011). Theater Mental Health Encounter Data (TMHED): overview of study design and methods. *Mil Med*, *176*(11), 1243-1252.
- Conway, T. L., Woodruff, S. I., Edwards, C. C., Elder, J. P., Hurtado, S. L., & Hervig, L. K. (2004). Operation Stay Quit: evaluation of two smoking relapse prevention strategies for women after involuntary cessation during US Navy recruit training. *Mil Med*, *169*(3), 236-242.
- Conway, T. L., Woodruff, S. I., & Hervig, L. K. (2007). Women's smoking history prior to entering the US Navy: a prospective predictor of performance. *Tob Control*, *16*(2), 79-84. doi:10.1136/tc.2006.016436
- Cooper, D. B., Chau, P. M., Armistead-Jehle, P., Vanderploeg, R. D., & Bowles, A. O. (2012). Relationship between mechanism of injury and neurocognitive functioning in OEF/OIF service members with mild traumatic brain injuries. *Mil Med*, *177*(10), 1157-1160.
- Cooper, T. V., DeBon, M., Haddock, C. K., Esquivel, D. R., Klesges, R. C., Lando, H., & Talcott, G. W. (2008). Demographics and risky lifestyle behaviors associated with willingness to risk sexually transmitted infection in Air Force recruits. *Am J Health Promot*, *22*(3), 164-167. doi:10.4278/ajhp.22.3.164
- Cooper, T. V., Taylor, T., Murray, A., DeBon, M. W., Vander Weg, M. W., Klesges, R. C., & Talcott, G. W. (2010). Differences between intermittent and light daily smokers in a population of U.S. military recruits. *Nicotine Tob Res*, *12*(5), 465-473. doi:10.1093/ntr/ntq025
- Costello, A. (2012). Mental health diagnoses during the year prior to schizophrenia, U.S. Armed Forces, 2001-2010. *MSMR*, *19*(3), 10-13.
- Costs of war: excess health care burdens during the wars in Afghanistan and Iraq (relative to the health care experience pre-war). (2012). *MSMR*, *19*(11), 2-10.
- Covington, L. L., Breault, L. G., & Hokett, S. D. (2003). The application of Periodontal Screening and Recording (PSR) in a military population. *J Contemp Dent Pract*, *4*(3), 36-51.
- Cowan, D. N., Bedno, S. A., Urban, N., Lee, D. S., & Niebuhr, D. W. (2012). Step test performance and risk of stress fractures among female army trainees. *Am J Prev Med*, *42*(6), 620-624. doi:10.1016/j.amepre.2012.02.014
- Cowan, D. N., Weber, N. S., Fisher, J. A., Bedno, S. A., & Niebuhr, D. W. (2011). Incidence of adult onset schizophrenic disorders in the US military: patterns by sex, race and age. *Schizophr Res*, *127*(1-3), 235-240. doi:10.1016/j.schres.2010.12.005
- Cox, D. W., Ghahramanlou-Holloway, M., Szeto, E. H., Greene, F. N., Engel, C., Wynn, G. H., . . . Grammer, G. (2011). Gender differences on documented trauma histories: inpatients admitted to a

- military psychiatric unit for suicide-related thoughts or behaviors. *J Nerv Ment Dis*, 199(3), 183-190. doi:10.1097/NMD.0b013e31820c71e9
- Cox, K. A., Clark, K. L., Li, Y., Powers, T. E., & Krauss, M. R. (2000). Prior knee injury and risk of future hospitalization and discharge from military service. *Am J Prev Med*, 18(3 Suppl), 112-117.
- Crain, J. A., Larson, G. E., Highfill-McRoy, R. M., & Schmied, E. A. (2011). Postcombat outcomes among Marines with preexisting mental diagnoses. *J Trauma Stress*, 24(6), 671-679. doi:10.1002/jts.20700
- Crouch, J. L., Thomsen, C. J., Milner, J. S., Stander, V. A., & Merrill, L. L. (2009). Heterosexual intimate partner violence among Navy personnel: gender differences in incidence and consequences. *Military Psychology (Taylor & Francis Ltd)*, 21, S1-s15.
- Crum-Cianflone, N. F., Bagnell, M. E., Schaller, E., Boyko, E. J., Smith, B., Maynard, C., . . . Smith, T. C. (2014). Impact of combat deployment and posttraumatic stress disorder on newly reported coronary heart disease among US active duty and reserve forces. *Circulation*, 129(18), 1813-1820. doi:10.1161/circulationaha.113.005407
- Cunningham, C. A., Weber, B. A., Roberts, B. L., Hejmanowski, T. S., Griffin, W. D., & Lutz, B. J. (2014). The Role of Resilience and Social Support in Predicting Postdeployment Adjustment in Otherwise Healthy Navy Personnel. *Mil Med*, 179(9), 979-985. doi:10.7205/milmed-d-13-00568
- Cunradi, C., Ames, G., & Moore, R. (2005). Prevalence and correlates of interpersonal violence victimization in a junior enlisted Navy cohort. *Violence Vict*, 20(6), 679-694.
- Cunradi, C. B., Moore, R. S., & Ames, G. (2008). Contribution of occupational factors to current smoking among active-duty U.S. Navy careerists. *Nicotine Tob Res*, 10(3), 429-437. doi:10.1080/14622200801889002
- Custer, M., Waller, K., Vernon, S., & O'Rourke, K. (2008). Unintended pregnancy rates among a US military population. *Paediatr Perinat Epidemiol*, 22(2), 195-200. doi:10.1111/j.1365-3016.2007.00896.x
- Dabbs, C., Watkins, E. Y., Fink, D. S., Eick-Cost, A., & Milliken, A. M. (2014). Opiate-Related Dependence/Abuse and PTSD Exposure Among the Active-Component US Military, 2001 to 2008. *Mil Med*, 179(8), 885-890. doi:10.7205/milmed-d-14-00012
- Dahlke, J. D., Ramseyer, A. M., Terpstra, E. R., Doherty, D. A., Keeler, S. M., & Magann, E. F. (2012). Postpartum use of long-acting reversible contraception in a military treatment facility. *J Womens Health (Larchmt)*, 21(4), 388-392. doi:10.1089/jwh.2011.2845
- Daniels, C., Huang, G. D., Feuerstein, M., & Lopez, M. (2005). Self-report measure of low back-related biomechanical exposures: clinical validation. *J Occup Rehabil*, 15(2), 113-128.
- Darakjy, S., Marin, R. E., Knapik, J. J., & Jones, B. H. (2006). Injuries and illnesses among armor brigade soldiers during operational training. *Mil Med*, 171(11), 1051-1056.
- Deaths attributed to underlying cardiovascular diseases, active and reserve components, U.S. Armed Forces, 1998-2012. (2013). *MSMR*, 20(12), 20-21.
- Deaths by suicide while on active duty, active and reserve components, U.S. Armed Forces, 1998-2011. (2012). *MSMR*, 19(6), 7-10.
- DeBon, M., Vander Weg, M. W., Sherrill-Mittleman, D., Klesges, R. C., & Talcott, G. W. (2011). Drinking and driving and riding with an alcohol impaired driver among United States Air Force recruits. *Traffic Inj Prev*, 12(2), 128-135. doi:10.1080/15389588.2010.543202
- DeGroot, D. W., Castellani, J. W., Williams, J. O., & Amoroso, P. J. (2003). Epidemiology of U.S. Army cold weather injuries, 1980-1999. *Aviat Space Environ Med*, 74(5), 564-570.
- Deussing, E. (2011). Multiple sclerosis, active component, U.S. Armed Forces, 2000-2009. *MSMR*, 18(1), 12-15.
- Deussing, E. C., Jankosky, C. J., Clark, L. L., & Otto, J. L. (2012). Estimated incidence of multiple sclerosis among United States Armed Forces personnel using the Defense Medical Surveillance System. *Mil Med*, 177(5), 594-600.
- Deuster, P. A., Powell-Dunford, N., Crago, M. S., & Cuda, A. S. (2011). Menstrual and oral contraceptive use patterns among deployed military women by race and ethnicity. *Women Health*, 51(1), 41-54. doi:10.1080/03630242.2011.540742

- Devlin, J. D., Knapik, J. J., Solomon, Z., Hauret, K. G., Morris, K., Carter, R., . . . Paoli, L. (2014). Incidence of Admission to the Physical Training and Rehabilitation Programs in Initial Entry Training During Fiscal Year 2011. *Mil Med*, *179*(5), 547-552. doi:10.7205/milmed-d-13-00361
- Dewing, C. B., Provencher, M. T., Riffenburgh, R. H., Kerr, S., & Manos, R. E. (2008). The outcomes of lumbar microdiscectomy in a young, active population: correlation by herniation type and level. *Spine (Phila Pa 1976)*, *33*(1), 33-38. doi:10.1097/BRS.0b013e31815e3a42
- DeYoung, K. H., Riddle, M. S., May, L., & Porter, C. K. (2013). A case-control study of incident rheumatological conditions following acute gastroenteritis during military deployment. *Bmj Open*, *3*(12). doi:10.1136/bmjopen-2013-003801
- Diagnoses of eating disorders among active component service members, U.S. Armed Forces, 2004-2013. (2014). *MSMR*, *21*(9), 8-12.
- Diagnoses of overweight/obesity, active component, U.S. Armed Forces, 1998-2010. (2011). *MSMR*, *18*(1), 7-11.
- Diefenderfer, K. E., Ahlf, R. L., Simecek, J. W., & Levine, M. E. (2007). Periodontal health status in a cohort of young US Navy personnel. *J Public Health Dent*, *67*(1), 49-54.
- Doherty, M. E., & Scannell-Desch, E. (2012). Women's health and hygiene experiences during deployment to the Iraq and Afghanistan wars, 2003 through 2010. *J Midwifery Womens Health*, *57*(2), 172-177. doi:10.1111/j.1542-2011.2011.00115.x
- Dorsey, K. A. (2013). Menorrhagia, active component service women, U.S. Armed Forces, 1998-2012. *MSMR*, *20*(9), 20-24.
- Dougherty, A. L., MacGregor, A. J., Han, P. P., Heltemes, K. J., & Galarneau, M. R. (2011). Visual dysfunction following blast-related traumatic brain injury from the battlefield. *Brain Inj*, *25*(1), 8-13. doi:10.3109/02699052.2010.536195
- Dougherty, A. L., Mohrle, C. R., Galarneau, M. R., Woodruff, S. I., Dye, J. L., & Quinn, K. H. (2009). Battlefield extremity injuries in Operation Iraqi Freedom. *Injury*, *40*(7), 772-777. doi:10.1016/j.injury.2009.02.014
- Douglas, K. M., Taylor, A. J., & O'Malley, P. G. (2004). Relationship between depression and C-reactive protein in a screening population. *Psychosom Med*, *66*(5), 679-683. doi:10.1097/01.psy.0000138132.66332.85
- Downing, J., Greig, T. W., Quattlebaum, M. D., Valentin, M., Heeren, T. C., & Grabenstein, J. D. (2007). Assessing the safety of anthrax immunization in US Army aircrew members via physical examination. *J Occup Environ Med*, *49*(10), 1079-1085. doi:10.1097/JOM.0b013e318157d305
- Duderstadt, S. K., Rose, C. E., Jr., Real, T. M., Sabatier, J. F., Stewart, B., Ma, G., . . . McNeil, M. M. (2012). Vaccination and risk of type 1 diabetes mellitus in active component U.S. Military, 2002-2008. *Vaccine*, *30*(4), 813-819. doi:10.1016/j.vaccine.2011.10.087
- Duke, M. R., & Ames, G. M. (2008). Challenges of contraceptive use and pregnancy prevention among women in the U.S. Navy. *Qual Health Res*, *18*(2), 244-253. doi:10.1177/1049732307312305
- Duma, S. J., Reger, M. A., Canning, S. S., McNeil, J. D., & Gahm, G. A. (2010). Longitudinal mental health screening results among postdeployed U.S. soldiers preparing to deploy again. *J Trauma Stress*, *23*(1), 52-58. doi:10.1002/jts.20484
- Dunn, W. R., Lincoln, A. E., Hinton, R. Y., Smith, G. S., & Amoroso, P. J. (2003). Occupational disability after hospitalization for the treatment of an injury of the anterior cruciate ligament. *J Bone Joint Surg Am*, *85-A*(9), 1656-1666.
- Dunn, W. R., Lyman, S., Lincoln, A. E., Amoroso, P. J., Wickiewicz, T., & Marx, R. G. (2004). The effect of anterior cruciate ligament reconstruction on the risk of knee reinjury. *Am J Sports Med*, *32*(8), 1906-1914.
- Duration of service after overweight-related diagnoses, active component, U.S. Armed Forces, 1998-2010. (2011). *MSMR*, *18*(6), 2-6.
- Dutra, L., Grubbs, K., Greene, C., Trego, L. L., McCartin, T. L., Kloezeman, K., & Morland, L. (2011). Women at war: implications for mental health. *J Trauma Dissociation*, *12*(1), 25-37. doi:10.1080/15299732.2010.496141

- Earles, J. E., Kerr, B., James, L. C., & Folen, R. A. (2007). Clinical effectiveness of the LE(3)AN Program: A military healthy lifestyle program. *J Clin Psychol Med Settings, 14*(1), 51-57. doi:10.1007/s10880-007-9052-0
- Ebbert, J. O., Haddock, C. K., Vander Weg, M., Klesges, R. C., Poston, W. S., & DeBon, M. (2006). Predictors of smokeless tobacco initiation in a young adult military cohort. *Am J Health Behav, 30*(1), 103-112. doi:10.5555/ajhb.2006.30.1.103
- Eckart, R. E., Gentlesk, P. J., & Shry, E. A. (2010). Differential manifestation of cardiovascular complaints as a function of utilization of ergogenic supplements. *Pacing Clin Electrophysiol, 33*(3), 286-289. doi:10.1111/j.1540-8159.2009.02610.x
- Eckart, R. E., Scoville, S. L., Shry, E. A., Potter, R. N., & Tedrow, U. (2006). Causes of sudden death in young female military recruits. *Am J Cardiol, 97*(12), 1756-1758. doi:10.1016/j.amjcard.2006.01.036
- Eckart, R. E., Shry, E. A., Burke, A. P., McNear, J. A., Appel, D. A., Castillo-Rojas, L. M., . . . Stevenson, W. G. (2011). Sudden death in young adults: an autopsy-based series of a population undergoing active surveillance. *J Am Coll Cardiol, 58*(12), 1254-1261. doi:10.1016/j.jacc.2011.01.049
- Edwards, C. R., Dolan, J. P., Fang, R., & Standaert, R. E. (2009). Treatment of gallbladder disease during operations Iraqi Freedom and Enduring Freedom. *Surg Endosc, 23*(12), 2702-2707. doi:10.1007/s00464-009-0480-9
- Eick-Cost, A. A., Tastad, K. J., Guerrero, A. C., Johns, M. C., Lee, S. E., Macintosh, V. H., . . . Sanchez, J. L. (2012). Effectiveness of seasonal influenza vaccines against influenza-associated illnesses among US military personnel in 2010-11: a case-control approach. *PLoS One, 7*(7), e41435. doi:10.1371/journal.pone.0041435
- Eick, A. A., Faix, D. J., Tobler, S. K., Nevin, R. L., Lindler, L. E., Hu, Z., . . . Gaydos, J. C. (2011). Serosurvey of bacterial and viral respiratory pathogens among deployed U.S. service members. *Am J Prev Med, 41*(6), 573-580. doi:10.1016/j.amepre.2011.08.006
- Elmasry, H., Gubata, M. E., Packnett, E. R., Niebuhr, D. W., & Cowan, D. N. (2014). Risk factors for disability retirement among active duty Air Force personnel. *Mil Med, 179*(1), 5-10. doi:10.7205/milmed-d-13-00280
- Elnitsky, C. A., Chapman, P. L., Thurman, R. M., Pitts, B. L., Figley, C., & Unwin, B. (2013). Gender differences in combat medic mental health services utilization, barriers, and stigma. *Mil Med, 178*(7), 775-784. doi:10.7205/milmed-d-13-00012
- Emasealu, O. V., Dorsey, K. A., & Nagarajan, S. (2014). Surveillance of cataract in active component service members, U.S. Armed Forces, 2000-2013. *MSMR, 21*(7), 10-13.
- Enewold, L., Brinton, L. A., McGlynn, K. A., Zahm, S. H., Potter, J. F., & Zhu, K. (2010). Oral contraceptive use among women in the military and the general U.S. population. *J Womens Health (Larchmt), 19*(5), 839-845. doi:10.1089/jwh.2009.1706
- Enewold, L., McGlynn, K. A., Shriver, C. D., & Zhu, K. (2012). Mammography screening by race/ethnicity among U.S. servicewomen, 2009-2010. *Mil Med, 177*(12), 1513-1518.
- Enewold, L. R., Zhou, J., Devesa, S. S., Berrington de Gonzalez, A., Anderson, W. F., Zahm, S. H., . . . Zhu, K. (2011). Thyroid cancer incidence among active duty U.S. military personnel, 1990-2004. *Cancer Epidemiol Biomarkers Prev, 20*(11), 2369-2376. doi:10.1158/1055-9965.epi-11-0596
- Epilepsy in active component service members, 1998-2012. (2013). *MSMR, 20*(5), 19-22.
- Escolas, S. M., Hildebrandt, E. J., Maiers, A. J., Baker, M. T., & Mason, S. T. (2013). The effect of attachment style on sleep in postdeployed service members. *US Army Med Dep J, 35*-45.
- Evans, M. A., & Rosen, L. N. (2000). Demographic and psychosocial risk factors for preterm delivery in an active duty pregnant population. *Mil Med, 165*(1), 49-53.
- External causes of traumatic brain injury, 2000-2011. (2013). *MSMR, 20*(3), 9-14.
- Federman, E. B., Bray, R. M., & Kroutil, L. A. (2000). Relationships between substance use and recent deployments among women and men in the military. *Military Psychology, 12*(3), 205-220. doi:10.1207/s15327876mp1203_3
- Feldt, B. A., Salinas, N. L., Rasmussen, T. E., & Brennan, J. (2013). The joint facial and invasive neck trauma (J-FAINT) project, Iraq and Afghanistan 2003-2011. *Otolaryngol Head Neck Surg, 148*(3), 403-408. doi:10.1177/0194599812472874

- Felker, B., Hawkins, E., Dobie, D., Gutierrez, J., & McFall, M. (2008). Characteristics of deployed Operation Iraqi Freedom military personnel who seek mental health care. *Mil Med*, *173*(2), 155-158.
- Female infertility, active component service women, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, *20*(9), 8-12.
- Ferrier-Auerbach, A. G., Erbes, C. R., Polusny, M. A., Rath, C. M., & Sponheim, S. R. (2010). Predictors of emotional distress reported by soldiers in the combat zone. *J Psychiatr Res*, *44*(7), 470-476. doi:10.1016/j.jpsychires.2009.10.010
- Ferrier-Auerbach, A. G., Kehle, S. M., Erbes, C. R., Arbisi, P. A., Thuras, P., & Polusny, M. A. (2009). Predictors of alcohol use prior to deployment in National Guard Soldiers. *Addict Behav*, *34*(8), 625-631. doi:10.1016/j.addbeh.2009.03.027
- Feuerstein, M., Berkowitz, S. M., Haufler, A. J., Lopez, M. S., & Huang, G. D. (2001). Working with low back pain: workplace and individual psychosocial determinants of limited duty and lost time. *Am J Ind Med*, *40*(6), 627-638.
- Fisher, C. A., Hoffman, K. J., Austin-Lane, J., & Kao, T. C. (2000). The relationship between heavy alcohol use and work productivity loss in active duty military personnel: a secondary analysis of the 1995 Department of Defense Worldwide Survey. *Mil Med*, *165*(5), 355-361.
- Flynn, D., Johnson, J. D., Bailey, C. J., Perry, J. T., Andersen, C. A., Meyer, J. G., & Cox, N. A. (2009). Cardiovascular risk factor screening and follow-up in a military population aged 40 years and older. *US Army Med Dep J*, 67-71.
- Fogt, D. L., Cooper, P. J., Freeman, C. N., Kalns, J. E., & Cooke, W. H. (2009). Heart rate variability to assess combat readiness. *Mil Med*, *174*(5), 491-495.
- Fonseca, C. A., Schmalings, K. B., Stoeber, C., Gutierrez, C., Blume, A. W., & Russell, M. L. (2006). Variables associated with intimate partner violence in a deploying military sample. *Mil Med*, *171*(7), 627-631.
- Fontana, A., Litz, B., & Rosenheck, R. (2000). Impact of combat and sexual harassment on the severity of posttraumatic stress disorder among men and women peacekeepers in Somalia. *J Nerv Ment Dis*, *188*(3), 163-169.
- Foran, H. M., Heyman, R. E., & Slep, A. M. (2011). Hazardous drinking and military community functioning: identifying mediating risk factors. *J Consult Clin Psychol*, *79*(4), 521-532. doi:10.1037/a0024110
- Foran, H. M., Heyman, R. E., Slep, A. M. S., & Res, U. S. A. F. F. A. (2014). Emotional Abuse and Its Unique Ecological Correlates Among Military Personnel and Spouses. *Psychology of Violence*, *4*(2), 128-142. doi:10.1037/a0034536
- Foran, H. M., Heyman, R. E., Smith Slep, A. M., & Snarr, J. D. (2012). Hazardous alcohol use and intimate partner violence in the military: understanding protective factors. *Psychol Addict Behav*, *26*(3), 471-483. doi:10.1037/a0027688
- Foran, H. M., Slep, A. M., & Heyman, R. E. (2011). Prevalences of intimate partner violence in a representative U.S. Air Force sample. *J Consult Clin Psychol*, *79*(3), 391-397. doi:10.1037/a0022962
- Foran, H. M., Smith Slep, A. M., & Heyman, R. E. (2011). Hazardous alcohol use among active duty Air Force personnel: identifying unique risk and promotive factors. *Psychol Addict Behav*, *25*(1), 28-40. doi:10.1037/a0020748
- Forgey, M. A., & Badger, L. (2006). Patterns of intimate partner violence among married women in the military: type, level, directionality and consequences. *Journal of Family Violence*, *21*(6), 369-380.
- Forgey, M. A., & Badger, L. (2010). Patterns of intimate partner violence and associated risk factors among married enlisted female soldiers. *Violence Vict*, *25*(1), 45-61.
- Foynes, M. M., Shipherd, J. C., & Harrington, E. F. (2013). Race and gender discrimination in the Marines. *Cultur Divers Ethnic Minor Psychol*, *19*(1), 111-119. doi:10.1037/a0030567
- Foynes, M. M., Smith, B. N., & Shipherd, J. C. (2015). Associations between race-based and sex-based discrimination, health, and functioning: a longitudinal study of Marines. *Med Care*, *53*(4 Suppl 1), S128-135. doi:10.1097/mlr.0000000000000300
- Franz, M. R., Wolf, E. J., MacDonald, H. Z., Marx, B. P., Proctor, S. P., & Vasterling, J. J. (2013). Relationships among predeployment risk factors, warzone-threat appraisal, and postdeployment PTSD symptoms. *J Trauma Stress*, *26*(4), 498-506. doi:10.1002/jts.21827

- Frayne, S. M., Skinner, K. M., Sullivan, L. M., & Freund, K. M. (2003). Sexual assault while in the military: violence as a predictor of cardiac risk? *Violence Vict*, *18*(2), 219-225.
- Freedman, B. A., Cohen, S. P., Kuklo, T. R., Lehman, R. A., Larkin, P., & Giuliani, J. R. (2003). Intradiscal electrothermal therapy (IDET) for chronic low back pain in active-duty soldiers: 2-year follow-up. *Spine J*, *3*(6), 502-509.
- Freeman, M. D., & Woodruff, S. I. (2011). Incidence and predictors of mental health hospitalizations in a cohort of young U.S. Navy women. *Mil Med*, *176*(5), 524-530.
- Friedl, K. E., & Leu, J. R. (2002). Body fat standards and individual physical readiness in a randomized Army sample: screening weights, methods of fat assessment, and linkage to physical fitness. *Mil Med*, *167*(12), 994-1000.
- Friedl, K. E., Westphal, K. A., Marchitelli, L. J., Patton, J. F., Chumlea, W. C., & Guo, S. S. (2001). Evaluation of anthropometric equations to assess body-composition changes in young women. *American Journal of Clinical Nutrition*, *73*(2), 268-275.
- Fritch, A. M., Mishkind, M., Reger, M. A., & Gahm, G. A. (2010). The impact of childhood abuse and combat-related trauma on postdeployment adjustment. *J Trauma Stress*, *23*(2), 248-254. doi:10.1002/jts.20520
- Gadernann, A. M., Engel, C. C., Naifeh, J. A., Nock, M. K., Petukhova, M., Santiago, P. N., . . . Kessler, R. C. (2012). Prevalence of DSM-IV major depression among U.S. military personnel: meta-analysis and simulation. *Mil Med*, *177*(8 Suppl), 47-59.
- Gaffney-Stomberg, E., Lutz, L. J., Rood, J. C., Cable, S. J., Pasiakos, S. M., Young, A. J., & McClung, J. P. (2014). Calcium and vitamin D supplementation maintains parathyroid hormone and improves bone density during initial military training: A randomized, double-blind, placebo controlled trial. *Bone*, *68*, 46-56. doi:10.1016/j.bone.2014.08.002
- Gahm, G. A., & Lucenko, B. A. (2008). Screening soldiers in outpatient care for mental health concerns. *Mil Med*, *173*(1), 17-24.
- Gahm, G. A., Lucenko, B. A., Retzlaff, P., & Fukuda, S. (2007). Relative impact of adverse events and screened symptoms of posttraumatic stress disorder and depression among active duty soldiers seeking mental health care. *J Clin Psychol*, *63*(3), 199-211. doi:10.1002/jclp.20330
- Ganesan, A., Fieberg, A., Agan, B. K., Lalani, T., Landrum, M. L., Wortmann, G., . . . Macalino, G. (2012). Results of a 25-year longitudinal analysis of the serologic incidence of syphilis in a cohort of HIV-infected patients with unrestricted access to care. *Sex Transm Dis*, *39*(6), 440-448. doi:10.1097/OLQ.0b013e318249d90f
- Ganesan, A., Krantz, E. M., Huppler Hullsiek, K., Riddle, M. S., Weintrob, A. C., Lalani, T., . . . Crum-Cianflone, N. F. (2013). Determinants of incident chronic kidney disease and progression in a cohort of HIV-infected persons with unrestricted access to health care. *HIV Med*, *14*(2), 65-76. doi:10.1111/j.1468-1293.2012.01036.x
- Gantt, C. J., Neely, J. A., Villafana, I. A., Chun, C. S., & Gharabaghi, S. M. (2008). Analysis of weight and associated health consequences of the active duty staff at a major Naval medical center. *Mil Med*, *173*(5), 434-440.
- Gaona, K. L. (2010). Comparative Study of Musculoskeletal Injuries in Transport Aircrew. *Aviation Space and Environmental Medicine*, *81*(7), 688-690. doi:10.3357/ asem.2747.2010
- Garber, A. K., Boyer, C. B., Pollack, L. M., Chang, Y. J., & Shafer, M. A. (2008). Body mass index and disordered eating behaviors are associated with weight dissatisfaction in adolescent and young adult female military recruits. *Mil Med*, *173*(2), 138-145.
- Garcia, S. M. S., Ortman, B. V., & Burnett, D. G. (2015). Mental Health Diagnoses and Attrition in Air Force Recruits. *Mil Med*, *180*(4), 436-444. doi:10.7205/milmed-d-14-00311
- Gardner, J. W., Gutmann, F. D., Potter, R. N., & Kark, J. A. (2002). Nontraumatic exercise-related deaths in the U.S. military, 1996-1999. *Mil Med*, *167*(12), 964-970.
- Garman, L., Vineyard, A. J., Crowe, S. R., Harley, J. B., Spooner, C. E., Collins, L. C., . . . James, J. A. (2014). Humoral responses to independent vaccinations are correlated in healthy boosted adults. *Vaccine*, *32*(43), 5624-5631. doi:10.1016/j.vaccine.2014.08.005

- Gaydos, C. A., Crotchfelt, K. A., Shah, N., Tennant, M., Quinn, T. C., Gaydos, J. C., . . . Rompalo, A. M. (2002). Evaluation of dry and wet transported intravaginal swabs in detection of Chlamydia trachomatis and Neisseria gonorrhoeae infections in female soldiers by PCR. *J Clin Microbiol*, *40*(3), 758-761.
- Gaydos, C. A., Howell, M. R., Quinn, T. C., McKee, K. T., Jr., & Gaydos, J. C. (2003). Sustained high prevalence of Chlamydia trachomatis infections in female army recruits. *Sex Transm Dis*, *30*(7), 539-544.
- Gehrman, P., Seelig, A. D., Jacobson, I. G., Boyko, E. J., Hooper, T. I., Gackstetter, G. D., . . . Smith, T. C. (2013). Predeployment sleep duration and insomnia symptoms as risk factors for new-onset mental health disorders following military deployment. *Sleep: Journal of Sleep and Sleep Disorders Research*, *36*(7), 1009-1018.
- George, S. Z., Childs, J. D., Teyhen, D. S., Wu, S. S., Wright, A. C., Dugan, J. L., & Robinson, M. E. (2012). Predictors of occurrence and severity of first time low back pain episodes: findings from a military inception cohort. *PLoS One*, *7*(2), e30597. doi:10.1371/journal.pone.0030597
- George, S. Z., Teyhen, D. S., Wu, S. S., Wright, A. C., Dugan, J. L., Yang, G., . . . Childs, J. D. (2009). Psychosocial education improves low back pain beliefs: results from a cluster randomized clinical trial (NCT00373009) in a primary prevention setting. *Eur Spine J*, *18*(7), 1050-1058. doi:10.1007/s00586-009-1016-7
- Gewirtz, A. H., McMorris, B. J., Hanson, S., & Davis, L. (2014). Family Adjustment of Deployed and Nondeployed Mothers in Families With a Parent Deployed to Iraq or Afghanistan. *Professional Psychology-Research and Practice*, *45*(6), 465-477. doi:10.1037/a0036235
- Gibbons, S. W., Barnett, S. D., Hickling, E. J., Herbig-Wall, P. L., & Watts, D. D. (2012). Stress, coping, and mental health-seeking behaviors: gender differences in OEF/OIF health care providers. *J Trauma Stress*, *25*(1), 115-119. doi:10.1002/jts.21661
- Gibbons, S. W., Hickling, E. J., Barnett, S. D., Herbig-Wall, P. L., & Watts, D. D. (2012). Gender differences in response to deployment among military healthcare providers in Afghanistan and Iraq. *J Womens Health (Larchmt)*, *21*(5), 496-504. doi:10.1089/jwh.2011.3097
- Gibbs, D. A., Martin, S. L., Johnson, R. E., Rentz, E. D., Clinton-Sherrod, M., & Hardison, J. (2008). Child maltreatment and substance abuse among U.S. Army soldiers. *Child Maltreat*, *13*(3), 259-268. doi:10.1177/1077559507313462
- Gibbs, D. A., Martin, S. L., Kupper, L. L., & Johnson, R. E. (2007). Child maltreatment in enlisted soldiers' families during combat-related deployments. *JAMA*, *298*(5), 528-535. doi:10.1001/jama.298.5.528
- Gibbs, S. G., Sobieraj, J., Harris, M. D., Steele, H., Tarwater, P. M., & Ortiz, M. (2006). Comparison of nondeployable hearing profiles by Army component (Active Duty, National Guard, and Reserve) and by gender. *Mil Med*, *171*(10), 967-969.
- Gielen, A. C., Campbell, J., Garza, M. A., O'Campo, P., Dienemann, J., Kub, J., . . . Lloyd, D. W. (2006). Domestic violence in the military: women's policy preferences and beliefs concerning routine screening and mandatory reporting. *Mil Med*, *171*(8), 729-735.
- Gilman, S. E., Bromet, E. J., Cox, K. L., Colpe, L. J., Fullerton, C. S., Gruber, M. J., . . . Army, S. C. (2014). Sociodemographic and career history predictors of suicide mortality in the United States Army 2004-2009. *Psychol Med*, *44*(12), 2579-2592. doi:10.1017/s003329171400018x
- Giovannetti, J. M., Bembem, M., Bembem, D., & Cramer, J. (2012). Relationship between estimated aerobic fitness and injury rates among active duty at an Air Force base based upon two separate measures of estimated cardiovascular fitness. *Mil Med*, *177*(1), 36-40.
- Girrbach, R. T., Flynn, T. W., Browder, D. A., Guffie, K. L., Moore, J. H., Masullo, L. N., . . . Bradley, Y. (2001). Flexural wave propagation velocity and bone mineral density in females with and without tibial bone stress injuries. *J Orthop Sports Phys Ther*, *31*(2), 54-62; discussion 63-59. doi:10.2519/jospt.2001.31.2.54
- Goertz, C., Marriott, B. P., Finch, M. D., Bray, R. M., Williams, T. V., Hourani, L. L., . . . Jonas, W. B. (2013). Military report more complementary and alternative medicine use than civilians. *J Altern Complement Med*, *19*(6), 509-517. doi:10.1089/acm.2012.0108

- Goodman, G. P., DeZee, K. J., Burks, R., Waterman, B. R., & Belmont, P. J., Jr. (2011). Epidemiology of psychiatric disorders sustained by a U.S. Army brigade combat team during the Iraq War. *Gen Hosp Psychiatry, 33*(1), 51-57. doi:10.1016/j.genhosppsy.2010.10.007
- Goodwin, D. J., Mazurek, G. H., Campbell, B. H., Bohanon, J., West, K. B., Bell, J. J., . . . Sjoberg, P. A. (2014). Automation of an interferon-gamma release assay and comparison to the tuberculin skin test for screening basic military trainees for Mycobacterium tuberculosis infection. *Mil Med, 179*(3), 333-341. doi:10.7205/milmed-d-13-00364
- Gordley, L. B., Lemasters, G., Simpson, S. R., & Yiin, J. H. (2000). Menstrual disorders and occupational, stress, and racial factors among military personnel. *J Occup Environ Med, 42*(9), 871-881.
- Gradus, J. L., Shipherd, J. C., Suvak, M. K., Giasson, H. L., & Miller, M. (2013). Suicide attempts and suicide among Marines: a decade of follow-up. *Suicide Life Threat Behav, 43*(1), 39-49. doi:10.1111/j.1943-278X.2012.00126.x
- Graham, W. F., Hourani, L. L., Sorenson, D., & Yuan, H. (2000). Demographic differences in body composition of Navy and Marine Corps personnel: findings from the perception of wellness and readiness assessment. *Mil Med, 165*(1), 60-69.
- Granado, N. S., Smith, T. C., Swanson, G. M., Harris, R. B., Shahar, E., Smith, B., . . . Ryan, M. A. (2009). Newly reported hypertension after military combat deployment in a large population-based study. *Hypertension, 54*(5), 966-973. doi:10.1161/hypertensionaha.109.132555
- Granado, N. S., Zimmermann, L., Smith, B., Jones, K. A., Wells, T. S., Ryan, M. A., . . . Smith, T. C. (2012). Individual augmentee deployment and newly reported mental health morbidity. *J Occup Environ Med, 54*(5), 615-620. doi:10.1097/JOM.0b013e31824be417
- Grayson, J. K., Gibson, R. L., Shanklin, S. L., Neuhauser, K. M., & McGhee, C. (2004). Trends in positive drug tests, United States Air Force, fiscal years 1997-1999. *Mil Med, 169*(7), 499-504.
- Greer, J. A., Zelig, C. M., Choi, K. K., Rankins, N. C., Chauhan, S. P., & Magann, E. F. (2012). Return to military weight standards after pregnancy in active duty working women: comparison of marine corps vs. navy. *J Matern Fetal Neonatal Med, 25*(8), 1433-1437. doi:10.3109/14767058.2011.639820
- Grieger, T. A., Cozza, S. J., Ursano, R. J., Hoge, C., Martinez, P. E., Engel, C. C., & Wain, H. J. (2006). Posttraumatic stress disorder and depression in battle-injured soldiers. *Am J Psychiatry, 163*(10), 1777-1783; quiz 1860. doi:10.1176/ajp.2006.163.10.1777
- Grier, T., Canham-Chervak, M., McNulty, V., & Jones, B. H. (2013). Extreme conditioning programs and injury risk in a US Army Brigade Combat Team. *US Army Med Dep J, 36-47*.
- Grier, T., Knapik, J. J., Canada, S., Canham-Chervak, M., & Jones, B. H. (2010). Tobacco use prevalence and factors associated with tobacco use in new U.S. Army personnel. *J Addict Dis, 29*(3), 284-293. doi:10.1080/10550887.2010.489445
- Grier, T. L., Knapik, J. J., Canada, S., Canham-Chervak, M., & Jones, B. H. (2010). Risk factors associated with self-reported training-related injury before arrival at the US army ordnance school. *Public Health, 124*(7), 417-423. doi:10.1016/j.puhe.2010.03.016
- Grier, T. L., Morrison, S., Knapik, J. J., Canham-Chervak, M., & Jones, B. H. (2011). Risk factors for injuries in the U.S. Army Ordnance School. *Mil Med, 176*(11), 1292-1299.
- Griffith, J. (2012). Correlates of Suicide Among Army National Guard Soldiers. *Military Psychology (Taylor & Francis Ltd), 24*(6), 568-591. doi:10.1080/08995605.2012.736324
- Griffith, J. (2012). Suicide in the army national guard: an empirical inquiry. *Suicide Life Threat Behav, 42*(1), 104-119. doi:10.1111/j.1943-278X.2011.00075.x
- Grindlay, K., & Grossman, D. (2013). Contraception access and use among U.S. servicewomen during deployment. *Contraception, 87*(2), 162-169. doi:10.1016/j.contraception.2012.09.019
- Grindlay, K., Yanow, S., Jelinska, K., Gomperts, R., & Grossman, D. (2011). Abortion restrictions in the U.S. military: voices from women deployed overseas. *Womens Health Issues, 21*(4), 259-264. doi:10.1016/j.whi.2011.04.014
- Gubata, M. E., Cowan, D. N., Bedno, S. A., Urban, N., & Niebuhr, D. W. (2011). Self-reported physical activity and preaccession fitness testing in U.S. Army applicants. *Mil Med, 176*(8), 922-925.
- Gubata, M. E., Oetting, A. A., Niebuhr, D. W., & Cowan, D. N. (2013). Accession medical waivers and deployment duration in the U.S. Army. *Mil Med, 178*(6), 625-630. doi:10.7205/milmed-d-13-00010

- Gubata, M. E., Oetting, A. A., Weber, N. S., Feng, X., Cowan, D. N., & Niebuhr, D. W. (2012). A noncognitive temperament test to predict risk of mental disorders and attrition in U.S. Army recruits. *Mil Med*, 177(4), 374-379.
- Gubata, M. E., Packnett, E. R., Blandford, C. D., Piccirillo, A. L., Niebuhr, D. W., & Cowan, D. N. (2014). Trends in the Epidemiology of Disability Related to Traumatic Brain Injury in the US Army and Marine Corps: 2005 to 2010. *Journal of Head Trauma Rehabilitation*, 29(1), 65-75. doi:10.1097/HTR.0b013e318295f590
- Gubata, M. E., Piccirillo, A. L., Packnett, E. R., Niebuhr, D. W., Boivin, M. R., & Cowan, D. N. (2014). Risk factors for back-related disability in the US Army and Marine Corps. *Spine (Phila Pa 1976)*, 39(9), 745-753. doi:10.1097/brs.0000000000000272
- Gubata, M. E., Urban, N., Cowan, D. N., & Niebuhr, D. W. (2013). A prospective study of physical fitness, obesity, and the subsequent risk of mental disorders among healthy young adults in army training. *J Psychosom Res*, 75(1), 43-48. doi:10.1016/j.jpsychores.2013.04.003
- Gunderson, E., & Hourani, L. L. (2001). The epidemiology of mental disorders in the U.S. Navy: the neuroses. *Mil Med*, 166(7), 612-620.
- Gunderson, E. K., Garland, C., & Hourani, L. L. (2001). Infectious disease rates in the U.S. Navy, 1980 to 1995. *Mil Med*, 166(6), 544-549.
- Gunderson, E. K., Garland, C. F., & Gorham, E. D. (2005). Health surveillance for asthma in the US Navy: experience of 9,185,484 person-years. *Ann Epidemiol*, 15(4), 310-315. doi:10.1016/j.annepidem.2004.08.004
- Gunderson, E. K., & Hourani, L. L. (2003). The epidemiology of personality disorders in the U.S. Navy. *Mil Med*, 168(7), 575-582.
- Gurevich-Uvena, J., Parker, J. M., Fitzpatrick, T. M., Makashay, M. J., Perello, M. M., Blair, E. A., & Solomon, N. P. (2010). Medical comorbidities for paradoxical vocal fold motion (vocal cord dysfunction) in the military population. *J Voice*, 24(6), 728-731. doi:10.1016/j.jvoice.2009.03.007
- Gutierrez, C. A., Blume, A. W., Schmaling, K. B., Stoeber, C. J., Fonseca, C., & Russell, M. L. (2006). Predictors of aversive alcohol consequences in a military sample. *Mil Med*, 171(9), 870-874.
- Gutierrez, R. L., Riddle, M. S., & Porter, C. K. (2013). Epidemiology of Clostridium difficile infection among active duty United States military personnel (1998-2010). *BMC Infect Dis*, 13, 609. doi:10.1186/1471-2334-13-609
- Gynecologic disorders diagnosed during deployment to Southwest/Central Asia, active component females, U.S. Armed Forces, 2008-2013. (2014). *MSMR*, 21(8), 7-12.
- Haas, D. M., & Pazdernik, L. A. (2007). Partner deployment and stress in pregnant women. *J Reprod Med*, 52(10), 901-906.
- Haas, D. M., Pazdernik, L. A., & Olsen, C. H. (2005). A cross-sectional survey of the relationship between partner deployment and stress in pregnancy during wartime. *Womens Health Issues*, 15(2), 48-54. doi:10.1016/j.whi.2004.12.002
- Haas, D. M., Rivera-Alsina, M. E., & McNamara, M. F. (2005). Maternal mortality in the U.S. Department of Defense, 1993-1998. *J Reprod Med*, 50(12), 951-953.
- Haddock, C. K., Lando, H., Klesges, R. C., Peterson, A. L., & Scarinci, I. C. (2004). Modified tobacco use and lifestyle change in risk-reducing beliefs about smoking. *Am J Prev Med*, 27(1), 35-41. doi:10.1016/j.amepre.2004.03.010
- Haddock, C. K., Lando, H. A., Pyle, S. A., Debon, M., Weg, M. V., Klesges, R. C., . . . Relyea, G. (2005). Prediction of adult-onset smoking initiation among U.S. Air force recruits using the pierce susceptibility questionnaire. *Am J Prev Med*, 28(5), 424-429. doi:10.1016/j.amepre.2005.02.010
- Haddock, C. K., O'Byrne, K. K., Klesges, R. C., Talcott, W., Lando, H., & Peterson, A. L. (2000). Relapse to smoking after basic military training in the U.S. Air Force. *Mil Med*, 165(11), 884-888.
- Haddock, C. K., Poston, W. S., Pyle, S. A., Klesges, R. C., Vander Weg, M. W., Peterson, A., & Debon, M. (2006). The validity of self-rated health as a measure of health status among young military personnel: evidence from a cross-sectional survey. *Health Qual Life Outcomes*, 4, 57. doi:10.1186/1477-7525-4-57

- Haddock, C. K., Pyle, S. A., DeBon, M., Weg, M. W., Klesges, R. C., Peterson, A. L., & Poston, W. S. (2007). Cigarette use among two cohorts of U.S. Air Force recruits, compared with secular trends. *Mil Med*, *172*(3), 288-294.
- Hakre, S., Oyler, R. J., Ferrell, K. A., Li, F., Michael, N. L., Scott, P. T., & Petrucci, B. P. (2014). Chlamydia trachomatis infection rates among a cohort of mobile soldiers stationed at Fort Bragg, North Carolina, 2005-2010. *BMC Public Health*, *14*. doi:10.1186/1471-2458-14-181
- Hall, A. B., & Northern, D. (2012). Effect of abdominal binders on pulmonary mechanics with implications for the military surgical population. *J Surg Educ*, *69*(1), 34-36. doi:10.1016/j.jsurg.2011.06.001
- Hall, A. B., Wall, M., Lancia, N., McClendon, H., Cromer, R., Iverson, K. J., & Sharon, D. (2013). Air force breast cancer detection and treatment trends. *Am Surg*, *79*(5), E209-211.
- Hansen, C. J., Russell, K. L., Smith, T. C., Neville, J. S., Krauss, M. R., & Ryan, M. A. (2007). Asthma hospitalizations among US military personnel, 1994 to 2004. *Ann Allergy Asthma Immunol*, *98*(1), 36-43. doi:10.1016/s1081-1206(10)60857-5
- Hanson, J. A., Haub, M. D., Walker, J. J., Johnston, D. T., Goff, B. S., & Dretsch, M. N. (2012). Attention deficit hyperactivity disorder subtypes and their relation to cognitive functioning, mood states, and combat stress symptomatology in deploying U.S. soldiers. *Mil Med*, *177*(6), 655-662.
- Haralambieva, I. H., Ovsyannikova, I. G., Kennedy, R. B., Larrabee, B. R., Shane Pankratz, V., & Poland, G. A. (2013). Race and sex-based differences in cytokine immune responses to smallpox vaccine in healthy individuals. *Hum Immunol*, *74*(10), 1263-1266. doi:10.1016/j.humimm.2013.06.031
- Harman, D. R., Hooper, T. I., & Gackstetter, G. D. (2005). Aeromedical evacuations from Operation Iraqi Freedom: a descriptive study. *Mil Med*, *170*(6), 521-527.
- Harned, M. S., & Fitzgerald, L. F. (2002). Understanding a link between sexual harassment and eating disorder symptoms: a mediational analysis. *J Consult Clin Psychol*, *70*(5), 1170-1181.
- Harned, M. S., Ormerod, A. J., Palmieri, P. A., Collinsworth, L. L., & Reed, M. (2002). Sexual assault and other types of sexual harassment by workplace personnel: a comparison of antecedents and consequences. *J Occup Health Psychol*, *7*(2), 174-188.
- Harrison, L., Brennan, M. A., & Levine, A. M. (2000). Physical activity patterns and body mass index scores among military service members. *Am J Health Promot*, *15*(2), 77-80, ii.
- Harrow, J. J., Cordoves, R. I., & Hulette, R. B. (2006). Attitudes toward intentional weight loss and dietary behavior among U.S. Army reserve soldiers during annual training. *Mil Med*, *171*(7), 678-683.
- Harte, C. B., Proctor, S. P., & Vasterling, J. J. (2014). Prospective examination of cigarette smoking among Iraq-deployed and nondeployed soldiers: prevalence and predictive characteristics. *Ann Behav Med*, *48*(1), 38-49. doi:10.1007/s12160-013-9584-5
- Hartmann, J. E. (2006). Neurology in Operation Iraqi Freedom: risk factors for referral, clinical presentations and incidence of disease. *J Neurol Sci*, *241*(1-2), 83-90. doi:10.1016/j.jns.2005.11.002
- Hartstein, B. H., Boor, D. D., & Nystuen, C. M. (2009). Comparison of medical visits by active duty and National Guard soldiers at a forward deployed medical facility in Iraq. *Mil Med*, *174*(11), 1167-1171.
- Hartzell, J. D., Spooner, K., Howard, R., Wegner, S., & Wortmann, G. (2007). Race and mental health diagnosis are risk factors for highly active antiretroviral therapy failure in a military cohort despite equal access to care. *J Acquir Immune Defic Syndr*, *44*(4), 411-416. doi:10.1097/QAI.0b013e31802f83a6
- Harwood, J. L., LaVan, J. T., & Brand, G. J., 2nd. (2013). The attack rate of H1N1 in various berthing configurations on board an aircraft carrier. *Disaster Med Public Health Prep*, *7*(2), 131-135. doi:10.1017/dmp.2013.9
- Hatch, M., Berkowitz, G., Janevic, T., Sloan, R., Lapinski, R., James, T., & Barth, W. H., Jr. (2006). Race, cardiovascular reactivity, and preterm delivery among active-duty military women. *Epidemiology*, *17*(2), 178-182. doi:10.1097/01.ede.0000199528.28234.73
- Hatzfeld, J. J., & Gaston-Johansson, F. G. (2010). Disparities in U.S. Air Force preventive health assessments and medical deployability. *Mil Med*, *175*(1), 25-32.
- Hauret, K. G., Shippey, D. L., & Knapik, J. J. (2001). The physical training and rehabilitation program: duration of rehabilitation and final outcome of injuries in basic combat training. *Mil Med*, *166*(9), 820-826.

- Hauret, K. G., Taylor, B. J., Clemmons, N. S., Block, S. R., & Jones, B. H. (2010). Frequency and causes of nonbattle injuries air evacuated from operations iraqi freedom and enduring freedom, u.s. Army, 2001-2006. *Am J Prev Med*, *38*(1 Suppl), S94-107. doi:10.1016/j.amepre.2009.10.022
- Health of women after wartime deployments: correlates of risk for selected medical conditions among females after initial and repeat deployments to Afghanistan and Iraq, active component, U.S. Armed Forces. (2012). *MSMR*, *19*(7), 2-10.
- Heinrich, K. M., Jitnarin, N., Suminski, R. R., Berkel, L., Hunter, C. M., Alvarez, L., . . . Poston, W. S. (2008). Obesity classification in military personnel: a comparison of body fat, waist circumference, and body mass index measurements. *Mil Med*, *173*(1), 67-73.
- Helfer, T. M. (2011). Noise-induced hearing injuries, active component, U.S. Armed Forces, 2007-2010. *MSMR*, *18*(6), 7-10.
- Helfer, T. M., Canham-Chervak, M., Canada, S., & Mitchener, T. A. (2010). Epidemiology of hearing impairment and noise-induced hearing injury among U.S. military personnel, 2003-2005. *Am J Prev Med*, *38*(1 Suppl), S71-77. doi:10.1016/j.amepre.2009.10.025
- Helfer, T. M., Jordan, N. N., & Lee, R. B. (2005). Postdeployment hearing loss in U.S. Army soldiers seen at audiology clinics from April 1, 2003, through March 31, 2004. *Am J Audiol*, *14*(2), 161-168. doi:10.1044/1059-0889(2005/018)
- Henderson, N. E., Knapik, J. J., Shaffer, S. W., McKenzie, T. H., & Schneider, G. M. (2000). Injuries and injury risk factors among men and women in U.S. Army Combat Medic Advanced individual training. *Mil Med*, *165*(9), 647-652.
- Hermes, E. D., Webb, T. S., & Wells, T. S. (2010). Aircraft type and other risk factors for spinal disorders: data from 19,673 military cockpit aircrew. *Aviat Space Environ Med*, *81*(9), 850-856.
- Hermes, E. D., Wells, T. S., Smith, B., Boyko, E. J., Gackstetter, G. G., Miller, S. C., & Smith, T. C. (2012). Smokeless tobacco use related to military deployment, cigarettes and mental health symptoms in a large, prospective cohort study among US service members. *Addiction*, *107*(5), 983-994. doi:10.1111/j.1360-0443.2011.03737.x
- Herrell, R., Henter, I. D., Mojtabai, R., Bartko, J. J., Venable, D., Susser, E., . . . Wyatt, R. J. (2006). First psychiatric hospitalizations in the US military: the National Collaborative Study of Early Psychosis and Suicide (NCSEPS). *Psychol Med*, *36*(10), 1405-1415. doi:10.1017/s0033291706008348
- Herzog, C. M., Chao, S. Y., Eilerman, P. A., Luce, B. K., & Carnahan, D. H. (2015). Metabolic Syndrome in the Military Health System Based on Electronic Health Data, 2009-2012. *Mil Med*, *180*(1), 83-90. doi:10.7205/milmed-d-14-00039
- Hesse, E. (2011). Poisoning-related hospitalizations and risk factors for self-inflicted poisoning in the active component, U.S. Armed Forces, 2001-2010. *MSMR*, *18*(11), 9-13.
- Highfill-McRoy, R. M., Larson, G. E., Booth-Kewley, S., & Garland, C. F. (2010). Psychiatric diagnoses and punishment for misconduct: the effects of PTSD in combat-deployed Marines. *BMC Psychiatry*, *10*, 88. doi:10.1186/1471-244x-10-88
- Hilber, D., Mitchener, T. A., Stout, J., Hatch, B., & Canham-Chervak, M. (2010). Eye injury surveillance in the U.S. Department of Defense, 1996-2005. *Am J Prev Med*, *38*(1 Suppl), S78-85. doi:10.1016/j.amepre.2009.10.015
- Hilber, D. J. (2011). Eye injuries, active component, U.S. Armed Forces, 2000-2010. *MSMR*, *18*(5), 2-7.
- Hill, C. C., & Gloeb, D. J. (2013). Military maternal weight trends and perinatal outcomes. *Mil Med*, *178*(8), 880-886. doi:10.7205/milmed-d-13-00031
- Hill, O. T., Bulathsinhala, L., Scofield, D. E., Haley, T. F., & Bernasek, T. L. (2013). Risk factors for soft tissue knee injuries in active duty U.S. Army soldiers, 2000-2005. *Mil Med*, *178*(6), 676-682. doi:10.7205/milmed-d-13-00049
- Hill, O. T., Kay, A. B., Wahi, M. M., McKinnon, C. J., Bulathsinhala, L., & Haley, T. F. (2012). Rates of knee injury in the U.S. Active Duty Army, 2000-2005. *Mil Med*, *177*(7), 840-844.
- Hill, O. T., Wahi, M. M., Carter, R., 3rd, Kay, A. B., McKinnon, C. J., & Wallace, R. F. (2012). Rhabdomyolysis in the US Active Duty Army, 2004-2006. *Med Sci Sports Exerc*, *44*(3), 442-449. doi:10.1249/MSS.0b013e3182312745

- Hodges-Vazquez, M., Wilson, J. P., Hughes, H., & Garman, P. (2012). The yellow fever 17D vaccine and risk of malignant melanoma in the United States military. *Vaccine*, *30*(30), 4476-4479. doi:10.1016/j.vaccine.2012.04.074
- Hoffman, K., Costello, C., Menich, M., Grabenstein, J. D., & Engler, R. J. (2003). Using a structured medical note for determining the safety profile of anthrax vaccine for US soldiers in Korea. *Vaccine*, *21*(27-30), 4399-4409.
- Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA*, *295*(9), 1023-1032. doi:10.1001/jama.295.9.1023
- Hoge, C. W., Lesikar, S. E., Guevara, R., Lange, J., Brundage, J. F., Engel, C. C., Jr., . . . Orman, D. T. (2002). Mental disorders among U.S. military personnel in the 1990s: association with high levels of health care utilization and early military attrition. *Am J Psychiatry*, *159*(9), 1576-1583.
- Hoge, C. W., McGurk, D., Thomas, J. L., Cox, A. L., Engel, C. C., & Castro, C. A. (2008). Mild traumatic brain injury in U.S. Soldiers returning from Iraq. *N Engl J Med*, *358*(5), 453-463. doi:10.1056/NEJMoa072972
- Holland, K. J., Rabelo, V. C., & Cortina, L. M. (2014). Sexual Assault Training in the Military: Evaluating Efforts to End the "Invisible War". *Am J Community Psychol*, *54*(3-4), 289-303. doi:10.1007/s10464-014-9672-0
- Hollander, I. E., & Bell, N. S. (2010). Physically demanding jobs and occupational injury and disability in the U.S. Army. *Mil Med*, *175*(10), 705-712.
- Hooper, T. I., DeBakey, S. F., Bellis, K. S., Cox, K. L., & Gackstetter, G. D. (2008). The Joint Medical Workstation (JMeWS) database in 2003: intradeployment health encounters of military personnel supporting Operations Enduring Freedom and Iraqi Freedom. *Mil Med*, *173*(2), 119-128.
- Hooper, T. I., DeBakey, S. F., Nagaraj, B. E., Bellis, K. S., Smith, B., Smith, T. C., & Gackstetter, G. D. (2008). The long-term hospitalization experience following military service in the 1991 Gulf War among veterans remaining on active duty, 1994-2004. *BMC Public Health*, *8*, 60. doi:10.1186/1471-2458-8-60
- Hopkins-Chadwick, D. L., & Ryan-Wenger, N. (2009). Stress in junior enlisted air force women with and without children. *West J Nurs Res*, *31*(3), 409-427. doi:10.1177/0193945908328261
- Hospitalizations among members of the active component, U.S. Armed Forces, 2010. (2011). *MSMR*, *18*(4), 8-15.
- Hospitalizations among members of the active component, U.S. Armed Forces, 2011. (2012). *MSMR*, *19*(4), 10-15; discussion 15-16.
- Hospitalizations among members of the active component, U.S. Armed Forces, 2013. (2014). *MSMR*, *21*(4), 8-13; discussion 13-14.
- Hourani, L., Bender, R. H., Weimer, B., Peeler, R., Bradshaw, M., Lane, M., & Larson, G. (2012). Longitudinal study of resilience and mental health in Marines leaving military service. *J Affect Disord*, *139*(2), 154-165. doi:10.1016/j.jad.2012.01.008
- Hourani, L., & Hilton, S. (2000). Occupational and environmental exposure correlates of adverse live-birth outcomes among 1032 US Navy women. *J Occup Environ Med*, *42*(12), 1156-1165.
- Hourani, L., Williams, J., Bray, R., & Kandel, D. (2015). Gender differences in the expression of PTSD symptoms among active duty military personnel. *J Anxiety Disord*, *29*, 101-108. doi:10.1016/j.janxdis.2014.11.007
- Hourani, L. L., Williams, T. V., & Kress, A. M. (2006). Stress, mental health, and job performance among active duty military personnel: findings from the 2002 Department of Defense Health-Related Behaviors Survey. *Mil Med*, *171*(9), 849-856.
- Hourani, L. L., Yuan, H., & Bray, R. M. (2003). Psychosocial and health correlates of types of traumatic event exposures among U.S. military personnel. *Mil Med*, *168*(9), 736-743.
- Hourani, L. L., Yuan, H., & Bray, R. M. (2004). Psychosocial and lifestyle correlates of premenstrual symptoms among military women. *J Womens Health (Larchmt)*, *13*(7), 812-821. doi:10.1089/jwh.2004.13.812

- Howland, J., Bell, N. S., & Hollander, I. E. (2007). Causes, types and severity of injury among army soldiers hospitalized with alcohol comorbidity. *Addiction, 102*(9), 1411-1420. doi:10.1111/j.1360-0443.2007.01908.x
- Hruby, A., Hill, O. T., Bulathsinhala, L., McKinnon, C. J., Montain, S. J., Young, A. J., & Smith, T. J. (2015). Trends in Overweight and Obesity in Soldiers Entering the US Army, 1989-2012. *Obesity, 23*(3), 662-670. doi:10.1002/oby.20978
- Hsiao, M., Owens, B. D., Burks, R., Sturdivant, R. X., & Cameron, K. L. (2010). Incidence of acute traumatic patellar dislocation among active-duty United States military service members. *Am J Sports Med, 38*(10), 1997-2004. doi:10.1177/0363546510371423
- Hsiao, M. S., Cameron, K. L., Huh, J., Hsu, J. R., Benigni, M., Whitener, J. C., & Owens, B. D. (2012). Clavicle fractures in the United States military: incidence and characteristics. *Mil Med, 177*(8), 970-974.
- Hsieh, D. A., Stout, J. W., Lee, R. B., & Gaydos, J. C. (2003). The incidence of eye injuries at three U.S. Army installations. *Mil Med, 168*(2), 101-105.
- Hsieh, Y. H., Howell, M. R., Gaydos, J. C., McKee, K. T., Jr., Quinn, T. C., & Gaydos, C. A. (2003). Preference among female Army recruits for use of self-administrated vaginal swabs or urine to screen for Chlamydia trachomatis genital infections. *Sex Transm Dis, 30*(10), 769-773. doi:10.1097/01.olq.0000079048.11771.46
- Huang, G. D., Feuerstein, M., & Arroyo, F. (2001). Back and upper extremity disorders among enlisted U.S. Marines: burden and individual risk factors. *Mil Med, 166*(11), 1007-1017.
- Hughes, T. C., & Staren-Doby, D. (2003). Reducing unintended pregnancy in young, single active duty women in an overseas environment. *Mil Med, 168*(1), 11-14.
- Hunter, C. L., Talcott, G. W., Klesges, R. C., Lando, H., & Haddock, C. K. (2000). Demographic, lifestyle, and psychosocial predictors of frequency of intoxication and other indicators as estimates of alcohol-related problems in Air Force basic military recruits. *Mil Med, 165*(7), 539-545.
- Hunter, C. M., Peterson, A. L., Alvarez, L. M., Poston, W. C., Brundige, A. R., Haddock, K., . . . Foreyt, J. P. (2008). Weight management using the Internet - A randomized controlled trial. *Am J Prev Med, 34*(2), 119-126. doi:10.1016/j.amepre.2007.09.026
- Hyams, K. C., Smith, T. C., Riddle, J., Trump, D. H., & Gray, G. (2001). Viral hepatitis in the U.S. military: a study of hospitalization records from 1974 to 1999. *Mil Med, 166*(10), 862-865.
- Incidence and prevalence of select cardiovascular risk factors and conditions, active component, U.S. Armed Forces, 2003-2012. (2013). *MSMR, 20*(12), 16-19.
- Incident diagnoses of breast cancer, active component service women, U.S. Armed Forces, 2000-2012. (2013). *MSMR, 20*(9), 25-27.
- Incident diagnoses of cancers and cancer-related deaths, active component, U.S. Armed Forces, 2000-2011. (2012). *MSMR, 19*(6), 18-22.
- Injuries associated with combat sports, active component, U.S. Armed Forces, 2010-2013. (2014). *MSMR, 21*(5), 16-18.
- Iron deficiency anemia, active component, U.S. Armed Forces, 2002-2011. (2012). *MSMR, 19*(7), 17-21.
- Iverson, K. M., Mercado, R., Carpenter, S. L., & Street, A. E. (2013). Intimate partner violence among women veterans: previous interpersonal violence as a risk factor. *J Trauma Stress, 26*(6), 767-771. doi:10.1002/jts.21867
- Ivins, B. J., Schwab, K. A., Baker, G., & Warden, D. L. (2006). Hospital admissions associated with traumatic brain injury in the US Army during peacetime: 1990s trends. *Neuroepidemiology, 27*(3), 154-163. doi:10.1159/000096127
- Jacobson, I. G., Gumbs, G. R., Sevick, C. J., Smith, T. C., & Ryan, M. A. (2008). Smallpox vaccination is not associated with infertility in a healthy young adult population. *Hum Vaccin, 4*(3), 224-228.
- Jacobson, I. G., Horton, J. L., Smith, B., Wells, T. S., Boyko, E. J., Lieberman, H. R., . . . Smith, T. C. (2012). Bodybuilding, energy, and weight-loss supplements are associated with deployment and physical activity in U.S. military personnel. *Ann Epidemiol, 22*(5), 318-330. doi:10.1016/j.annepidem.2012.02.017

- Jacobson, I. G., Ryan, M. A., Hooper, T. I., Smith, T. C., Amoroso, P. J., Boyko, E. J., . . . Bell, N. S. (2008). Alcohol use and alcohol-related problems before and after military combat deployment. *JAMA*, *300*(6), 663-675. doi:10.1001/jama.300.6.663
- Jacobson, I. G., Smith, T. C., Smith, B., Keel, P. K., Amoroso, P. J., Wells, T. S., . . . Ryan, M. A. (2009). Disordered eating and weight changes after deployment: longitudinal assessment of a large US military cohort. *Am J Epidemiol*, *169*(4), 415-427. doi:10.1093/aje/kwn366
- Jacobson, I. G., Smith, T. C., Smith, B., Wells, T. S., Reed, R. J., & Ryan, M. A. (2008). US military service members vaccinated against smallpox in 2003 and 2004 experience a slightly higher risk of hospitalization postvaccination. *Vaccine*, *26*(32), 4048-4056. doi:10.1016/j.vaccine.2008.05.044
- Jacobson, I. G., White, M. R., Smith, T. C., Smith, B., Wells, T. S., Gackstetter, G. D., & Boyko, E. J. (2009). Self-reported health symptoms and conditions among complementary and alternative medicine users in a large military cohort. *Ann Epidemiol*, *19*(9), 613-622. doi:10.1016/j.annepidem.2009.05.001
- Jankosky, C., Niebuhr, D. W., Powers, T. E., & Krauss, M. R. (2006). Attrition of military enlistees with a medical waiver for chronic headache, 1995-2000. *Mil Med*, *171*(12), 1235-1238.
- Jankosky, C. J., Hooper, T. I., Granado, N. S., Scher, A., Gackstetter, G. D., Boyko, E. J., & Smith, T. C. (2011). Headache disorders in the millennium cohort: epidemiology and relations with combat deployment. *Headache*, *51*(7), 1098-1111. doi:10.1111/j.1526-4610.2011.01914.x
- Johnson, J. D., O'Mara, H. M., Durtschi, H. F., & Kopjar, B. (2011). Do Urine Cultures for Urinary Tract Infections Decrease Follow-up Visits? *Journal of the American Board of Family Medicine*, *24*(6), 647-655. doi:10.3122/jabfm.2011.06.100299
- Johnston, D. T., Deuster, P. A., Harris, W. S., Macrae, H., & Dretsch, M. N. (2013). Red blood cell omega-3 fatty acid levels and neurocognitive performance in deployed U.S. Servicemembers. *Nutr Neurosci*, *16*(1), 30-38. doi:10.1179/1476830512y.0000000025
- Jones, J. C., Burks, R., Owens, B. D., Sturdivant, R. X., Svoboda, S. J., & Cameron, K. L. (2012). Incidence and risk factors associated with meniscal injuries among active-duty US military service members. *J Athl Train*, *47*(1), 67-73.
- Jordan, N. N., Clemmons, N. S., Gaydos, J. C., Lee, H. C., Yi, S. H., & Klein, T. A. (2013). Chlamydia trachomatis screening initiative among U.S. Army soldiers assigned to Korea. *MSMR*, *20*(2), 15-16.
- Jordan, N. N., Lee, S. E., Nowak, G., Johns, N. M., & Gaydos, J. C. (2011). Chlamydia trachomatis reported among U.S. active duty service members, 2000-2008. *Mil Med*, *176*(3), 312-319.
- Jorgensen, A. Y., Waterman, B. R., Hsiao, M. S., & Belmont, P. J. (2013). Functional outcomes of hip arthroplasty in active duty military service members. *J Surg Orthop Adv*, *22*(1), 16-22.
- Kang-Sickel, J. C., Butler, M. A., Frame, L., Serdar, B., Chao, Y. C., Egeghy, P., . . . Nylander-French, L. A. (2011). The utility of naphthyl-keratin adducts as biomarkers for jet-fuel exposure. *Biomarkers*, *16*(7), 590-599. doi:10.3109/1354750x.2011.611598
- Kang, H., Dalager, N., Mahan, C., & Ishii, E. (2005). The role of sexual assault on the risk of PTSD among Gulf War veterans. *Ann Epidemiol*, *15*(3), 191-195. doi:10.1016/j.annepidem.2004.05.009
- Kao, T. C., Deuster, P. A., Burnett, D., & Stephens, M. (2012). Health behaviors associated with use of body building, weight loss, and performance enhancing supplements. *Ann Epidemiol*, *22*(5), 331-339. doi:10.1016/j.annepidem.2012.02.013
- Kao, T. C., Schneider, S. J., & Hoffman, K. J. (2000). Co-occurrence of alcohol, smokeless tobacco, cigarette, and illicit drug use by lower ranking military personnel. *Addict Behav*, *25*(2), 253-262.
- Karl, J. P., Lieberman, H. R., Cable, S. J., Williams, K. W., Young, A. J., & McClung, J. P. (2010). Randomized, double-blind, placebo-controlled trial of an iron-fortified food product in female soldiers during military training: relations between iron status, serum hepcidin, and inflammation. *Am J Clin Nutr*, *92*(1), 93-100. doi:10.3945/ajcn.2010.29185
- Kehle, S. M., Reddy, M. K., Ferrier-Auerbach, A. G., Erbes, C. R., Arbisi, P. A., & Polusny, M. A. (2011). Psychiatric diagnoses, comorbidity, and functioning in National Guard troops deployed to Iraq. *J Psychiatr Res*, *45*(1), 126-132. doi:10.1016/j.jpsychires.2010.05.013
- Kelley, M. L., Hock, E., Jarvis, M. S., Smith, K. M., Gaffney, M. A., & Bonney, J. F. (2002). Psychological adjustment of Navy mothers experiencing deployment. *Military Psychology*, *14*(3), 199-216. doi:10.1207/s15327876mp1403_2

- Kelly, E. W., Jonson, S. R., Cohen, M. E., & Shaffer, R. (2000). Stress fractures of the pelvis in female navy recruits: an analysis of possible mechanisms of injury. *Mil Med*, *165*(2), 142-146.
- Kelly, P. J., Nilsson, J., & Berkel, L. (2014). A gendered perspective on military deployment. *Women Health*, *54*(1), 61-76. doi:10.1080/03630242.2013.862897
- Kelly, U. A., Skelton, K., Patel, M., & Bradley, B. (2011). More than military sexual trauma: interpersonal violence, PTSD, and mental health in women veterans. *Res Nurs Health*, *34*(6), 457-467. doi:10.1002/nur.20453
- Kennedy-Armbruster, C., Evans, E. M., Sexauer, L., Peterson, J., & Wyatt, W. (2013). Association among functional-movement ability, fatigue, sedentary time, and fitness in 40 years and older active duty military personnel. *Mil Med*, *178*(12), 1358-1364. doi:10.7205/milmed-d-13-00186
- Kennedy, H. P., Farrell, T., Paden, R., Hill, S., Jolivet, R. R., Cooper, B. A., & Rising, S. S. (2011). A randomized clinical trial of group prenatal care in two military settings. *Mil Med*, *176*(10), 1169-1177.
- Kessler, R. C., Heeringa, S. G., Stein, M. B., Colpe, L. J., Fullerton, C. S., Hwang, I., . . . Ursano, R. J. (2014). Thirty-day prevalence of DSM-IV mental disorders among nondeployed soldiers in the US Army: results from the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *JAMA Psychiatry*, *71*(5), 504-513. doi:10.1001/jamapsychiatry.2014.28
- Khaokham, C. B., Selent, M., Loustalot, F. V., Zarecki, S. M., Harrington, D., Hoke, E., . . . Waterman, S. H. (2013). Seroepidemiologic investigation of an outbreak of pandemic influenza A H1N1 2009 aboard a US Navy vessel--San Diego, 2009. *Influenza Other Respir Viruses*, *7*(5), 791-798. doi:10.1111/irv.12100
- Khazem, L. R., Law, K. C., Green, B. A., & Anestis, M. D. (2015). Examining the relationship between coping strategies and suicidal desire in a sample of United States military personnel. *Compr Psychiatry*, *57*, 2-9. doi:10.1016/j.comppsy.2014.11.009
- Kieffer, A. J., & Cole, R. E. (2012). Weight change, lifestyle, and dietary behavior in the US military's Warrior in Transition Units. *US Army Med Dep J*, 6-13.
- Killgore, W. D., Cotting, D. I., Thomas, J. L., Cox, A. L., McGurk, D., Vo, A. H., . . . Hoge, C. W. (2008). Post-combat invincibility: violent combat experiences are associated with increased risk-taking propensity following deployment. *J Psychiatr Res*, *42*(13), 1112-1121. doi:10.1016/j.jpsychires.2008.01.001
- Kim, P. Y., Britt, T. W., Klocko, R. P., Riviere, L. A., & Adler, A. B. (2011). Stigma, negative attitudes about treatment, and utilization of mental health care among soldiers. *Military Psychology (Taylor & Francis Ltd)*, *23*(1), 65-81. doi:10.1080/08995605.2011.534415
- King, D. W., King, L. A., Erickson, D. J., Huang, M. T., Sharkansky, E. J., & Wolfe, J. (2000). Posttraumatic stress disorder and retrospectively reported stressor exposure: a longitudinal prediction model. *J Abnorm Psychol*, *109*(4), 624-633.
- Klesges, R. C., DeBon, M., Vander Weg, M. W., Haddock, C. K., Lando, H. A., Relyea, G. E., . . . Talcott, G. W. (2006). Efficacy of a tailored tobacco control program on long-term use in a population of U.S. military troops. *J Consult Clin Psychol*, *74*(2), 295-306. doi:10.1037/0022-006x.74.2.295
- Klesges, R. C., Ebbert, J. O., Morgan, G. D., Sherrill-Mittleman, D., Asfar, T., Talcott, W. G., & Debon, M. (2011). Impact of differing definitions of dual tobacco use: implications for studying dual use and a call for operational definitions. *Nicotine Tob Res*, *13*(7), 523-531. doi:10.1093/ntr/ntr032
- Klesges, R. C., Klesges, L. M., Vander Weg, M. W., DeBon, M., Poston, W. S., Ebbert, J., . . . Haddock, C. K. (2007). Characteristics of Air Force personnel who choose pharmacological aids for smoking cessation following an involuntary tobacco ban and tobacco control program. *Health Psychol*, *26*(5), 588-597. doi:10.1037/0278-6133.26.5.588
- Klesges, R. C., Sherrill-Mittleman, D., Ebbert, J. O., Talcott, G. W., & Debon, M. (2010). Tobacco use harm reduction, elimination, and escalation in a large military cohort. *Am J Public Health*, *100*(12), 2487-2492. doi:10.2105/ajph.2009.175091
- Klesges, R. C., Sherrill-Mittleman, D. A., Debon, M., Talcott, G. W., & Vanecsek, R. J. (2009). Do we believe the tobacco industry lied to us? Association with smoking behavior in a military population. *Health Educ Res*, *24*(6), 909-921. doi:10.1093/her/cyp029

- Kline, A., Ciccone, D. S., Weiner, M., Interian, A., St Hill, L., Falca-Dodson, M., . . . Losonczy, M. (2013). Gender differences in the risk and protective factors associated with PTSD: a prospective study of National Guard troops deployed to Iraq. *Psychiatry*, *76*(3), 256-272. doi:10.1521/psyc.2013.76.3.256
- Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate self-harm in a nonclinical population: prevalence and psychological correlates. *Am J Psychiatry*, *160*(8), 1501-1508.
- Knapik, J., Darakjy, S., Scott, S. J., Hauret, K. G., Canada, S., Marin, R., . . . Jones, B. H. (2005). Evaluation of a standardized physical training program for basic combat training. *J Strength Cond Res*, *19*(2), 246-253. doi:10.1519/16324.1
- Knapik, J., Montain, S. J., McGraw, S., Grier, T., Ely, M., & Jones, B. H. (2012). Stress fracture risk factors in basic combat training. *Int J Sports Med*, *33*(11), 940-946. doi:10.1055/s-0032-1311583
- Knapik, J. J., Brosch, L. C., Venuto, M., Swedler, D. I., Bullock, S. H., Gaines, L. S., . . . Jones, B. H. (2010). Effect on injuries of assigning shoes based on foot shape in air force basic training. *Am J Prev Med*, *38*(1 Suppl), S197-211. doi:10.1016/j.amepre.2009.10.013
- Knapik, J. J., Bullock, S. H., Canada, S., Toney, E., Wells, J. D., Hoedebecke, E., & Jones, B. H. (2004). Influence of an injury reduction program on injury and fitness outcomes among soldiers. *Inj Prev*, *10*(1), 37-42.
- Knapik, J. J., Canham-Chervak, M., Hauret, K., Hoedebecke, E., Laurin, M. J., & Cuthie, J. (2001). Discharges during U.S. Army basic training: injury rates and risk factors. *Mil Med*, *166*(7), 641-647.
- Knapik, J. J., Canham-Chervak, M., Hauret, K., Laurin, M. J., Hoedebecke, E., Craig, S., & Montain, S. J. (2002). Seasonal variations in injury rates during US Army Basic Combat Training. *Ann Occup Hyg*, *46*(1), 15-23.
- Knapik, J. J., Canham-Chervak, M., Hoedebecke, E., Hewitson, W. C., Hauret, K., Held, C., & Sharp, M. A. (2001). The fitness training unit in U.S. Army basic combat training: physical fitness, training outcomes, and injuries. *Mil Med*, *166*(4), 356-361.
- Knapik, J. J., Darakjy, S., Hauret, K. G., Canada, S., Scott, S., Rieger, W., . . . Jones, B. H. (2006). Increasing the physical fitness of low-fit recruits before basic combat training: an evaluation of fitness, injuries, and training outcomes. *Mil Med*, *171*(1), 45-54.
- Knapik, J. J., Graham, B., Cobbs, J., Thompson, D., Steelman, R., & Jones, B. H. (2013). A prospective investigation of injury incidence and injury risk factors among Army recruits in military police training. *BMC Musculoskelet Disord*, *14*, 32. doi:10.1186/1471-2474-14-32
- Knapik, J. J., Graham, B. S., Rieger, J., Steelman, R., & Pendergrass, T. (2013). Activities associated with injuries in initial entry training. *Mil Med*, *178*(5), 500-506. doi:10.7205/milmed-d-12-00507
- Knapik, J. J., Hauret, K. G., Arnold, S., Canham-Chervak, M., Mansfield, A. J., Hoedebecke, E. L., & McMillian, D. (2003). Injury and fitness outcomes during implementation of physical readiness training. *Int J Sports Med*, *24*(5), 372-381. doi:10.1055/s-2003-40710
- Knapik, J. J., Hauret, K. G., Canada, S., Marin, R., & Jones, B. (2011). Association between ambulatory physical activity and injuries during United States Army Basic Combat Training. *J Phys Act Health*, *8*(4), 496-502.
- Knapik, J. J., Hauret, K. G., Lange, J. L., & Jovag, B. (2003). Retention in service of recruits assigned to the army physical fitness test enhancement program in basic combat training. *Mil Med*, *168*(6), 490-492.
- Knapik, J. J., Jones, S. B., Darakjy, S., Hauret, K. G., Bullock, S. H., Sharp, M. A., & Jones, B. H. (2007). Injury rates and injury risk factors among U.S. Army wheel vehicle mechanics. *Mil Med*, *172*(9), 988-996.
- Knapik, J. J., Sharp, M. A., Canham-Chervak, M., Hauret, K., Patton, J. F., & Jones, B. H. (2001). Risk factors for training-related injuries among men and women in basic combat training. *Med Sci Sports Exerc*, *33*(6), 946-954.
- Knapik, J. J., Swedler, D. I., Grier, T. L., Hauret, K. G., Bullock, S. H., Williams, K. W., . . . Jones, B. H. (2009). Injury reduction effectiveness of selecting running shoes based on plantar shape. *J Strength Cond Res*, *23*(3), 685-697. doi:10.1519/JSC.0b013e3181a0fc63
- Knapik, J. J., Trone, D. W., Swedler, D. I., Villasenor, A., Bullock, S. H., Schmied, E., . . . Jones, B. H. (2010). Injury reduction effectiveness of assigning running shoes based on plantar shape in Marine Corps basic training. *Am J Sports Med*, *38*(9), 1759-1767. doi:10.1177/0363546510369548

- Knapik, J. J., Trone, D. W., Tchandja, J., & Jones, B. H. (2014). Injury-reduction effectiveness of prescribing running shoes on the basis of foot arch height: summary of military investigations. *J Orthop Sports Phys Ther*, *44*(10), 805-812. doi:10.2519/jospt.2014.5342
- Knobloch, L. K., & Theiss, J. A. (2011). Depressive symptoms and mechanisms of relational turbulence as predictors of relationship satisfaction among returning service members. *J Fam Psychol*, *25*(4), 470-478. doi:10.1037/a0024063
- Knox, J., Orchowski, J., Scher, D. L., Owens, B. D., Burks, R., & Belmont, P. J. (2011). The incidence of low back pain in active duty United States military service members. *Spine (Phila Pa 1976)*, *36*(18), 1492-1500. doi:10.1097/BRS.0b013e3181f40ddd
- Knox, J. B., Orchowski, J. R., & Owens, B. (2012). Racial differences in the incidence of acute low back pain in United States military service members. *Spine (Phila Pa 1976)*, *37*(19), 1688-1692. doi:10.1097/BRS.0b013e318255a07b
- Kochanski-Ruscio, K. M., Carreno-Ponce, J. T., DeYoung, K., Grammer, G., & Ghahramanlou-Holloway, M. (2014). Diagnostic and psychosocial differences in psychiatrically hospitalized military service members with single versus multiple suicide attempts. *Compr Psychiatry*, *55*(3), 450-456. doi:10.1016/j.comppsy.2013.10.012
- Kolkow, T. T., Spira, J. L., Morse, J. S., & Grieger, T. A. (2007). Post-traumatic stress disorder and depression in health care providers returning from deployment to Iraq and Afghanistan. *Mil Med*, *172*(5), 451-455.
- Kress, A. M., Peterson, M. R., & Hartzell, M. C. (2006). Association between obesity and depressive symptoms among U.S. Military active duty service personnel, 2002. *J Psychosom Res*, *60*(3), 263-271. doi:10.1016/j.jpsychores.2005.08.011
- Krieg, E. F., Jr., Mathias, P. I., Toennis, C. A., Clark, J. C., Marlow, K. L., B'Hymer, C., . . . Butler, M. A. (2012). Detection of DNA damage in workers exposed to JP-8 jet fuel. *Mutat Res*, *747*(2), 218-227. doi:10.1016/j.mrgentox.2012.05.005
- Kupferer, K. R., Bush, D. M., Cornell, J. E., Lawrence, V. A., Alexander, J. L., Ramos, R. G., & Curtis, D. (2014). Femoral neck stress fracture in Air Force basic trainees. *Mil Med*, *179*(1), 56-61. doi:10.7205/milmed-d-13-00154
- Kwolek, L. A., Berry-Caban, C. S., & Thomas, S. F. (2011). Pregnant soldiers' participation in physical training: a descriptive study. *Mil Med*, *176*(8), 926-931.
- Lancaster, S. L., Erbes, C. R., Kumpula, M. J., Ferrier-Auerbach, A., Arbisi, P. A., & Polusny, M. A. (2013). Longitudinal predictors of desire to re-enlist in the military among male and female national guard soldiers. *Mil Med*, *178*(3), 267-273. doi:10.7205/milmed-d-12-00147
- Lande, R. G., Bahroo, B. A., & Soumoff, A. (2013). United States military service members and their tattoos: a descriptive study. *Mil Med*, *178*(8), 921-925. doi:10.7205/milmed-d-13-00131
- Lande, R. G., & Gragnani, C. (2013). Sleep trends of active-duty service members referred for psychiatric care: a descriptive study. *J Am Osteopath Assoc*, *113*(2), 144-150.
- Lande, R. G., Marin, B., & Chang, A. S. (2011). Clinical application of ethyl glucuronide testing in the U.S. Army. *J Addict Dis*, *30*(1), 39-44. doi:10.1080/10550887.2010.531664
- Lande, R. G., Marin, B. A., Chang, A. S., & Lande, G. R. (2007). Gender differences and alcohol use in the US Army. *J Am Osteopath Assoc*, *107*(9), 401-407.
- Lande, R. G., Tarpley, V., Francis, J. L., & Boucher, R. (2010). Combat Trauma Art Therapy Scale. *The Arts in Psychotherapy*, *37*(1), 42-45. doi:10.1016/j.aip.2009.09.007
- Lange, R. T., Brickell, T., French, L. M., Ivins, B., Bhagwat, A., Pancholi, S., & Iverson, G. L. (2013). Risk factors for postconcussion symptom reporting after traumatic brain injury in U.S. military service members. *J Neurotrauma*, *30*(4), 237-246. doi:10.1089/neu.2012.2685
- Lange, R. T., Brickell, T. A., French, L. M., Merritt, V. C., Bhagwat, A., Pancholi, S., & Iverson, G. L. (2012). Neuropsychological outcome from uncomplicated mild, complicated mild, and moderate traumatic brain injury in US military personnel. *Arch Clin Neuropsychol*, *27*(5), 480-494. doi:10.1093/arclin/acs059
- Lange, R. T., Brickell, T. A., Kennedy, J. E., Bailie, J. M., Sills, C., Asmussen, S., . . . French, L. M. (2014). Factors influencing postconcussion and posttraumatic stress symptom reporting following military-

- related concurrent polytrauma and traumatic brain injury. *Arch Clin Neuropsychol*, 29(4), 329-347. doi:10.1093/arclin/acu013
- Langhinrichsen-Rohling, J., Snarr, J. D., Slep, A. M., Heyman, R. E., & Foran, H. M. (2011). Risk for suicidal ideation in the U.S. Air Force: an ecological perspective. *J Consult Clin Psychol*, 79(5), 600-612. doi:10.1037/a0024631
- Lapierre, C. B., Schwegler, A. F., & Labauve, B. J. (2007). Posttraumatic stress and depression symptoms in soldiers returning from combat operations in Iraq and Afghanistan. *J Trauma Stress*, 20(6), 933-943. doi:10.1002/jts.20278
- Lappe, J., Cullen, D., Haynatzki, G., Recker, R., Ahlf, R., & Thompson, K. (2008). Calcium and vitamin D supplementation decreases incidence of stress fractures in female navy recruits. *J Bone Miner Res*, 23(5), 741-749. doi:10.1359/jbmr.080102
- Lappe, J., Davies, K., Recker, R., & Heaney, R. (2005). Quantitative ultrasound: use in screening for susceptibility to stress fractures in female army recruits. *J Bone Miner Res*, 20(4), 571-578. doi:10.1359/jbmr.041208
- Lappe, J. M., Stegman, M. R., & Recker, R. R. (2001). The impact of lifestyle factors on stress fractures in female Army recruits. *Osteoporos Int*, 12(1), 35-42. doi:10.1007/s001980170155
- Larson, M. J., Mohr, B. A., Adams, R. S., Wooten, N. R., & Williams, T. V. (2014). Missed opportunity for alcohol problem prevention among army active duty service members postdeployment. *Am J Public Health*, 104(8), 1402-1412. doi:10.2105/ajph.2014.301901
- Lauder, T. D., Baker, S. P., Smith, G. S., & Lincoln, A. E. (2000). Sports and physical training injury hospitalizations in the army. *Am J Prev Med*, 18(3 Suppl), 118-128.
- Lauder, T. D., Dixit, S., Pezzin, L. E., Williams, M. V., Campbell, C. S., & Davis, G. D. (2000). The relation between stress fractures and bone mineral density: evidence from active-duty Army women. *Arch Phys Med Rehabil*, 81(1), 73-79.
- Lea, C. S., Efrid, J. T., Toland, A. E., Lewis, D. R., & Phillips, C. J. (2014). Melanoma incidence rates in active duty military personnel compared with a population-based registry in the United States, 2000-2007. *Mil Med*, 179(3), 247-253. doi:10.7205/milmed-d-13-00356
- LeardMann, C. A., Kelton, M. L., Smith, B., Littman, A. J., Boyko, E. J., Wells, T. S., & Smith, T. C. (2011). Prospectively assessed posttraumatic stress disorder and associated physical activity. *Public Health Rep*, 126(3), 371-383.
- Leardmann, C. A., Pietrucha, A., Magruder, K. M., Smith, B., Murdoch, M., Jacobson, I. G., . . . Smith, T. C. (2013). Combat deployment is associated with sexual harassment or sexual assault in a large, female military cohort. *Womens Health Issues*, 23(4), e215-223. doi:10.1016/j.whi.2013.05.002
- LeardMann, C. A., Smith, T. C., Smith, B., Wells, T. S., & Ryan, M. A. (2009). Baseline self reported functional health and vulnerability to post-traumatic stress disorder after combat deployment: prospective US military cohort study. *BMJ*, 338, b1273. doi:10.1136/bmj.b1273
- Lee, D. (2011). Stress fractures, active component, U.S. Armed Forces, 2004-2010. *MSMR*, 18(5), 8-11.
- Lee, S. E., Eick, A., Bloom, M. S., & Brundage, J. F. (2008). Influenza immunization and subsequent diagnoses of group A streptococcus-illnesses among U.S. Army trainees, 2002-2006. *Vaccine*, 26(27-28), 3383-3386. doi:10.1016/j.vaccine.2008.04.041
- Lee, S. E., Eick, A., & Ciminera, P. (2008). Respiratory disease in Army recruits: surveillance program overview, 1995-2006. *Am J Prev Med*, 34(5), 389-395. doi:10.1016/j.amepre.2007.12.027
- Lee, T., & Nang, R. N. (2000). The epidemiology of varicella hospitalizations in the U.S. Army. *Mil Med*, 165(10), 791-795.
- Lee, T. C., O'Malley, P. G., Feuerstein, I., & Taylor, A. J. (2003). The prevalence and severity of coronary artery calcification on coronary artery computed tomography in black and white subjects. *J Am Coll Cardiol*, 41(1), 39-44. doi:10.1016/s0735-1097(02)02618-9
- Legionellosis in Military Health System beneficiaries, 1998-2013. (2014). *MSMR*, 21(3), 6-9.
- Lehavot, K., Hoerster, K. D., Nelson, K. M., Jakupcak, M., & Simpson, T. L. (2012). Health indicators for military, veteran, and civilian women. *Am J Prev Med*, 42(5), 473-480. doi:10.1016/j.amepre.2012.01.006

- Leiendecker, T. M., Martin, G., & Moss, D. L. (2011). 2008 Department of Defense (DoD) recruit oral health survey. *Mil Med*, *176*(8 Suppl), 1-44.
- Lennon, R. P., Oberhofer, A. L., & McQuade, J. (2015). Body Composition Assessment Failure Rates and Obesity in the United States Navy. *Mil Med*, *180*(2), 141-144. doi:10.7205/milmed-d-14-00231
- Lewandowski-Romps, L., Peterson, C., Berglund, P. A., Collins, S., Cox, K., Hauret, K., . . . Army Study Assess Risk, R. (2014). Risk Factors for Accident Death in the US Army, 2004-2009. *Am J Prev Med*, *47*(6), 745-753. doi:10.1016/j.amepre.2014.07.052
- Lewis, F. S., Norton, S. A., Bradshaw, R. D., Lapa, J., & Grabenstein, J. D. (2006). Analysis of cases reported as generalized vaccinia during the US military smallpox vaccination program, December 2002 to December 2004. *J Am Acad Dermatol*, *55*(1), 23-31. doi:10.1016/j.jaad.2006.04.017
- Lieberman, H. R., Karl, J. P., Niro, P. J., Williams, K. W., Farina, E. K., Cable, S. J., & McClung, J. P. (2014). Positive effects of basic training on cognitive performance and mood of adult females. *Hum Factors*, *56*(6), 1113-1123.
- Lieberman, H. R., Kellogg, M. D., & Bathalon, G. P. (2008). Female marine recruit training: mood, body composition, and biochemical changes. *Med Sci Sports Exerc*, *40*(11 Suppl), S671-676. doi:10.1249/MSS.0b013e31818943b3
- Lieberman, H. R., Kellogg, M. D., Kramer, F. M., Bathalon, G. P., & Leshner, L. L. (2012). Lipid and other plasma markers are associated with anxiety, depression, and fatigue. *Health Psychol*, *31*(2), 210-216. doi:10.1037/a0026499
- Lieberman, H. R., Stavinocha, T., McGraw, S., White, A., Hadden, L., & Marriott, B. P. (2012). Caffeine use among active duty US Army soldiers. *J Acad Nutr Diet*, *112*(6), 902-912, 912 e901-904. doi:10.1016/j.jand.2012.02.001
- Lieberman, H. R., Stavinocha, T. B., McGraw, S. M., White, A., Hadden, L. S., & Marriott, B. P. (2010). Use of dietary supplements among active-duty US Army soldiers. *Am J Clin Nutr*, *92*(4), 985-995. doi:10.3945/ajcn.2010.29274
- Lightning-associated injuries and deaths among military personnel--United States, 1998-2001. (2002). *MMWR Morb Mortal Wkly Rep*, *51*(38), 859-862.
- Lincoln, A. E., Smith, G. S., Amoroso, P. J., & Bell, N. S. (2002). The natural history and risk factors of musculoskeletal conditions resulting in disability among US Army personnel. *Work: Journal of Prevention, Assessment & Rehabilitation*, *18*(2), 99-113.
- Lindberg, L. D. (2011). Unintended pregnancy among women in the US military. *Contraception*, *84*(3), 249-251. doi:10.1016/j.contraception.2011.01.017
- Lindquist, C. H., & Bray, R. M. (2001). Trends in overweight and physical activity among U.S. military personnel, 1995-1998. *Prev Med*, *32*(1), 57-65. doi:10.1006/pmed.2000.0771
- Lindstrom, K. E., Smith, T. C., Wells, T. S., Wang, L. Z., Smith, B., Reed, R. J., . . . Ryan, M. A. (2006). The mental health of U.S. military women in combat support occupations. *J Womens Health (Larchmt)*, *15*(2), 162-172. doi:10.1089/jwh.2006.15.162
- Linton, A., Hartzell, M. C., & Peterson, M. R. (2004). Effect of September 11th terrorist attacks on the self-reported health status of Department of Defense health care beneficiaries. *Mil Med*, *169*(11), 843-849.
- Littman, A. J., Jacobson, I. G., Boyko, E. J., Powell, T. M., & Smith, T. C. (2013). Weight change following US military service. *Int J Obes (Lond)*, *37*(2), 244-253. doi:10.1038/ijo.2012.46
- Lovering, M. E., Proctor, S. P., & Heaton, K. J. (2013). A retrospective study of anxiety disorder diagnoses in the military from 2000 to 2009. *J Anxiety Disord*, *27*(1), 25-32. doi:10.1016/j.janxdis.2012.10.003
- Lowe, N. K., Neal, J. L., & Ryan-Wenger, N. A. (2009). Accuracy of the clinical diagnosis of vaginitis compared with a DNA probe laboratory standard. *Obstet Gynecol*, *113*(1), 89-95. doi:10.1097/AOG.0b013e3181909f63
- Lowe, N. K., & Ryan-Wenger, N. A. (2000). A clinical test of women's self-diagnosis of genitourinary infections. *Clin Nurs Res*, *9*(2), 144-160.
- Lowe, N. K., & Ryan-Wenger, N. A. (2003). Military women's risk factors for and symptoms of genitourinary infections during deployment. *Mil Med*, *168*(7), 569-574.
- Lowe, N. K., & Ryan-Wenger, N. A. (2006). Factors associated with vaginal douching in military women. *Mil Med*, *171*(10), 1015-1019.

- Lutz, L. J., Gaffney-Stomberg, E., Scisco, J. L., Cable, S. J., Karl, J. P., Young, A. J., & McClung, J. P. (2013). Assessment of dietary intake using the healthy eating index during military training. *US Army Med Dep J*, 91-97.
- Luxton, D. D., Skopp, N. A., & Maguen, S. (2010). Gender differences in depression and PTSD symptoms following combat exposure. *Depress Anxiety*, 27(11), 1027-1033. doi:10.1002/da.20730
- Lynch, J. P., Hanson, K., & Kao, T. C. (2004). Health-related behaviors in young military smokers. *Mil Med*, 169(3), 230-235.
- Macera, C. A., Aralis, H. J., Highfill-McRoy, R., & Rauh, M. J. (2014). Posttraumatic stress disorder after combat zone deployment among Navy and Marine Corps men and women. *J Womens Health (Larchmt)*, 23(6), 499-505. doi:10.1089/jwh.2013.4302
- Madson, A. Q., Tucker, D., Aden, J., Hale, R. G., & Chan, R. K. (2013). Non-battle craniomaxillofacial injuries from U.S. military operations. *J Craniomaxillofac Surg*, 41(8), 816-820. doi:10.1016/j.jcms.2013.01.035
- Magann, E. F., Evans, S. F., Chauhan, S. P., Nolan, T. E., Henderson, J., Klausen, J. H., . . . Morrison, J. C. (2005). The effects of standing, lifting and noise exposure on preterm birth, growth restriction, and perinatal death in healthy low-risk working military women. *J Matern Fetal Neonatal Med*, 18(3), 155-162. doi:10.1080/14767050500224810
- Magann, E. F., Evans, S. F., Weitz, B., & Newnham, J. (2002). Antepartum, intrapartum, and neonatal significance of exercise on healthy low-risk pregnant working women. *Obstet Gynecol*, 99(3), 466-472.
- Magley, V. J., & Shupe, E. I. (2005). Self-labeling sexual harassment. *Sex Roles*, 53(3-4), 173-189. doi:10.1007/s11199-005-5677-3
- Maguen, S., Lucenko, B. A., Reger, M. A., Gahm, G. A., Litz, B. T., Seal, K. H., . . . Marmar, C. R. (2010). The Impact of Reported Direct and Indirect Killing on Mental Health Symptoms in Iraq War Veterans. *J Trauma Stress*, 23(1), 86-90. doi:10.1002/jts.20434
- Maguen, S., Luxton, D. D., Skopp, N. A., & Madden, E. (2012). Gender differences in traumatic experiences and mental health in active duty soldiers redeployed from Iraq and Afghanistan. *J Psychiatr Res*, 46(3), 311-316. doi:10.1016/j.jpsychires.2011.11.007
- Maguen, S., Skopp, N. A., Zhang, Y., & Smolenski, D. J. (2015). Gender differences in suicide and suicide attempts among US Army soldiers. *Psychiatry Res*, 225(3), 545-549. doi:10.1016/j.psychres.2014.11.050
- Maktabi, H., Ludwig, S. L., Eick-Cost, A., Yerubandi, U. D., & Gaydos, J. C. (2012). Quadrivalent human papillomavirus vaccine initiation, coverage, and compliance among U.S. active component service women, 2006-2011. *MSMR*, 19(5), 16.
- Malingering and factitious disorders and illnesses, active component, U.S. Armed Forces, 1998-2012. (2013). *MSMR*, 20(7), 20-24; discussion 23-24.
- Mancuso, J. D., Tobler, S. K., Eick, A. A., & Keep, L. W. (2010). Active tuberculosis and recent overseas deployment in the U.S. military. *Am J Prev Med*, 39(2), 157-163. doi:10.1016/j.amepre.2010.03.017
- Mao, C. Y., Narang, S., & Lopreiato, J. (2012). Breastfeeding practices in military families: a 12-month prospective population-based study in the national capital region. *Mil Med*, 177(2), 229-234.
- Margolis, L. M., Pasiakos, S. M., Karl, J. P., Rood, J. C., Cable, S. J., Williams, K. W., . . . McClung, J. P. (2012). Differential effects of military training on fat-free mass and plasma amino acid adaptations in men and women. *Nutrients*, 4(12), 2035-2046. doi:10.3390/nu4122035
- Marshall, B. D., Prescott, M. R., Liberzon, I., Tamburrino, M. B., Calabrese, J. R., & Galea, S. (2012). Coincident posttraumatic stress disorder and depression predict alcohol abuse during and after deployment among Army National Guard soldiers. *Drug Alcohol Depend*, 124(3), 193-199. doi:10.1016/j.drugalcdep.2011.12.027
- Martin, L., Rosen, L. N., Durand, D. B., Knudson, K. H., & Stretch, R. H. (2000). Psychological and physical health effects of sexual assaults and nonsexual traumas among male and female United States Army soldiers. *Behav Med*, 26(1), 23-33. doi:10.1080/08964280009595750
- Martin, P. D., Williamson, D. A., Alfonso, A. J., & Ryan, D. H. (2006). Psychological adjustment during Army basic training. *Mil Med*, 171(2), 157-160.

- Martin, S. L., Gibbs, D. A., Johnson, R. E., Rentz, E. D., Clinton-Sherrod, M., & Hardison, J. (2007). Spouse abuse and child abuse by army soldiers. *Journal of Family Violence, 22*(7), 587-595. doi:10.1007/s10896-007-9110-2
- Martin, S. L., Gibbs, D. A., Johnson, R. E., Sullivan, K., Clinton-Sherrod, M., Walters, J. L., & Rentz, E. D. (2010). Substance use by soldiers who abuse their spouses. *Violence Against Women, 16*(11), 1295-1310. doi:10.1177/1077801210387038
- Marx, B. P., Doron-Lamarca, S., Proctor, S. P., & Vasterling, J. J. (2009). The influence of pre-deployment neurocognitive functioning on post-deployment PTSD symptom outcomes among Iraq-deployed Army soldiers. *J Int Neuropsychol Soc, 15*(6), 840-852. doi:10.1017/s1355617709990488
- Masel, J., Deiss, R. G., Wang, X., Sanchez, J. L., Ganesan, A., Macalino, G. E., . . . Agan, B. K. (2015). Seroprevalence and Seroincidence of Herpes Simplex Virus (2006-2010), Syphilis (2006-2010), and Vaccine-Preventable Human Papillomavirus Subtypes (2000-2010) Among US Military Personnel. *Sex Transm Dis, 42*(5), 253-258. doi:10.1097/olq.0000000000000277
- Mattiko, M. J., Olmsted, K. L., Brown, J. M., & Bray, R. M. (2011). Alcohol use and negative consequences among active duty military personnel. *Addict Behav, 36*(6), 608-614. doi:10.1016/j.addbeh.2011.01.023
- May, L., Porter, C., Tribble, D., Armstrong, A., Mostafa, M., & Riddle, M. (2011). Self-reported incidence of skin and soft tissue infections among deployed US military. *Travel Med Infect Dis, 9*(4), 213-220. doi:10.1016/j.tmaid.2011.06.001
- McAndrew, L. M., D'Andrea, E., Lu, S. E., Abbi, B., Yan, G. W., Engel, C., & Quigley, K. S. (2013). What pre-deployment and early post-deployment factors predict health function after combat deployment?: a prospective longitudinal study of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) soldiers. *Health Qual Life Outcomes, 11*, 73. doi:10.1186/1477-7525-11-73
- McCarroll, J. E., Thayer, L. E., Liu, X., Newby, J. H., Norwood, A. E., Fullerton, C. S., & Ursano, R. J. (2000). Spouse abuse recidivism in the U.S. Army by gender and military status. *J Consult Clin Psychol, 68*(3), 521-525.
- McCarroll, J. E., Ursano, R. J., Fan, Z., & Newby, J. H. (2004). Patterns of spouse and child maltreatment by discharged U.S. Army soldiers. *J Am Acad Psychiatry Law, 32*(1), 53-62.
- McCarroll, J. E., Ursano, R. J., Liu, X., Thayer, L. E., Newby, J. H., Norwood, A. E., & Fullerton, C. S. (2010). Deployment and the Probability of Spousal Aggression by US Army Soldiers. *Mil Med, 175*(5), 352-356.
- McClung, J. P., Marchitelli, L. J., Friedl, K. E., & Young, A. J. (2006). Prevalence of iron deficiency and iron deficiency anemia among three populations of female military personnel in the US Army. *J Am Coll Nutr, 25*(1), 64-69.
- McDermott, M. T., Christensen, R. S., & Lattimer, J. (2001). The effects of region-specific resistance and aerobic exercises on bone mineral density in premenopausal women. *Mil Med, 166*(4), 318-321.
- McGraw, L. K., Out, D., Hammermeister, J. J., Ohlson, C. J., Pickering, M. A., & Granger, D. A. (2013). Nature, correlates, and consequences of stress-related biological reactivity and regulation in Army nurses during combat casualty simulation. *Psychoneuroendocrinology, 38*(1), 135-144. doi:10.1016/j.psneuen.2012.05.009
- McKibben, J. B., Fullerton, C. S., Gray, C. L., Kessler, R. C., Stein, M. B., & Ursano, R. J. (2013). Mental health service utilization in the U.S. Army. *Psychiatr Serv, 64*(4), 347-353. doi:10.1176/appi.ps.000602012
- McMahon, A. W., Zinderman, C., Ball, R., Gupta, G., & Braun, M. M. (2007). Comparison of military and civilian reporting rates for smallpox vaccine adverse events. *Pharmacoepidemiol Drug Saf, 16*(6), 597-604. doi:10.1002/pds.1349
- McNeil, M. M., Arana, J., Stewart, B., Hartshorn, M., Hrncir, D., Wang, H., . . . Engler, R. J. (2012). A cluster of nonspecific adverse events in a military reserve unit following pandemic influenza A (H1N1) 2009 vaccination-possible stimulated reporting? *Vaccine, 30*(14), 2421-2426. doi:10.1016/j.vaccine.2012.01.072
- McNeil, M. M., Cano, M., E, R. M., Petersen, B. W., Engler, R. J., & Bryant-Genevier, M. G. (2014). Ischemic cardiac events and other adverse events following ACAM2000((R)) smallpox vaccine in the Vaccine Adverse Event Reporting System. *Vaccine, 32*(37), 4758-4765. doi:10.1016/j.vaccine.2014.06.034

- McNulty, P. A. (2001). Prevalence and contributing factors of eating disorder behaviors in active duty service women in the Army, Navy, Air Force, and Marines. *Mil Med*, *166*(1), 53-58.
- McNulty, P. A. (2005). Reported stressors and health care needs of active duty Navy personnel during three phases of deployment in support of the war in Iraq. *Mil Med*, *170*(6), 530-535.
- McWhorter, S. K., Stander, V. A., Thomsen, C. J., Merrill, L. L., & Milner, J. S. (2014). Changes in healthcare use across the transition from civilian to military life. *International Journal of Health Planning and Management*, *29*(2), E186-E204. doi:10.1002/hpm.2176
- Mease, L. (2012). Pulmonary and extrapulmonary coccidioidomycosis, active component, U.S. Armed Forces, 1999-2011. *MSMR*, *19*(12), 2-4.
- Medical evacuations from Afghanistan during Operation Enduring Freedom, active and reserve components, U.S. Armed Forces, 7 October 2001-31 December 2012. (2013). *MSMR*, *20*(6), 2-8.
- Medical evacuations from Operation Iraqi Freedom/Operation New Dawn, active and reserve components, U.S. Armed Forces, 2003-2011. (2012). *MSMR*, *19*(2), 18-21.
- Mengeling, M. A., Booth, B. M., Torner, J. C., & Sadler, A. G. (2014). Reporting Sexual Assault in the Military Who Reports and Why Most Servicewomen Don't. *Am J Prev Med*, *47*(1), 17-25. doi:10.1016/j.amepre.2014.03.001
- Mengeling, M. A., Booth, B. M., Torner, J. C., & Sadler, A. G. (2015). Post-sexual assault health care utilization among OEF/OIF servicewomen. *Med Care*, *53*(4 Suppl 1), S136-142. doi:10.1097/mlr.0000000000000267
- Merrill, L. L. (2001). Trauma symptomatology among female U.S. Navy recruits. *Mil Med*, *166*(7), 621-624.
- Merrill, L. L., Crouch, J. L., Thomsen, C. J., Guimond, J., & Milner, J. S. (2005). Perpetration of severe intimate partner violence: premilitary and second year of service rates. *Mil Med*, *170*(8), 705-709.
- Merrill, L. L., Crouch, J. L., Thomsen, C. J., & Guimond, J. M. (2004). Risk for intimate partner violence and child physical abuse: psychosocial characteristics of multirisk male and female Navy recruits. *Child Maltreat*, *9*(1), 18-29. doi:10.1177/1077559503260852
- Merrill, L. L., Guimond, J. M., Thomsen, C. J., & Milner, J. S. (2003). Child sexual abuse and number of sexual partners in young women: the role of abuse severity, coping style, and sexual functioning. *J Consult Clin Psychol*, *71*(6), 987-996. doi:10.1037/0022-006x.71.6.987
- Merrill, L. L., Stander, V. A., Thomsen, C. J., Crouch, J. L., & Milner, J. S. (2004). Childhood exposure to family violence and attrition in the Navy. *Mil Med*, *169*(6), 465-469.
- Merrill, L. L., Stander, V. A., Thomsen, C. J., Crouch, J. L., & Milner, J. S. (2006). Premilitary intimate partner violence and attrition from the U.S. Navy. *Mil Med*, *171*(12), 1206-1210.
- Merrill, L. L., Thomsen, C. J., Sinclair, B. B., Gold, S. R., & Milner, J. S. (2001). Predicting the impact of child sexual abuse on women: The role of abuse severity, parental support, and coping strategies. *J Consult Clin Psychol*, *69*(6), 992-1006. doi:10.1037//0022-006x.69.6.992
- Miller, N. L., Tvaryanas, A. P., & Shattuck, L. G. (2012). Accommodating adolescent sleep-wake patterns: the effects of shifting the timing of sleep on training effectiveness. *Sleep*, *35*(8), 1123-1136. doi:10.5665/sleep.2002
- Miller, R. N., Costigan, D. J., Young, H. A., Kang, H. K., Dalager, N., Mathes, R. W., . . . Thaul, S. (2006). Patterns of health care seeking of Gulf War registry members prior to deployment. *Mil Med*, *171*(5), 370-375.
- Milner, J. S., Thomsen, C. J., Crouch, J. L., Rabenhorst, M. M., Martens, P. M., Dyslin, C. W., . . . Merrill, L. L. (2010). Do trauma symptoms mediate the relationship between childhood physical abuse and adult child abuse risk? *Child Abuse Negl*, *34*(5), 332-344. doi:10.1016/j.chiabu.2009.09.017
- Mitchell, D., Francis, J. P., & Tafrate, R. C. (2005). The psychometric properties of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) in a clinical sample of active duty military service members. *Mil Med*, *170*(11), 960-963.
- Mitchener, T. A., & Canham-Chervak, M. (2010). Oral-maxillofacial injury surveillance in the Department of Defense, 1996-2005. *Am J Prev Med*, *38*(1 Suppl), S86-93. doi:10.1016/j.amepre.2009.10.016
- Mitchener, T. A., Hauret, K. G., Hoedebecke, E. L., Darakjy, S., & Jones, B. H. (2008). Air medical evacuations of soldiers due to oral-facial disease and injuries, Operations Enduring Freedom/Iraqi Freedom. *Mil Med*, *173*(5), 465-473.

- Mohr, S. B., Gorham, E. D., Alcaraz, J. E., Kane, C. I., Macera, C. A., Parsons, J. K., . . . Garland, C. F. (2013). Serum 25-hydroxyvitamin D and breast cancer in the military: a case-control study utilizing pre-diagnostic serum. *Cancer Causes Control*, *24*(3), 495-504. doi:10.1007/s10552-012-0140-6
- Momen, N., Strychacz, C. P., & Viirre, E. (2012). Perceived stigma and barriers to mental health care in Marines attending the Combat Operational Stress Control program. *Mil Med*, *177*(10), 1143-1148.
- Monahan, P., Hu, Z., & Rohrbeck, P. (2013). Mental disorders and mental health problems among recruit trainees, U.S. Armed Forces, 2000-2012. *MSMR*, *20*(7), 13-18; discussion 16-18.
- Montain, S. J., McGraw, S. M., Ely, M. R., Grier, T. L., & Knapik, J. J. (2013). A retrospective cohort study on the influence of UV index and race/ethnicity on risk of stress and lower limb fractures. *BMC Musculoskeletal Disord*, *14*, 135. doi:10.1186/1471-2474-14-135
- Morris, M. J., Dodson, D. W., Lucero, P. F., Haislip, G. D., Gallup, R. A., Nicholson, K. L., & Zacher, L. L. (2014). Study of active duty military for pulmonary disease related to environmental deployment exposures (STAMPEDE). *Am J Respir Crit Care Med*, *190*(1), 77-84. doi:10.1164/rccm.201402-0372OC
- Morse, J. S., Schallhorn, S. C., Hettinger, K., & Tanzer, D. (2009). Role of depressive symptoms in patient satisfaction with visual quality after laser in situ keratomileusis. *J Cataract Refract Surg*, *35*(2), 341-346. doi:10.1016/j.jcrs.2008.10.046
- Morton, T. N., Zimmerman, J. P., Lee, M., & Schaber, J. D. (2013). A Review of 105 Consecutive Uniport Endoscopic Plantar Fascial Release Procedures for the Treatment of Chronic Plantar Fasciitis. *Journal of Foot & Ankle Surgery*, *52*(1), 48-52. doi:10.1053/j.jfas.2012.10.011
- Munger, K. L., Levin, L. I., Hollis, B. W., Howard, N. S., & Ascherio, A. (2006). Serum 25-hydroxyvitamin D levels and risk of multiple sclerosis. *Jama-Journal of the American Medical Association*, *296*(23), 2832-2838. doi:10.1001/jama.296.23.2832
- Murdoch, M., Pryor, J. B., Polusny, M. A., & Gackstetter, G. D. (2007). Functioning and psychiatric symptoms among military men and women exposed to sexual stressors. *Mil Med*, *172*(7), 718-725.
- Murdoch, M., Pryor, J. B., Polusny, M. A., Gackstetter, G. D., & Ripley, D. C. (2009). Local social norms and military sexual stressors: do senior officers' norms matter? *Mil Med*, *174*(10), 1100-1104.
- Murdoch, M., Pryor, J. B., Polusny, M. A., Wall, M. M., Ripley, D. C., & Gackstetter, G. D. (2010). The association between military sexual stress and psychiatric symptoms after controlling for other stressors. *J Psychiatr Res*, *44*(16), 1129-1136. doi:10.1016/j.jpsychires.2010.09.009
- Mydlarz, D. (2012). Degenerative disc disease, active component, U.S. Armed Forces, 2001-2011. *MSMR*, *19*(5), 6-9.
- Nademin, E., Jobes, D. A., Pflanz, S. E., Jacoby, A. M., Ghahramanlou-Holloway, M., Campise, R., . . . Johnson, L. (2008). An investigation of interpersonal-psychological variables in air force suicides: a controlled-comparison study. *Arch Suicide Res*, *12*(4), 309-326. doi:10.1080/13811110802324847
- Nasky, K. M., Hines, N. N., & Simmer, E. (2009). The USS Cole bombing: analysis of pre-existing factors as predictors for development of post-traumatic stress or depressive disorders. *Mil Med*, *174*(7), 689-694.
- Nayback-Beebe, A. M., & Yoder, L. H. (2011). Social conflict versus social support: what is more influential in mental health symptom severity for female service members? *Arch Psychiatr Nurs*, *25*(6), 469-478. doi:10.1016/j.apnu.2011.02.005
- Negrusa, B., & Negrusa, S. (2014). Home front: post-deployment mental health and divorces. *Demography*, *51*(3), 895-916. doi:10.1007/s13524-014-0294-9
- Nelson, D. A., & Kurina, L. M. (2013). Clinical prediction of musculoskeletal-related "medically not ready" for combat duty statuses among active duty U.S. army soldiers. *Mil Med*, *178*(12), 1365-1372. doi:10.7205/milmed-d-13-00182
- Nevin, R. L., & Niebuhr, D. W. (2007). Rising hepatitis A immunity in U.S. military recruits. *Mil Med*, *172*(7), 787-793.
- Newton, R. L., Jr., Han, H., Stewart, T. M., Ryan, D. H., & Williamson, D. A. (2011). Efficacy of a pilot Internet-based weight management program (H.E.A.L.T.H.) and longitudinal physical fitness data in Army Reserve soldiers. *J Diabetes Sci Technol*, *5*(5), 1255-1262.

- Nguyen, S., Leardmann, C. A., Smith, B., Conlin, A. M., Slymen, D. J., Hooper, T. I., . . . Smith, T. C. (2013). Is military deployment a risk factor for maternal depression? *J Womens Health (Larchmt)*, 22(1), 9-18. doi:10.1089/jwh.2012.3606
- Niebuhr, D. W., Gubata, M. E., Oetting, A. A., Weber, N. S., Feng, X., & Cowan, D. N. (2013). Personality Assessment Questionnaire as a pre-accession screen for risk of mental disorders and early attrition in U. S. Army recruits. *Psychol Serv*, 10(4), 378-385. doi:10.1037/a0032783
- Niebuhr, D. W., Millikan, A. M., Cowan, D. N., Yolken, R., Li, Y., & Weber, N. S. (2008). Selected infectious agents and risk of schizophrenia among U.S. military personnel. *Am J Psychiatry*, 165(1), 99-106. doi:10.1176/appi.ajp.2007.06081254
- Niebuhr, D. W., Millikan, A. M., Yolken, R., Li, Y., & Weber, N. S. (2008). Results from a hypothesis generating case-control study: herpes family viruses and schizophrenia among military personnel. *Schizophr Bull*, 34(6), 1182-1188. doi:10.1093/schbul/sbm139
- Niebuhr, D. W., Scott, C. T., Li, Y., Bedno, S. A., Han, W., & Powers, T. E. (2009). Preaccession fitness and body composition as predictors of attrition in U.S. Army recruits. *Mil Med*, 174(7), 695-701.
- Niederhauser, A., Turner, M. D., Chauhan, S. P., Magann, E. F., & Morrison, J. C. (2009). Physician attire in the military setting: does it make a difference to our patients? *Mil Med*, 174(8), 817-820.
- Niederhauser, V. P., Maddock, J., LeDoux, F., & Arnold, M. (2005). Building strong and ready Army families: a multirisk reduction health promotion pilot study. *Mil Med*, 170(3), 227-233.
- Nielsen, P. E., Murphy, C. S., Schulz, J., Deering, S. H., Truong, V., McCartin, T., & Clemons, J. L. (2009). Female soldiers' gynecologic healthcare in Operation Iraqi Freedom: a survey of camps with echelon three facilities. *Mil Med*, 174(11), 1172-1176.
- Nindl, B. C., McClung, J. P., Miller, J. K., Karl, J. P., Pierce, J. R., Scofield, D. E., . . . Lieberman, H. R. (2011). Bioavailable IGF-I is associated with fat-free mass gains after physical training in women. *Med Sci Sports Exerc*, 43(5), 793-799. doi:10.1249/MSS.0b013e31820065ea
- Nock, M. K., Stein, M. B., Heeringa, S. G., Ursano, R. J., Colpe, L. J., Fullerton, C. S., . . . Kessler, R. C. (2014). Prevalence and correlates of suicidal behavior among soldiers: results from the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *JAMA Psychiatry*, 71(5), 514-522. doi:10.1001/jamapsychiatry.2014.30
- Nsouli-Maktabi, H., Ludwig, S. L., Yerubandi, U. D., & Gaydos, J. C. (2013). Incidence of genital warts among U.S. service members before and after the introduction of the quadrivalent human papillomavirus vaccine. *MSMR*, 20(2), 17-20.
- Nye, N. S., Carnahan, D. H., Jackson, J. C., Covey, C. J., Zarzabal, L. A., Chao, S. Y., . . . Crawford, P. F. (2014). Abdominal Circumference Is Superior to Body Mass Index in Estimating Musculoskeletal Injury Risk. *Med Sci Sports Exerc*, 46(10), 1951-1959. doi:10.1249/mss.0000000000000329
- O'Boyle, A. L., Magann, E. F., Ricks, R. E., Jr., Doyle, M., & Morrison, J. C. (2005). Depression screening in the pregnant soldier wellness program. *South Med J*, 98(4), 416-418. doi:10.1097/01.smj.0000152759.37358.81
- O'Rourke, K., Richman, A., Roddy, M., & Custer, M. (2008). Does pregnancy/paternity intention predict contraception use? A study among US soldiers who have completed initial entry training. *J Fam Plann Reprod Health Care*, 34(3), 165-168. doi:10.1783/147118908784734891
- Ollayos, C. W., & Peterson, M. (2002). Relative risks for squamous intraepithelial lesions detected by the Papanicolaou test among Air Force and Army beneficiaries of the Military Health Care System. *Mil Med*, 167(9), 719-722.
- Olmsted, K. L., Bray, R. M., Reyes-Guzman, C. M., Williams, J., & Kruger, H. (2011). Overlap in use of different types of tobacco among active duty military personnel. *Nicotine Tob Res*, 13(8), 691-698. doi:10.1093/ntr/ntr060
- Olson, C. B., Stander, V. A., & Merrill, L. L. (2004). The influence of survey confidentiality and construct measurement in estimating rates of childhood victimization among Navy recruits. *Military Psychology (Taylor & Francis Ltd)*, 16(1), 53-69.
- Ornelas, S., Benne, P. D., & Rosenkranz, R. R. (2012). Tobacco use at Fort Riley: a study of the prevalence of tobacco use among active duty soldiers assigned to Fort Riley, Kansas. *Mil Med*, 177(7), 780-785.

- Ornstein, D. L., Frye, B. L., Ririe, D., Shaughnessy, P., Burke, C. T., Coronado, I., & Bush, A. C. (2003). Allogeneic hematopoietic stem cell transplantation in the active duty military population: 1987-2001. *Mil Med*, *168*(1), 28-31.
- Orr, J. D., Dawson, L. K., Garcia, E. J., & Kirk, K. L. (2011). Incidence of osteochondral lesions of the talus in the United States military. *Foot Ankle Int*, *32*(10), 948-954.
- Outpatient encounters associated with diagnostic codes for migraine and other types of headaches, active component service members, 1998-2010. (2012). *MSMR*, *19*(2), 12-17.
- Owens, B., Mountcastle, S., & White, D. (2007). Racial differences in tendon rupture incidence. *Int J Sports Med*, *28*(7), 617-620. doi:10.1055/s-2007-964837
- Owens, B. D., Dawson, L., Burks, R., & Cameron, K. L. (2009). Incidence of shoulder dislocation in the United States military: demographic considerations from a high-risk population. *J Bone Joint Surg Am*, *91*(4), 791-796. doi:10.2106/jbjs.h.00514
- Owens, B. D., Mountcastle, S. B., Dunn, W. R., DeBerardino, T. M., & Taylor, D. C. (2007). Incidence of anterior cruciate ligament injury among active duty U.S. military servicemen and servicewomen. *Mil Med*, *172*(1), 90-91.
- Packnett, E. R., Gubata, M. E., Cowan, D. N., & Niebuhr, D. W. (2012). Temporal trends in the epidemiology of disabilities related to posttraumatic stress disorder in the U.S. Army and Marine Corps from 2005-2010. *J Trauma Stress*, *25*(5), 485-493. doi:10.1002/jts.21743
- Padin, D. S., Faix, D., Brodine, S., Lemus, H., Hawksworth, A., Putnam, S., & Blair, P. (2014). Retrospective analysis of demographic and clinical factors associated with etiology of febrile respiratory illness among US military basic trainees. *BMC Infect Dis*, *14*. doi:10.1186/s12879-014-0576-2
- Page, W. F., Chubb, M., Feng, X. S., Fan, L. Y., Li, Y. Z., Weber, N. S., . . . Niebuhr, D. W. (2012). National Estimates of Seroincidence and Seroprevalence for Herpes Simplex Virus Type 1 and Type 2 Among US Military Adults Aged 18 to 29 Years. *Sex Transm Dis*, *39*(4), 241-250. doi:10.1097/OLQ.0b013e3182401a17
- Pasiakos, S. M., Karl, J. P., Lutz, L. J., Murphy, N. E., Margolis, L. M., Rood, J. C., . . . McClung, J. P. (2012). Cardiometabolic risk in US Army recruits and the effects of basic combat training. *PLoS One*, *7*(2), e31222. doi:10.1371/journal.pone.0031222
- Patrick, V., Critchfield, E., Vaccaro, T., & Campbell, J. (2011). The relationship of childhood abuse and early separation from the military among Army advanced individual trainees. *Mil Med*, *176*(2), 182-185.
- Pavao, J., Turchik, J. A., Hyun, J. K., Karpenko, J., Saweikis, M., McCutcheon, S., . . . Kimerling, R. (2013). Military sexual trauma among homeless veterans. *J Gen Intern Med*, *28 Suppl 2*, S536-541. doi:10.1007/s11606-013-2341-4
- Perales, R., Gallaway, M. S., Forsys-Donahue, K. L., Spiess, A., & Millikan, A. M. (2012). Prevalence of childhood trauma among U.S. Army soldiers with suicidal behavior. *Mil Med*, *177*(9), 1034-1040.
- Petersen, E. J., & Smith, K. C. (2007). Benefits of a musculoskeletal screening examination for initial entry training soldiers. *Mil Med*, *172*(1), 92-97.
- Petersen, K., Riddle, M. S., Danko, J. R., Blazes, D. L., Hayden, R., Tasker, S. A., & Dunne, J. R. (2007). Trauma-related infections in battlefield casualties from Iraq. *Ann Surg*, *245*(5), 803-811. doi:10.1097/01.sla.0000251707.32332.c1
- Peterson, A. L., & Helton, J. (2000). Smoking cessation and weight gain in the military. *Mil Med*, *165*(7), 536-538.
- Petrucelli, B. P., Murray, C. K., Davis, K. W., McBride, R., Jr., Peel, S. A., Michael, N., . . . Hakre, S. (2014). Human T-lymphotropic virus infections in active component service members, U.S. Armed Forces, 2000-2008. *MSMR*, *21*(2), 2-4; comment, 5-6.
- Pflanz, S., & Sonnek, S. (2002). Work stress in the military: prevalence, causes, and relationship to emotional health. *Mil Med*, *167*(11), 877-882.
- Phillips, C. J., Woolpert, T., Sevick, C., Faix, D., Blair, P. J., & Crum-Cianflone, N. F. (2013). Comparison of the effectiveness of trivalent inactivated influenza vaccine and live, attenuated influenza vaccine in preventing influenza-like illness among US military service members, 2006-2009. *Clin Infect Dis*, *56*(1), 11-19. doi:10.1093/cid/cis860

- Piantanida, N. A., Knapik, J. J., Brannen, S., & O'Connor, F. (2000). Injuries during Marine Corps officer basic training. *Mil Med*, *165*(7), 515-520.
- Pierce, P. F., Lewandowski-Romps, L., & Silverschanz, P. (2011). War-related stressors as predictors of post-deployment health of Air Force women. *Womens Health Issues*, *21*(4 Suppl), S152-159. doi:10.1016/j.whi.2011.04.017
- Pilonidal cysts, active component, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, *20*(12), 8-11.
- Poehlman, J. A., Schwerin, M. J., Pemberton, M. R., Isenberg, K., Lane, M. E., & Aspinwall, K. (2011). Socio-cultural factors that foster use and abuse of alcohol among a sample of enlisted personnel at four Navy and Marine Corps installations. *Mil Med*, *176*(4), 397-401.
- Pollack, L. M., Boyer, C. B., Betsinger, K., & Shafer, M. A. (2009). Predictors of one-year attrition in female Marine Corps recruits. *Mil Med*, *174*(4), 382-391.
- Pollack, L. M., Boyer, C. B., & Weinstein, N. D. (2013). Perceived risk for sexually transmitted infections aligns with sexual risk behavior with the exception of condom nonuse: data from a nonclinical sample of sexually active young adult women. *Sex Transm Dis*, *40*(5), 388-394. doi:10.1097/OLQ.0b013e318283d2e5
- Porter, C. K., Bowens, M. J., Tribble, D. R., Putnam, S. D., Sanders, J. W., & Riddle, M. S. (2008). Attitudes towards vaccines and infectious disease risk among U.S. troops. *Hum Vaccin*, *4*(4), 298-304.
- Porter, C. K., Fitamaurice, G., Tribble, D. R., Armstrong, A. W., Mostafa, M., & Riddle, M. S. (2013). Willingness to receive a hypothetical avian influenza vaccine among US military personnel in mid-deployment. *Hum Vaccin Immunother*, *9*(12), 2613-2617. doi:10.4161/hv.25910
- Porter, C. K., Gormley, R., Tribble, D. R., Cash, B. D., & Riddle, M. S. (2011). The Incidence and gastrointestinal infectious risk of functional gastrointestinal disorders in a healthy US adult population. *Am J Gastroenterol*, *106*(1), 130-138. doi:10.1038/ajg.2010.371
- Poston, W. S., Haddock, C. K., Peterson, A. L., Vander Weg, M. W., Klesges, R. C., Pinkston, M. M., & DeBon, M. (2005). Comparison of weight status among two cohorts of US Air Force recruits. *Prev Med*, *40*(5), 602-609. doi:10.1016/j.ypmed.2004.09.006
- Potter, B. K., Burns, T. C., Lacap, A. P., Granville, R. R., & Gajewski, D. A. (2007). Heterotopic ossification following traumatic and combat-related amputations. Prevalence, risk factors, and preliminary results of excision. *J Bone Joint Surg Am*, *89*(3), 476-486. doi:10.2106/jbjs.f.00412
- Potter, B. K., Freedman, B. A., Andersen, R. C., Bojeskul, J. A., Kuklo, T. R., & Murphy, K. P. (2005). Correlation of Short Form-36 and disability status with outcomes of arthroscopic acetabular labral debridement. *Am J Sports Med*, *33*(6), 864-870. doi:10.1177/0363546504270567
- Potter, R. N., Gardner, J. W., Deuster, P. A., Jenkins, P., McKee, K., Jr., & Jones, B. H. (2002). Musculoskeletal injuries in an Army airborne population. *Mil Med*, *167*(12), 1033-1040.
- Powell-Dunford, N., Cuda, A. S., Moore, J. L., Crago, M. S., & Deuster, P. A. (2009). Menstrual suppression using oral contraceptives: survey of deployed female aviation personnel. *Aviat Space Environ Med*, *80*(11), 971-975.
- Powell-Dunford, N. C., Cuda, A. S., Moore, J. L., Crago, M. S., Kelly, A. M., & Deuster, P. A. (2011). Menstrual suppression for combat operations: advantages of oral contraceptive pills. *Womens Health Issues*, *21*(1), 86-91. doi:10.1016/j.whi.2010.08.006
- Powell-Dunford, N. C., Deuster, P. A., Claybaugh, J. R., & Chapin, M. G. (2003). Attitudes and knowledge about continuous oral contraceptive pill use in military women. *Mil Med*, *168*(11), 922-928.
- Powell, K. E., Fingerhut, L. A., Branche, C. M., & Perrotta, D. M. (2000). Deaths due to injury in the military. *Am J Prev Med*, *18*(3 Suppl), 26-32.
- Powell, T. M., Smith, T. C., Jacobson, I. G., Boyko, E. J., Hooper, T. I., Gackstetter, G. D., . . . Smith, B. (2012). Prospective assessment of chronic multisymptom illness reporting possibly associated with open-air burn pit smoke exposure in Iraq. *J Occup Environ Med*, *54*(6), 682-688. doi:10.1097/JOM.0b013e318255ba39
- Predictive value of reportable medical events for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*. (2013). *MSMR*, *20*(2), 11-14.
- Prince, L., Chappelle, W. L., McDonald, K. D., Goodman, T., Cowper, S., & Thompson, W. (2015). Reassessment of Psychological Distress and Post-Traumatic Stress Disorder in United States Air

- Force Distributed Common Ground System Operators. *Mil Med*, 180(3), 171-178. doi:10.7205/milmed-d-14-00397
- Pugliese, J. M., & Baker, K. C. (2009). Epidemiology of nephrolithiasis in personnel returning from Operation Iraqi Freedom. *Urology*, 74(1), 56-60. doi:10.1016/j.urology.2008.10.079
- Purvis, D. L., Lentino, C. V., Jackson, T. K., Murphy, K. J., & Deuster, P. A. (2013). Nutrition as a component of the performance triad: how healthy eating behaviors contribute to soldier performance and military readiness. *US Army Med Dep J*, 66-78.
- Quigley, K. S., McAndrew, L. M., Almeida, L., D'Andrea, E. A., Engel, C. C., Hamtil, H., & Ackerman, A. J. (2012). Prevalence of environmental and other military exposure concerns in Operation Enduring Freedom and Operation Iraqi Freedom veterans. *J Occup Environ Med*, 54(6), 659-664. doi:10.1097/JOM.0b013e3182570506
- Rabenhorst, M. M., McCarthy, R. J., Thomsen, C. J., Milner, J. S., Travis, W. J., & Colasanti, M. P. (2015). Child Maltreatment Among US Air Force Parents Deployed in Support of Operation Iraqi Freedom/Operation Enduring Freedom. *Child Maltreat*, 20(1), 61-71. doi:10.1177/1077559514560625
- Rabenhorst, M. M., McCarthy, R. J., Thomsen, C. J., Milner, J. S., Travis, W. J., Foster, R. E., & Copeland, C. W. (2013). Spouse abuse among United States Air Force personnel who deployed in support of Operation Iraqi Freedom/Operation Enduring Freedom. *J Fam Psychol*, 27(5), 754-761. doi:10.1037/a0034283
- Rabenhorst, M. M., Thomsen, C. J., Milner, J. S., Foster, R. E., Linkh, D. J., & Copeland, C. W. (2012). Spouse Abuse and Combat-Related Deployments in Active Duty Air Force Couples. *Psychology of Violence*, 2(3), 273-284. doi:10.1037/a0027094
- Ramsey, C. B., Hostetler, C., & Andrews, A. (2013). Evaluating the nutrition intake of U.S. military service members in garrison. *Mil Med*, 178(12), 1285-1290. doi:10.7205/milmed-d-13-00178
- Rau, T. J., Merrill, L. L., McWhorter, S. K., Stander, V. A., Thomsen, C. J., Dyslin, C. W., . . . Milner, J. S. (2011). Evaluation of a sexual assault education/prevention program for female U.S. Navy personnel. *Mil Med*, 176(10), 1178-1183.
- Rauh, M. J., Aralis, H. J., Melcer, T., Macera, C. A., Sessoms, P., Bartlett, J., & Galarneau, M. R. (2013). Effect of traumatic brain injury among U.S. servicemembers with amputation. *J Rehabil Res Dev*, 50(2), 161-172.
- Rauh, M. J., Macera, C. A., Trone, D. W., Reis, J. P., & Shaffer, R. A. (2010). Selected static anatomic measures predict overuse injuries in female recruits. *Mil Med*, 175(5), 329-335.
- Rauh, M. J., Macera, C. A., Trone, D. W., Shaffer, R. A., & Brodine, S. K. (2006). Epidemiology of stress fracture and lower-extremity overuse injury in female recruits. *Med Sci Sports Exerc*, 38(9), 1571-1577. doi:10.1249/01.mss.0000227543.51293.9d
- Reddy, M. K., & Murdoch, M. (2010). Sex differences in the factor structure of a modified Sexual Experiences Questionnaire. *Psychol Rep*, 107(3), 773-783. doi:10.2466/03.08.16.pr0.107.6.773-783
- Reger, G. M., Durham, T. L., Tarantino, K. A., Luxton, D. D., Holloway, K. M., & Lee, J. A. (2013). Deployed Soldiers' Reactions to Exposure and Medication Treatments for PTSD. *Psychological Trauma-Theory Research Practice and Policy*, 5(4), 309-316. doi:10.1037/a0028409
- Reger, M. A., Gahm, G. A., Swanson, R. D., & Duma, S. J. (2009). Association between number of deployments to Iraq and mental health screening outcomes in US Army soldiers. *J Clin Psychiatry*, 70(9), 1266-1272. doi:10.4088/JCP.08m04361
- Rehme, P. A., Williams, R., & Grabenstein, J. (2002). Ambulatory medical visits among anthrax-vaccinated and unvaccinated personnel after return from southwest Asia. *Mil Med*, 167(3), 205-210.
- Rennix, C. P., Quinn, M. M., Amoroso, P. J., Eisen, E. A., & Wegman, D. H. (2005). Risk of breast cancer among enlisted Army women occupationally exposed to volatile organic compounds. *Am J Ind Med*, 48(3), 157-167. doi:10.1002/ajim.20201
- Renzullo, P. O., Sateren, W. B., Garner, R. P., Milazzo, M. J., Birx, D. L., & McNeil, J. G. (2001). HIV-1 seroconversion in United States Army active duty personnel, 1985-1999. *AIDS*, 15(12), 1569-1574.

- Reyes-Guzman, C. M., Bray, R. M., Forman-Hoffman, V. L., & Williams, J. (2015). Overweight and Obesity Trends Among Active Duty Military Personnel A 13-Year Perspective. *Am J Prev Med*, *48*(2), 145-153. doi:10.1016/j.amepre.2014.08.033
- Ricciardi, R., Deuster, P. A., & Talbot, L. A. (2007). Effects of gender and body adiposity on physiological responses to physical work while wearing body armor. *Mil Med*, *172*(7), 743-748.
- Ricciardi, R., Deuster, P. A., & Talbot, L. A. (2008). Metabolic demands of body armor on physical performance in simulated conditions. *Mil Med*, *173*(9), 817-824.
- Rice, V. J., Butler, J., & Marra, D. (2013). The relationship between symptoms of attention deficit and hyperactivity disorder and oppositional defiant disorder with soldier performance during training. *Work*, *44 Suppl 1*, S105-114. doi:10.3233/wor-121544
- Rice, V. J., Mays, M. Z., & Gable, C. (2009). Self-reported health status of students in-processing into military medical advanced individual training. *Work*, *34*(4), 387-400. doi:10.3233/wor-2009-0939
- Riddle, J. R., Smith, T. C., Smith, B., Corbeil, T. E., Engel, C. C., Wells, T. S., . . . Blazer, D. (2007). Millennium Cohort: the 2001-2003 baseline prevalence of mental disorders in the U.S. military. *J Clin Epidemiol*, *60*(2), 192-201. doi:10.1016/j.jclinepi.2006.04.008
- Riddle, M. S., Murray, J. A., & Porter, C. K. (2012). The incidence and risk of celiac disease in a healthy US adult population. *Am J Gastroenterol*, *107*(8), 1248-1255. doi:10.1038/ajg.2012.130
- Riddle, M. S., Patel, S. S., Sanders, J. W., Armstrong, A. W., Putnam, S. D., Schlett, C. D., & Tribble, D. R. (2008). Attitudes toward predeployment and experimental vaccinations among troops deployed to Operation Iraqi Freedom and Operation Enduring Freedom. *J Travel Med*, *15*(2), 68-76. doi:10.1111/j.1708-8305.2007.00173.x
- Riddle, M. S., Sherman, S. S., Kilbane, E. M., & Putnam, S. D. (2004). A multivariate analysis of factors associated with differential disease and nonbattle injury and morbidity aboard ships of the U.S. Naval 5th Fleet during peacetime deployment. *Mil Med*, *169*(10), 787-794.
- Riddle, M. S., Tribble, D. R., Putnam, S. D., Mostafa, M., Brown, T. R., Letizia, A., . . . Sanders, J. W. (2008). Past trends and current status of self-reported incidence and impact of disease and nonbattle injury in military operations in Southwest Asia and the Middle East. *Am J Public Health*, *98*(12), 2199-2206. doi:10.2105/ajph.2007.131680
- Rishel, P. E., & Sweeney, P. (2005). Comparison of breastfeeding rates among women delivering infants in military treatment facilities with and without lactation consultants. *Mil Med*, *170*(5), 435-438.
- Ritchie, E. C., Keppler, W. C., & Rothberg, J. M. (2003). Suicidal admissions in the United States military. *Mil Med*, *168*(3), 177-181.
- Riviere, L. A., Kendall-Robbins, A., McGurk, D., Castro, C. A., & Hoge, C. W. (2011). Coming home may hurt: risk factors for mental ill health in US reservists after deployment in Iraq. *Br J Psychiatry*, *198*(2), 136-142. doi:10.1192/bjp.bp.110.084863
- Robbins, A. S., Chao, S. Y., Fonseca, V. P., Snedecor, M. R., & Knapik, J. J. (2001). Predictors of low physical fitness in a cohort of active-duty U.S. Air Force members. *Am J Prev Med*, *20*(2), 90-96.
- Robbins, A. S., Chao, S. Y., Frost, L. Z., & Fonseca, V. P. (2005). Unplanned pregnancy among active duty servicewomen, U.S. Air Force, 2001. *Mil Med*, *170*(1), 38-43.
- Robbins, A. S., Fonseca, V. P., Chao, S. Y., Coil, G. A., Bell, N. S., & Amoroso, P. (2000). Short term effects of cigarette smoking on hospitalisation and associated lost workdays in a young healthy population. *Tob Control*, *9*(4), 389-396. doi:10.1136/tc.9.4.389
- Robinson, M. E., Teyhen, D. S., Wu, S. S., Dugan, J. L., Wright, A. C., Childs, J. D., . . . George, S. Z. (2009). Mental health symptoms in combat medic training: a longitudinal examination. *Mil Med*, *174*(6), 572-577.
- Rodrigues, E. G., Smith, K., Maule, A. L., Sjodin, A., Li, Z., Romanoff, L., . . . McClean, M. D. (2014). Urinary polycyclic aromatic hydrocarbon (OH-PAH) metabolite concentrations and the effect of GST polymorphisms among US Air Force personnel exposed to jet fuel. *J Occup Environ Med*, *56*(5), 465-471. doi:10.1097/jom.0000000000000142
- Rohrbeck, P. (2013). Pelvic inflammatory disease among female recruit trainees, active component, U.S. Armed Forces, 2002-2012. *MSSMR*, *20*(9), 15-18.

- Rompalo, A. M., Gaydos, C. A., Shah, N., Tennant, M., Crotchfelt, K. A., Madico, G., . . . McKee, K. T., Jr. (2001). Evaluation of use of a single intravaginal swab to detect multiple sexually transmitted infections in active-duty military women. *Clin Infect Dis*, *33*(9), 1455-1461. doi:10.1086/322588
- Rosellini, A. J., Heeringa, S. G., Stein, M. B., Ursano, R. J., Chiu, W. T., Colpe, L. J., . . . Kessler, R. C. (2015). LIFETIME PREVALENCE OF DSM-IV MENTAL DISORDERS AMONG NEW SOLDIERS IN THE US ARMY: RESULTS FROM THE ARMY STUDY TO ASSESS RISK AND RESILIENCE IN SERVICEMEMBERS (ARMY STARRS). *Depress Anxiety*, *32*(1), 13-24. doi:10.1002/da.22316
- Rosen, L., Knudson, K. H., & Fancher, P. (2002). Prevalence of seasonal affective disorder among U.S. Army soldiers in Alaska. *Mil Med*, *167*(7), 581-584.
- Rosen, L. N. (2007). Rape rates and military personnel in the United States: an exploratory study. *Violence Against Women*, *13*(9), 945-960. doi:10.1177/1077801207305264
- Rosen, L. N., Parmley, A. M., Knudson, K. H., & Fancher, P. (2002). Gender differences in the experience of intimate partner violence among active duty U.S. Army soldiers. *Mil Med*, *167*(12), 959-963.
- Rossen, L. M., Pollack, K. M., Canham-Chervak, M., Canada, S., & Baker, S. P. (2011). Motor vehicle crashes among active duty U.S. Army personnel, 1999 to 2006. *Mil Med*, *176*(9), 1019-1026.
- Rowan, A. B., & Campise, R. L. (2006). A multisite study of Air Force outpatient behavioral health treatment-seeking patterns and career impact. *Mil Med*, *171*(11), 1123-1127.
- Roy, T. C., Knapik, J. J., Ritland, B. M., Murphy, N., & Sharp, M. A. (2012). Risk factors for musculoskeletal injuries for soldiers deployed to Afghanistan. *Aviat Space Environ Med*, *83*(11), 1060-1066.
- Roy, T. C., Lopez, H. P., & Piva, S. R. (2013). Loads worn by soldiers predict episodes of low back pain during deployment to Afghanistan. *Spine (Phila Pa 1976)*, *38*(15), 1310-1317. doi:10.1097/BRS.0b013e31829265c4
- Roy, T. C., Piva, S. R., Christiansen, B. C., Leshner, J. D., Doyle, P. M., Waring, R. M., . . . Sharp, M. A. (2015). Description of Musculoskeletal Injuries Occurring in Female Soldiers Deployed to Afghanistan. *Mil Med*, *180*(3), 269-275. doi:10.7205/milmed-d-14-00365
- Roy, T. C., Ritland, B. M., Knapik, J. J., & Sharp, M. A. (2012). Lifting tasks are associated with injuries during the early portion of a deployment to Afghanistan. *Mil Med*, *177*(6), 716-722.
- Roy, T. C., Ritland, B. M., & Sharp, M. A. (2015). A Description of Injuries in Men and Women While Serving in Afghanistan. *Mil Med*, *180*(2), 126-131. doi:10.7205/milmed-d-14-00321
- Roy, T. C., Songer, T., Ye, F. F., LaPorte, R., Grier, T., Anderson, M., & Chervak, M. (2014). Physical Training Risk Factors for Musculoskeletal Injury in Female Soldiers. *Mil Med*, *179*(12), 1432-1438.
- Rundell, J. R. (2006). Demographics of and diagnoses in Operation Enduring Freedom and Operation Iraqi Freedom personnel who were psychiatrically evacuated from the theater of operations. *Gen Hosp Psychiatry*, *28*(4), 352-356. doi:10.1016/j.genhosppsych.2006.04.006
- Rusiecki, J. A., Chen, L., Srikantan, V., Zhang, L., Yan, L., Polin, M. L., & Baccarelli, A. (2012). DNA methylation in repetitive elements and post-traumatic stress disorder: a case-control study of US military service members. *Epigenomics*, *4*(1), 29-40. doi:10.2217/epi.11.116
- Russ, A. J., & Ames, G. M. (2006). Policy and prevention as competing imperatives in US Navy life and medicine. *Cult Health Sex*, *8*(1), 1-15. doi:10.1080/13691050500391448
- Russ, C. R., Fonseca, V. P., Peterson, A. L., Blackman, L. R., & Robbins, A. S. (2001). Weight gain as a barrier to smoking cessation among military personnel. *Am J Health Promot*, *16*(2), 79-84.
- Ryan-Wenger, N. A., & Lowe, N. K. (2000). Military women's perspectives on health care during deployment. *Womens Health Issues*, *10*(6), 333-343.
- Ryan-Wenger, N. A., Neal, J. L., Jones, A. S., & Lowe, N. K. (2010). Accuracy of vaginal symptom self-diagnosis algorithms for deployed military women. *Nurs Res*, *59*(1), 2-10. doi:10.1097/NNR.0b013e3181c3b9dd
- Ryan, M. A., Gumbs, G. R., Conlin, A. M., Sevick, C. J., Jacobson, I. G., Snell, K. J., . . . Smith, T. C. (2008). Evaluation of preterm births and birth defects in liveborn infants of US military women who received smallpox vaccine. *Birth Defects Res A Clin Mol Teratol*, *82*(7), 533-539. doi:10.1002/bdra.20470

- Ryan, M. A. K., Gray, G. C., Smith, B., McKeehan, J. A., Hawksworth, A. W., & Malasig, M. D. (2002). Large epidemic of respiratory illness due to adenovirus types 7 and 3 in healthy young adults. *Clinical Infectious Diseases*, 34(5), 577-582. doi:10.1086/338471
- Rychnovsky, J., & Beck, C. T. (2006). Screening for postpartum depression in military women with the Postpartum Depression Screening Scale. *Mil Med*, 171(11), 1100-1104.
- Rychnovsky, J., & Hunter, L. P. (2009). The relationship between sleep characteristics and fatigue in healthy postpartum women. *Women's Health Issues*, 19(1), 38-44. doi:10.1016/j.whi.2008.07.015
- Rychnovsky, J. D. (2007). Postpartum fatigue in the active-duty military woman. *J Obstet Gynecol Neonatal Nurs*, 36(1), 38-46. doi:10.1111/j.1552-6909.2006.00112.x
- Sanchez, J. L., Binn, L. N., Innis, B. L., Reynolds, R. D., Lee, T., Mitchell-Raymundo, F., . . . Kohlhasse, K. F. (2001). Epidemic of adenovirus-induced respiratory illness among US military recruits: epidemiologic and immunologic risk factors in healthy, young adults. *J Med Virol*, 65(4), 710-718.
- Sanchez, R. P., & Bray, R. M. (2001). Cigar and pipe smoking in the U.S. military: prevalence, trends, and correlates. *Mil Med*, 166(10), 903-908.
- Sandberg, A. A., Murdoch, M., Polusny, M. A., & Grill, J. (2012). Reactions to a survey among those who were and were not sexually assaulted while serving in the military. *Psychol Rep*, 110(2), 461-468. doi:10.2466/02.03.16.21.pr0.110.2.461-468
- Sandweiss, D. A., Slymen, D. J., Leardmann, C. A., Smith, B., White, M. R., Boyko, E. J., . . . Smith, T. C. (2011). Preinjury psychiatric status, injury severity, and postdeployment posttraumatic stress disorder. *Arch Gen Psychiatry*, 68(5), 496-504. doi:10.1001/archgenpsychiatry.2011.44
- Santiago, P. N., Wilk, J. E., Milliken, C. S., Castro, C. A., Engel, C. C., & Hoge, C. W. (2010). Screening for Alcohol Misuse and Alcohol-Related Behaviors Among Combat Veterans. *Psychiatric Services*, 61(6), 575-581.
- Savitala, M., & Dydek, G. J. (2004). U.S. Army Reserve (Medical) soldier prescription challenges during Operation Iraqi Freedom. *Mil Med*, 169(12), 937-941.
- Schaeffer, C. M., Alexander, P. C., Bethke, K., & Kretz, L. S. (2005). Predictors of child abuse potential among military parents: comparing mothers and fathers. *Journal of Family Violence*, 20(2), 123-129.
- Scher, D. L., Belmont, P. J., Jr., Bear, R., Mountcastle, S. B., Orr, J. D., & Owens, B. D. (2009). The incidence of plantar fasciitis in the United States military. *J Bone Joint Surg Am*, 91(12), 2867-2872. doi:10.2106/jbjs.i.00257
- Scher, D. L., Belmont, P. J., Jr., Mountcastle, S., & Owens, B. D. (2009). The incidence of primary hip osteoarthritis in active duty US military servicemembers. *Arthritis Rheum*, 61(4), 468-475. doi:10.1002/art.24429
- Scher, D. L., Owens, B. D., Sturdivant, R. X., & Wolf, J. M. (2010). Incidence of joint hypermobility syndrome in a military population: impact of gender and race. *Clin Orthop Relat Res*, 468(7), 1790-1795. doi:10.1007/s11999-009-1182-2
- Schlett, C. D., Grandits, G. A., Millar, E. V., Whitman, T. J., & Tribble, D. R. (2012). Marine recruit adherence in a skin and soft tissue infection prevention trial: implications for recruit research and public health application. *Mil Med*, 177(11), 1335-1342.
- Schmidt, M. D., Sulsky, S. I., & Amoroso, P. J. (2005). Effectiveness of an outside-the-boot ankle brace in reducing parachuting related ankle injuries. *Inj Prev*, 11(3), 163-168. doi:10.1136/ip.2004.006304
- Schneiderman, A. I., Braver, E. R., & Kang, H. K. (2008). Understanding sequelae of injury mechanisms and mild traumatic brain injury incurred during the conflicts in Iraq and Afghanistan: Persistent postconcussive symptoms and posttraumatic stress disorder. *Am J Epidemiol*, 167(12), 1446-1452. doi:10.1093/aje/kwn068
- Schnurr, P. P., Lunney, C. A., Forshay, E., Thurston, V. L., Chow, B. K., Resick, P. A., & Foa, E. B. (2009). Sexual function outcomes in women treated for posttraumatic stress disorder. *J Womens Health (Larchmt)*, 18(10), 1549-1557. doi:10.1089/jwh.2008.1165
- Schoenbaum, M., Kessler, R. C., Gilman, S. E., Colpe, L. J., Heeringa, S. G., Stein, M. B., . . . Cox, K. L. (2014). Predictors of suicide and accident death in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS): results from the Army Study to Assess Risk and Resilience in

- Servicemembers (Army STARRS). *JAMA Psychiatry*, 71(5), 493-503. doi:10.1001/jamapsychiatry.2013.4417
- Schoenfeld, A. J., Goodman, G. P., Burks, R., Black, M. A., Nelson, J. H., & Belmont, P. J. (2014). The Influence of Musculoskeletal Conditions, Behavioral Health Diagnoses, and Demographic Factors on Injury-Related Outcome in a High-Demand Population. *Journal of Bone and Joint Surgery-American Volume*, 96A(13). doi:10.2106/jbjs.m.01050
- Schoenfeld, A. J., McCrisky, B., Hsiao, M., & Burks, R. (2011). Incidence and epidemiology of spinal cord injury within a closed American population: the United States military (2000-2009). *Spinal Cord*, 49(8), 874-879. doi:10.1038/sc.2011.18
- Schoenfeld, A. J., Nelson, J. H., Burks, R., & Belmont, P. J., Jr. (2011). Incidence and risk factors for lumbar degenerative disc disease in the United States military 1999-2008. *Mil Med*, 176(11), 1320-1324.
- Schoenfeld, A. J., Romano, D., Bader, J. O., & Walker, J. J. (2013). Lumbar spine fractures within a complete American cohort: epidemiology and risk factors among military service members. *J Spinal Disord Tech*, 26(4), 207-211. doi:10.1097/BSD.0b013e31823f3237
- Schoenfeld, A. J., Sielski, B., Rivera, K. P., Bader, J. O., & Harris, M. B. (2012). Epidemiology of cervical spine fractures in the US military. *Spine J*, 12(9), 777-783. doi:10.1016/j.spinee.2011.01.029
- Scott, P. T., Niebuhr, D. W., McGready, J. B., & Gaydos, J. C. (2005). Hepatitis B immunity in United States military recruits. *Journal of Infectious Diseases*, 191(11), 1835-1841. doi:10.1086/429965
- Scott, S. J., Feltwell, D. N., Knapik, J. J., Barkley, C. B., Hauret, K. G., Bullock, S. H., & Evans, R. K. (2012). A multiple intervention strategy for reducing femoral neck stress injuries and other serious overuse injuries in U.S. Army Basic Combat Training. *Mil Med*, 177(9), 1081-1089.
- Scoville, S. L., Gardner, J. W., Magill, A. J., Potter, R. N., & Kark, J. A. (2004). Nontraumatic deaths during U.S. Armed Forces basic training, 1977-2001. *Am J Prev Med*, 26(3), 205-212. doi:10.1016/j.amepre.2003.12.003
- Scoville, S. L., Gardner, J. W., & Potter, R. N. (2004). Traumatic deaths during U.S. Armed Forces basic training, 1977-2001. *Am J Prev Med*, 26(3), 194-204. doi:10.1016/j.amepre.2003.11.001
- Seelig, A. D., Jacobson, I. G., Smith, B., Hooper, T. I., Boyko, E. J., Gackstetter, G. D., . . . Smith, T. C. (2010). Sleep patterns before, during, and after deployment to Iraq and Afghanistan. *Sleep*, 33(12), 1615-1622.
- Seelig, A. D., Jacobson, I. G., Smith, B., Hooper, T. I., Gackstetter, G. D., Ryan, M. A., . . . Smith, T. C. (2012). Prospective evaluation of mental health and deployment experience among women in the US military. *Am J Epidemiol*, 176(2), 135-145. doi:10.1093/aje/kwr496
- Seifert, A. E., Polusny, M. A., & Murdoch, M. (2011). The association between childhood physical and sexual abuse and functioning and psychiatric symptoms in a sample of U.S. Army soldiers. *Mil Med*, 176(2), 176-181.
- Sell, T. C., Abt, J. P., Crawford, K., Lovalekar, M., Nagai, T., Deluzio, J. B., . . . Lephart, S. M. (2010). Warrior Model for Human Performance and Injury Prevention: Eagle Tactical Athlete Program (ETAP) Part I. *J Spec Oper Med*, 10(4), 2-21.
- Sena, A. C., Miller, W. C., Hoffman, I. F., Chakraborty, H., Cohen, M. S., Jenkins, P., & McKee, K. T., Jr. (2000). Trends of gonorrhea and chlamydial infection during 1985-1996 among active-duty soldiers at a United States Army installation. *Clin Infect Dis*, 30(4), 742-748. doi:10.1086/313742
- Senier, L., Bell, N. S., Yore, M. M., & Amoroso, P. J. (2002). Hospitalizations for fall-related injuries among active-duty Army soldiers, 1980-1998. *Work*, 18(2), 161-170.
- Septicemia diagnosed during hospitalizations, active component service members, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(8), 10-16.
- Settles, I. H., Buchanan, N. T., Yap, S. C., & Harrell, Z. A. (2014). Sex differences in outcomes and harasser characteristics associated with frightening sexual harassment appraisals. *J Occup Health Psychol*, 19(2), 133-142. doi:10.1037/a0035449
- Sexually transmitted infections, active component, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(2), 5-10.

- Shafer, M., Boyer, C. B., Pollack, L. M., Moncada, J., Chang, Y. J., & Schachter, J. (2008). Acquisition of *Chlamydia trachomatis* by young women during their first year of military service. *Sex Transm Dis*, 35(3), 255-259.
- Shaffer, R. A., Rauh, M. J., Brodine, S. K., Trone, D. W., & Macera, C. A. (2006). Predictors of stress fracture susceptibility in young female recruits. *Am J Sports Med*, 34(1), 108-115. doi:10.1177/0363546505278703
- Shah, K. V., Daniel, R. W., Tennant, M. K., Shah, N., McKee, K. T., Jr., Gaydos, C. A., . . . Rompalo, A. (2001). Diagnosis of human papillomavirus infection by dry vaginal swabs in military women. *Sex Transm Infect*, 77(4), 260-264.
- Sharkansky, E. J., King, D. W., King, L. A., Wolfe, J., Erickson, D. J., & Stokes, L. R. (2000). Coping with Gulf War combat stress: mediating and moderating effects. *J Abnorm Psychol*, 109(2), 188-197.
- Sharp, M. A., Patton, J. F., Knapik, J. J., Hauret, K., Mello, R. P., Ito, M., & Frykman, P. N. (2002). Comparison of the physical fitness of men and women entering the U.S. Army: 1978-1998. *Med Sci Sports Exerc*, 34(2), 356-363.
- Sheehan, K. M., Murphy, M. M., Reynolds, K., Creedon, J. F., White, J., & Kazel, M. (2003). The response of a bone resorption marker to marine recruit training. *Mil Med*, 168(10), 797-801.
- Shen-Gunther, J., Shank, J. J., & Ta, V. (2011). Gardasil HPV vaccination: surveillance of vaccine usage and adherence in a military population. *Gynecol Oncol*, 123(2), 272-277. doi:10.1016/j.ygyno.2011.07.094
- Shen, Y. C., Arkes, J., & Pilgrim, J. (2009). The effects of deployment intensity on post-traumatic stress disorder: 2002-2006. *Mil Med*, 174(3), 217-223.
- Shen, Y. C., Arkes, J., & Williams, T. V. (2012). Effects of Iraq/Afghanistan deployments on major depression and substance use disorder: analysis of active duty personnel in the US military. *Am J Public Health*, 102 Suppl 1, S80-87. doi:10.2105/ajph.2011.300425
- Shipherd, J. C., Pineles, S. L., Gradus, J. L., & Resick, P. A. (2009). Sexual harassment in the Marines, posttraumatic stress symptoms, and perceived health: evidence for sex differences. *J Trauma Stress*, 22(1), 3-10. doi:10.1002/jts.20386
- Shrestha, M., Combest, T., Fonda, S. J., Alfonso, A., & Guerrero, A. (2013). Effect of an accelerometer on body weight and fitness in overweight and obese active duty soldiers. *Mil Med*, 178(1), 82-87.
- Signs, symptoms, and ill-defined conditions, active component, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(4), 25-28; discussion 26-28.
- Sikorski, C., Emerson, M. A., Cowan, D. N., & Niebuhr, D. W. (2012). Risk factors for medical disability in U.S. enlisted Marines: fiscal years 2001 to 2009. *Mil Med*, 177(2), 128-134.
- Simpson, M., Earles, J., Folen, R., Trammel, R., & James, L. (2004). The Tripler Army Medical Center's LE3AN program: a six-month retrospective analysis of program effectiveness for African-American and European-American females. *J Natl Med Assoc*, 96(10), 1332-1336.
- Skeehan, C. D., Tribble, D. R., Sanders, J. W., Putnam, S. D., Armstrong, A. W., & Riddle, M. S. (2009). Nonbattle injury among deployed troops: an epidemiologic study. *Mil Med*, 174(12), 1256-1262.
- Skopp, N. A., Bush, N. E., Vogel, D. L., Wade, N. G., Sirotin, A. P., McCann, R. A., & Metzger-Abamukong, M. J. (2012). Development and initial testing of a measure of public and self-stigma in the military. *J Clin Psychol*, 68(9), 1036-1047. doi:10.1002/jclp.21889
- Skopp, N. A., Reger, M. A., Reger, G. M., Mishkind, M. C., Raskind, M., & Gahm, G. A. (2011). The role of intimate relationships, appraisals of military service, and gender on the development of posttraumatic stress symptoms following Iraq deployment. *J Trauma Stress*, 24(3), 277-286. doi:10.1002/jts.20632
- Slattery, M., Dugger, M. T., Lamb, T. A., & Williams, L. (2013). Catch, treat, and release: Veteran Treatment Courts address the challenges of returning home. *Subst Use Misuse*, 48(10), 922-932. doi:10.3109/10826084.2013.797468
- Slep, A. M., Foran, H. M., Heyman, R. E., & Snarr, J. D. (2010). Unique risk and protective factors for partner aggression in a large scale air force survey. *J Community Health*, 35(4), 375-383. doi:10.1007/s10900-010-9264-3
- Slep, A. M. S., Foran, H. M., Heyman, R. E., Snarr, J. D., & Program, U. F. A. (2011). Risk Factors for Clinically Significant Intimate Partner Violence Among Active-Duty Members. *Journal of Marriage and Family*, 73(2), 486-501. doi:10.1111/j.1741-3737.2010.00820.x

- Slusarcick, A. L., Ursano, R. J., Dinneen, M. P., & Fullerton, C. S. (2001). Factors associated with depression on a hospital ship deployed during the Persian Gulf War. *Mil Med*, *166*(3), 248-252.
- Smith, B., Leard, C. A., Smith, T. C., Reed, R. J., & Ryan, M. A. (2007). Anthrax vaccination in the Millennium Cohort: validation and measures of health. *Am J Prev Med*, *32*(4), 347-353. doi:10.1016/j.amepre.2006.12.015
- Smith, B., Ryan, M. A., Gray, G. C., Polonsky, J. M., & Trump, D. H. (2002). Tuberculosis infection among young adults enlisting in the United States Navy. *Int J Epidemiol*, *31*(5), 934-939.
- Smith, B., Smith, T. C., Ryan, M. A., & Gray, G. C. (2006). A comparison of the postdeployment hospitalization experience of U.S. military personnel following service in the 1991 Gulf War, Southwest Asia after the Gulf War, and Bosnia. *J Occup Environ Hyg*, *3*(12), 660-670.
- Smith, B., Wong, C. A., Boyko, E. J., Phillips, C. J., Gackstetter, G. D., Ryan, M. A. K., . . . Millennium Cohort Study, T. (2012). The Effects of Exposure to Documented Open-Air Burn Pits on Respiratory Health Among Deployers of the Millennium Cohort Study. *Journal of Occupational and Environmental Medicine*, *54*(6), 708-716. doi:10.1097/JOM.0b013e31825107f9
- Smith, B. N., Vaughn, R. A., Vogt, D., King, D. W., King, L. A., & Shipherd, J. C. (2013). Main and interactive effects of social support in predicting mental health symptoms in men and women following military stressor exposure. *Anxiety Stress Coping*, *26*(1), 52-69. doi:10.1080/10615806.2011.634001
- Smith, G. S., Dannenberg, A. L., & Amoroso, P. J. (2000). Hospitalization due to injuries in the military - Evaluation of current data and recommendations on their use for injury prevention. *Am J Prev Med*, *18*(3), 41-53. doi:10.1016/s0749-3797(99)00171-3
- Smith, G. S., Lincoln, A. E., Wong, T. Y., Bell, N. S., Vinger, P. F., Amoroso, P. J., & Lombardi, D. A. (2005). Does occupation explain gender and other differences in work-related eye injury hospitalization rates? *J Occup Environ Med*, *47*(6), 640-648.
- Smith, T. C., Corbeil, T. E., Ryan, M. A. K., Heller, J. M., & Gray, G. C. (2004). In-theater hospitalizations of US and allied personnel during the 1991 Gulf War. *Am J Epidemiol*, *159*(11), 1064-1076.
- Smith, T. C., Gray, G. C., & Knoke, J. D. (2000). Is systemic lupus erythematosus, amyotrophic lateral sclerosis, or fibromyalgia associated with Persian Gulf War service? An examination of Department of Defense hospitalization data. *Am J Epidemiol*, *151*(11), 1053-1059.
- Smith, T. C., Jacobson, I. G., Hooper, T. I., Leardmann, C. A., Boyko, E. J., Smith, B., . . . Ryan, M. A. (2011). Health impact of US military service in a large population-based military cohort: findings of the Millennium Cohort Study, 2001-2008. *BMC Public Health*, *11*, 69. doi:10.1186/1471-2458-11-69
- Smith, T. C., Jacobson, I. G., Smith, B., Hooper, T. I., & Ryan, M. A. (2007). The occupational role of women in military service: validation of occupation and prevalence of exposures in the Millennium Cohort Study. *Int J Environ Health Res*, *17*(4), 271-284. doi:10.1080/09603120701372243
- Smith, T. C., LeardMann, C. A., Smith, B., Jacobson, I. G., Miller, S. C., Wells, T. S., . . . Ryan, M. A. K. (2014). Longitudinal Assessment of Mental Disorders, Smoking, and Hazardous Drinking Among a Population-Based Cohort of US Service Members. *Journal of Addiction Medicine*, *8*(4), 271-281. doi:10.1097/adm.0000000000000050
- Smith, T. C., Leardmann, C. A., Smith, B., Jacobson, I. G., & Ryan, M. A. (2009). Postdeployment hospitalizations among service members deployed in support of the operations in Iraq and Afghanistan. *Ann Epidemiol*, *19*(9), 603-612. doi:10.1016/j.annepidem.2009.05.002
- Smith, T. C., Ryan, M. A., Smith, B., Reed, R. J., Riddle, J. R., Gumbs, G. R., & Gray, G. C. (2007). Complementary and alternative medicine use among US Navy and Marine Corps personnel. *BMC Complement Altern Med*, *7*, 16. doi:10.1186/1472-6882-7-16
- Smith, T. C., Ryan, M. A. K., Wingard, D. L., Slymen, D. J., Sallis, J. F., Kritz-Silverstein, D., & Millennium Cohort Study, T. (2008). New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: prospective population based US military cohort study. *British Medical Journal*, *336*(7640), 366-371. doi:10.1136/bmj.39430.638241.AE
- Smith, T. C., Smith, B., & Ryan, M. A. (2008). Prospective investigation of complementary and alternative medicine use and subsequent hospitalizations. *BMC Complement Altern Med*, *8*, 19. doi:10.1186/1472-6882-8-19

- Smith, T. C., Wingard, D. L., Ryan, M. A., Kritz-Silverstein, D., Slymen, D. J., & Sallis, J. F. (2008). Prior assault and posttraumatic stress disorder after combat deployment. *Epidemiology*, *19*(3), 505-512. doi:10.1097/EDE.0b013e31816a9dff
- Smith, T. C., Wingard, D. L., Ryan, M. A., Kritz-Silverstein, D., Slymen, D. J., & Sallis, J. F. (2009). PTSD prevalence, associated exposures, and functional health outcomes in a large, population-based military cohort. *Public Health Rep*, *124*(1), 90-102.
- Smith, T. C., Zamorski, M., Smith, B., Riddle, J. R., Leardmann, C. A., Wells, T. S., . . . Blaze, D. (2007). The physical and mental health of a large military cohort: baseline functional health status of the Millennium Cohort. *BMC Public Health*, *7*, 340. doi:10.1186/1471-2458-7-340
- Smith, T. J., Dotson, L. E., Young, A. J., White, A., Hadden, L., Bathalon, G. P., . . . Marriott, B. P. (2013). Eating patterns and leisure-time exercise among active duty military personnel: comparison to the Healthy People objectives. *J Acad Nutr Diet*, *113*(7), 907-919. doi:10.1016/j.jand.2013.03.002
- Smith, T. J., Marriott, B. P., Dotson, L., Bathalon, G. P., Funderburk, L., White, A., . . . Young, A. J. (2012). Overweight and obesity in military personnel: sociodemographic predictors. *Obesity (Silver Spring)*, *20*(7), 1534-1538. doi:10.1038/oby.2012.25
- Smith, T. J., White, A., Hadden, L., Young, A. J., & Marriott, B. P. (2014). Associations between mental health disorders and body mass index among military personnel. *Am J Health Behav*, *38*(4), 529-540. doi:10.5993/ajhb.38.4.6
- Smoley, B. A., Smith, N. L., & Runkle, G. P. (2008). Hypertension in a population of active duty service members. *J Am Board Fam Med*, *21*(6), 504-511. doi:10.3122/jabfm.2008.06.070182
- Snarr, J. D., Heyman, R. E., & Slep, A. M. (2010). Recent suicidal ideation and suicide attempts in a large-scale survey of the U.S. Air Force: prevalences and demographic risk factors. *Suicide Life Threat Behav*, *40*(6), 544-552. doi:10.1521/suli.2010.40.6.544
- Snedecor, M. R., Boudreau, C. F., Ellis, B. E., Schulman, J., Hite, M., & Chambers, B. (2000). U.S. Air force recruit injury and health study. *Am J Prev Med*, *18*(3 Suppl), 129-140.
- Soltis, B. W., Sanders, J. W., Putnam, S. D., Tribble, D. R., & Riddle, M. S. (2009). Self reported incidence and morbidity of acute respiratory illness among deployed U.S. military in Iraq and Afghanistan. *PLoS One*, *4*(7), e6177. doi:10.1371/journal.pone.0006177
- Sonna, L. A., Angel, K. C., Sharp, M. A., Knapik, J. J., Patton, J. F., & Lilly, C. M. (2001). The prevalence of exercise-induced bronchospasm among US Army recruits and its effects on physical performance. *Chest*, *119*(6), 1676-1684.
- Spera, C., Thomas, R. K., Barlas, F., Szoc, R., & Cambridge, M. H. (2011). Relationship of military deployment recency, frequency, duration, and combat exposure to alcohol use in the Air Force. *J Stud Alcohol Drugs*, *72*(1), 5-14.
- Stahl, J. M., & Kerns, D. G. (2002). Accuracy of prescription medication reporting among active duty U.S. Army dental patients. *Mil Med*, *167*(3), 228-230.
- Stahlman, S., Javanbakht, M., Cochran, S., Hamilton, A. B., Shoptaw, S., & Gorbach, P. M. (2014). Self-reported sexually transmitted infections and sexual risk behaviors in the U.S. Military: how sex influences risk. *Sex Transm Dis*, *41*(6), 359-364. doi:10.1097/olq.0000000000000133
- Stahre, M. A., Brewer, R. D., Fonseca, V. P., & Naimi, T. S. (2009). Binge drinking among U.S. active-duty military personnel. *Am J Prev Med*, *36*(3), 208-217. doi:10.1016/j.amepre.2008.10.017
- Stander, V. A., Hilton, S. M., Kennedy, K. R., & Robbins, D. L. (2004). Surveillance of completed suicide in the Department of the Navy. *Mil Med*, *169*(4), 301-306.
- Stander, V. A., Merrill, L. L., Thomsen, C. J., Crouch, J. L., & Milner, J. S. (2007). Premilitary sexual assault and attrition in the U.S. Navy. *Mil Med*, *172*(3), 254-258.
- Stander, V. A., Merrill, L. L., Thomsen, C. J., Crouch, J. L., & Milner, J. S. (2008). Premilitary adult sexual assault victimization and perpetration in a Navy recruit sample. *J Interpers Violence*, *23*(11), 1636-1653. doi:10.1177/0886260508314325
- Stander, V. A., Olson, C. B., & Merrill, L. L. (2002). Self-definition as a survivor of childhood sexual abuse among navy recruits. *J Consult Clin Psychol*, *70*(2), 369-377.

- Stander, V. A., Thomsen, C. J., Merrill, L. L., Rabenhorst, M. M., Crouch, J. L., & Milner, J. S. (2011). Gender and Military Contextual Risk Factors for Intimate Partner Aggression. *Military Psychology (Taylor & Francis Ltd)*, 23(6), 639-658. doi:10.1080/08995605.2011.616808
- Steenbergh, T. A., Whelan, J. P., Meyers, A. W., Klesges, R. C., & DeBon, M. (2008). Gambling and health risk-taking behavior in a military sample. *Mil Med*, 173(5), 452-459.
- Stephens, M. B. (2003). Behavioral risks associated with tattooing. *Fam Med*, 35(1), 52-54.
- Stephens, M. B., Attipoe, S., Jones, D., Ledford, C. J., & Deuster, P. A. (2014). Energy drink and energy shot use in the military. *Nutr Rev*, 72 Suppl 1, 72-77. doi:10.1111/nure.12139
- Stephens, M. B., & Olsen, C. (2001). Ergogenic supplements and health risk behaviors. *J Fam Pract*, 50(8), 696-699.
- Stevens, K. V., & Janke, J. (2003). Breastfeeding experiences of active duty military women. *Mil Med*, 168(5), 380-384.
- Stewart, I. J., Tilley, M. A., Cotant, C. L., Aden, J. K., Gisler, C., Kwan, H. K., . . . Chung, K. K. (2012). Association of AKI with adverse outcomes in burned military casualties. *Clin J Am Soc Nephrol*, 7(2), 199-206. doi:10.2215/cjn.04420511
- Stewart, T., Han, H., Allen, R. H., Bathalon, G., Ryan, D. H., Newton, R. L., Jr., & Williamson, D. A. (2011). H.E.A.L.T.H.: efficacy of an internet/population-based behavioral weight management program for the U.S. Army. *J Diabetes Sci Technol*, 5(1), 178-187.
- Stinner, D. J., Burns, T. C., Kirk, K. L., & Ficke, J. R. (2010). Return to duty rate of amputee soldiers in the current conflicts in Afghanistan and Iraq. *J Trauma*, 68(6), 1476-1479. doi:10.1097/TA.0b013e3181bb9a6c
- Stinson, J. C., & Lee, K. A. (2003). Premature labor and birth: influence of rank and perception of fatigue in active duty military women. *Mil Med*, 168(5), 385-390.
- Stoller, C. C., Greuel, J. H., Cimini, L. S., Fowler, M. S., & Koomar, J. A. (2012). Effects of sensory-enhanced yoga on symptoms of combat stress in deployed military personnel. *Am J Occup Ther*, 66(1), 59-68.
- Street, A. E., Gilman, S. E., Rosellini, A. J., Stein, M. B., Bromet, E. J., Cox, K. L., . . . Army, S. C. (2015). Understanding the elevated suicide risk of female soldiers during deployments. *Psychol Med*, 45(4), 717-726. doi:10.1017/s003329171400258x
- Street, A. E., Gradus, J. L., Giasson, H. L., Vogt, D., & Resick, P. A. (2013). Gender differences among veterans deployed in support of the wars in Afghanistan and Iraq. *J Gen Intern Med*, 28 Suppl 2, S556-562. doi:10.1007/s11606-013-2333-4
- Sulsky, S. I., Grabenstein, J. D., & Delbos, R. G. (2004). Disability among U.S. Army personnel vaccinated against anthrax. *J Occup Environ Med*, 46(10), 1065-1075.
- Sulsky, S. I., Luippold, R. S., Garman, P., Hughes, H., & Amoroso, P. J. (2011). Risk of disability for US army personnel vaccinated against anthrax, 1998-2005. *Vaccine*, 29(35), 6035-6041. doi:10.1016/j.vaccine.2011.06.028
- Sulsky, S. I., Mundt, K. A., Bigelow, C., & Amoroso, P. J. (2000). Case-control study of discharge from the U.S. Army for disabling occupational knee injury: the role of gender, race/ethnicity, and age. *Am J Prev Med*, 18(3 Suppl), 103-111.
- Sulsky, S. I., Mundt, K. A., Bigelow, C., & Amoroso, P. J. (2002). Risk factors for occupational knee related disability among enlisted women in the US Army. *Occup Environ Med*, 59(9), 601-607.
- Summary of mental disorder hospitalizations, active and reserve components, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(7), 4-11; discussion 10-11.
- Summer, G. M. (2001). Gender differences in the utilization of a military ship's medical department. *Mil Med*, 166(1), 32-33.
- Sunburn among active component service members, U.S. Armed Forces, 2002-2013. (2014). *MSMR*, 21(7), 2-6.
- Surveillance snapshot: myomectomies and hysterectomies performed for uterine fibroids at military health facilities, active component service women, U.S. Armed Forces, 2000-2012. (2013). *MSMR*, 20(9), 19.
- Suvak, M. K., Brogan, L. A., & Shipherd, J. C. (2012). PREDICTORS OF SEXUAL FUNCTIONING IN A SAMPLE OF US MARINES: AN 11-YEAR FOLLOW-UP STUDY. *International Journal of Sexual Health*, 24(1), 26-44. doi:10.1080/19317611.2011.640387

- Swedler, D. I., Knapik, J. J., Williams, K. W., Grier, T. L., & Jones, B. H. (2011). Risk factors for medical discharge from United States Army Basic Combat Training. *Mil Med*, *176*(10), 1104-1110.
- Syncope, active and reserve components, U.S. Armed Forces, 1998-2012. (2013). *MSMR*, *20*(11), 5-9.
- Talbot, L. A., Weinstein, A. A., & Fleg, J. L. (2009). Army Physical Fitness Test scores predict coronary heart disease risk in Army National Guard soldiers. *Mil Med*, *174*(3), 245-252.
- Tate, J. E., Bunning, M. L., Lott, L., Lu, X., Su, J., Metzgar, D., . . . Widdowson, M. A. (2009). Outbreak of severe respiratory disease associated with emergent human adenovirus serotype 14 at a US air force training facility in 2007. *J Infect Dis*, *199*(10), 1419-1426. doi:10.1086/598520
- Taylor, A. J., Bindeman, J., Feuerstein, I., Cao, F., Brazaitis, M., & O'Malley, P. G. (2005). Coronary calcium independently predicts incident premature coronary heart disease over measured cardiovascular risk factors: mean three-year outcomes in the Prospective Army Coronary Calcium (PACC) project. *J Am Coll Cardiol*, *46*(5), 807-814. doi:10.1016/j.jacc.2005.05.049
- Taylor, A. J., Feuerstein, I., Wong, H., Barko, W., Brazaitis, M., & O'Malley, P. G. (2001). Do conventional risk factors predict subclinical coronary artery disease? Results from the Prospective Army Coronary Calcium Project. *Am Heart J*, *141*(3), 463-468. doi:10.1067/mhj.2001.113069
- Taylor, J. E., Haddock, K., Poston, W. S., & Talcott, W. G. (2007). Relationship between patterns of alcohol use and negative alcohol-related outcomes among U.S. Air Force recruits. *Mil Med*, *172*(4), 379-382.
- Taylor, L. G., Xie, S., Meyer, T. E., & Coster, T. S. (2012). Acetaminophen overdose in the Military Health System. *Pharmacoepidemiol Drug Saf*, *21*(4), 375-383. doi:10.1002/pds.3206
- Taylor, M. K., Hilton, S. M., Campbell, J. S., Beckerley, S. E., Shobe, K. K., Drummond, S. P. A., & Behav Hlth Needs Assessment, T. (2014). Prevalence and Mental Health Correlates of Sleep Disruption Among Military Members Serving in a Combat Zone. *Mil Med*, *179*(7), 744-751. doi:10.7205/milmed-d-13-00551
- Taylor, M. K., Larson, G. E., Hiller Lauby, M. D., Padilla, G. A., Wilson, I. E., Schmied, E. A., . . . Morgan, C. A., 3rd. (2014). Sex differences in cardiovascular and subjective stress reactions: prospective evidence in a realistic military setting. *Stress*, *17*(1), 70-78. doi:10.3109/10253890.2013.869208
- Taylor, M. K., Laurent, H. K., Larson, G. E., Rauh, M. J., Hiller Lauby, M. D., & Granger, D. A. (2014). Salivary nerve growth factor response to intense stress: effect of sex and body mass index. *Psychoneuroendocrinology*, *43*, 90-94. doi:10.1016/j.psyneuen.2014.02.005
- Terrio, H., Brenner, L. A., Ivins, B. J., Cho, J. M., Helmick, K., Schwab, K., . . . Warden, D. (2009). Traumatic brain injury screening: preliminary findings in a US Army Brigade Combat Team. *J Head Trauma Rehabil*, *24*(1), 14-23. doi:10.1097/HTR.0b013e31819581d8
- Teyhen, D. S., Riebel, M. A., McArthur, D. R., Savini, M., Jones, M. J., Goffar, S. L., . . . Plisky, P. J. (2014). Normative data and the influence of age and gender on power, balance, flexibility, and functional movement in healthy service members. *Mil Med*, *179*(4), 413-420. doi:10.7205/milmed-d-13-00362
- Theeler, B. J., Mercer, R., & Erickson, J. C. (2008). Prevalence and impact of migraine among US Army soldiers deployed in support of Operation Iraqi Freedom. *Headache*, *48*(6), 876-882. doi:10.1111/j.1526-4610.2008.01159.x
- Theiss, J. A., & Knobloch, L. K. (2013). A Relational Turbulence Model of Military Service Members' Relational Communication During Reintegration. *Journal of Communication*, *63*(6), 1109-1129. doi:10.1111/jcom.12059
- Thomas, A. G., Brodine, S. K., Shaffer, R., Shafer, M. A., Boyer, C. B., Putnam, S., & Schachter, J. (2001). Chlamydial infection and unplanned pregnancy in women with ready access to health care. *Obstet Gynecol*, *98*(6), 1117-1123.
- Thomas, M. D., Thomas, P. J., & Garland, F. C. (2001). Contraceptive use and attitudes toward family planning in Navy enlisted women and men. *Mil Med*, *166*(6), 550-556.
- Thompson, J. C., Kao, T. C., & Thomas, R. J. (2005). The relationship between alcohol use and risk-taking sexual behaviors in a large behavioral study. *Prev Med*, *41*(1), 247-252. doi:10.1016/j.ypmed.2004.11.008
- Thomsen, C. J., Stander, V. A., McWhorter, S. K., Rabenhorst, M. M., & Milner, J. S. (2011). Effects of combat deployment on risky and self-destructive behavior among active duty military personnel. *J Psychiatr Res*, *45*(10), 1321-1331. doi:10.1016/j.jpsychires.2011.04.003

- Thomson, B. A., & Nielsen, P. E. (2006). Women's health care in Operation Iraqi Freedom: a survey of camps with echelon I or II facilities. *Mil Med*, *171*(3), 216-219.
- Thyroid disorders among active component military members, U.S. Armed Forces, 2002-2011. (2012). *MSMR*, *19*(10), 7-9; discussion 9-10.
- Tiesman, H. M., Peek-Asa, C. L., Zwerling, C. S., Sprince, N. L., & Amoroso, P. J. (2007). Occupational and non-occupational injuries in the United States Army: focus on gender. *Am J Prev Med*, *33*(6), 464-470. doi:10.1016/j.amepre.2007.07.034
- Toblin, R. L., Quartana, P. J., Riviere, L. A., Walper, K. C., & Hoge, C. W. (2014). Chronic pain and opioid use in US soldiers after combat deployment. *JAMA Intern Med*, *174*(8), 1400-1401. doi:10.1001/jamainternmed.2014.2726
- Toblin, R. L., Riviere, L. A., Thomas, J. L., Adler, A. B., Kok, B. C., & Hoge, C. W. (2012). Grief and physical health outcomes in U.S. soldiers returning from combat. *J Affect Disord*, *136*(3), 469-475. doi:10.1016/j.jad.2011.10.048
- Trego, L. L. (2007). Military women's menstrual experiences and interest in menstrual suppression during deployment. *J Obstet Gynecol Neonatal Nurs*, *36*(4), 342-347. doi:10.1111/j.1552-6909.2007.00166.x
- Trego, L. L. (2009). Development of the Military Women's Attitudes Toward Menstrual Suppression Scale: from construct definition to pilot testing. *J Nurs Meas*, *17*(1), 45-72.
- Trego, L. L., & Jordan, P. J. (2010). Military women's attitudes toward menstruation and menstrual suppression in relation to the deployed environment: development and testing of the MWATMS-9 (short form). *Womens Health Issues*, *20*(4), 287-293. doi:10.1016/j.whi.2010.03.002
- Trends in emergency medical and urgent care visits, active component, U.S. Armed Forces, 2000-2010. (2011). *MSMR*, *18*(5), 12-14.
- Trent, L., Stander, V., Thomsen, C., & Merrill, L. (2007). Alcohol abuse among U.S. Navy recruits who were maltreated in childhood. *Alcohol Alcohol*, *42*(4), 370-375. doi:10.1093/alcalc/agm036
- Trofimovich, L., Skopp, N. A., Luxton, D. D., & Reger, M. A. (2012). Health care experiences prior to suicide and self-inflicted injury, active component, U.S. Armed Forces, 2001-2010. *MSMR*, *19*(2), 2-6.
- Trone, D. W., Cipriani, D. J., Raman, R., Wingard, D. L., Shaffer, R. A., & Macera, C. A. (2013). The association of self-reported measures with poor training outcomes among male and female U.S. Navy recruits. *Mil Med*, *178*(1), 43-49.
- Trone, D. W., Cipriani, D. J., Raman, R., Wingard, D. L., Shaffer, R. A., & Macera, C. A. (2014). Self-Reported Smoking and Musculoskeletal Overuse Injury Among Male and Female US Marine Corps Recruits. *Mil Med*, *179*(7), 735-743. doi:10.7205/mlmed-d-13-00516
- Trone, D. W., Villasenor, A., & Macera, C. A. (2007). Negative first-term outcomes associated with lower extremity injury during recruit training among female Marine Corps graduates. *Mil Med*, *172*(1), 83-89.
- Trost, R. P., & Shaw, G. B. (2007). Statistical analysis of hearing loss among navy personnel. *Mil Med*, *172*(4), 426-430.
- Trump, D. H., Brady, J., & Olsen, C. H. (2004). Self-rated health and subsequent health care use among military personnel returning from international deployments. *Mil Med*, *169*(2), 128-133.
- Tucker, M. M., & Kelley, M. L. (2009). Social support and life stress as related to the psychological distress of single enlisted Navy mothers. *Military Psychology (Taylor & Francis Ltd)*, *21*, S82-s97.
- Tumialan, L. M., Ponton, R. P., Riccio, A. I., & Gluf, W. M. (2012). Rate of return to military active duty after single level lumbar interbody fusion: a 5-year retrospective review. *Neurosurgery*, *71*(2), 317-324; discussion 324. doi:10.1227/NEU.0b013e318258e1da
- Tungsiripat, M., Drechsler, H., Sarlone, C., Amyot, K., Laffey, E., & Aberg, J. (2008). Prevalence and significance of G6PD deficiency in patients of an urban HIV clinic. *J Int Assoc Physicians AIDS Care (Chic)*, *7*(2), 88-90. doi:10.1177/1545109708315324
- Tvaryanas, A. P., & Maupin, G. M. (2014). Risk of incident mental health conditions among critical care air transport team members. *Aviat Space Environ Med*, *85*(1), 30-38.
- Update: Cold weather injuries, active and reserve components, U.S. Armed Forces, July 2007-June 2012. (2012). *MSMR*, *19*(10), 2-5; discussion 5-6.

- Update: Complications and care related to pregnancy, labor and delivery, active component, U.S. Armed Forces, 2001-2010. (2011). *MSMR*, 18(12), 2-5.
- Update: exertional hyponatremia, active component, U.S. Armed Forces, 1999-2010. (2011). *MSMR*, 18(3), 12-15.
- Update: Exertional hyponatremia, active component, U.S. Armed Forces, 1999-2011. (2012). *MSMR*, 19(3), 20-23.
- Update: Exertional hyponatremia, active component, U.S. Armed Forces, 1999-2012. (2013). *MSMR*, 20(3), 25-28.
- Update: Exertional rhabdomyolysis, active component, U.S. Armed Forces 2008-2012. (2013). *MSMR*, 20(3), 21-24.
- Update: Exertional rhabdomyolysis, active component, U.S. Armed Forces, 2009-2013. (2014). *MSMR*, 21(3), 14-17.
- Update: exertional rhabdomyolysis, active component, U.S. Armed Forces, 2010. (2011). *MSMR*, 18(3), 9-11.
- Update: Exertional rhabdomyolysis, active component, U.S. Armed Forces, 2011. (2012). *MSMR*, 19(3), 17-19.
- Update: heat injuries, active component, U.S. Armed Forces, 2010. (2011). *MSMR*, 18(3), 6-8.
- Update: heat injuries, active component, U.S. Armed Forces, 2011. (2012). *MSMR*, 19(3), 14-16.
- Update: Heat injuries, active component, U.S. Armed Forces, 2012. (2013). *MSMR*, 20(3), 17-20.
- Update: Heat injuries, active component, U.S. Armed Forces, 2013. (2014). *MSMR*, 21(3), 10-13.
- Update: Routine screening for antibodies to human immunodeficiency virus, civilian applicants for U.S. military service and U.S. Armed Forces, active and reserve components, January 2009-June 2014. (2014). *MSMR*, 21(8), 16-22.
- Updates: Routine screening for antibodies to HIV-1, civilian applicants for U.S. military service and U.S. Armed Forces, active and reserve components. (2011). *MSMR*, 18(8), 15-22.
- Updates: Routine screening for antibodies to human immunodeficiency virus, type 1 (HIV-1), civilian applicants for U.S. military service and U.S. Armed Forces, active and reserve components. (2012). *MSMR*, 19(8), 7-13.
- Uriell, Z., Perry, A., Kee, A., & Burrell, L. (2009). Breastfeeding in the navy: estimates of rate, duration, and perceived support. *Mil Med*, 174(3), 290-296.
- Urinary stones, active component, U.S. Armed Forces, 2001-2010. (2011). *MSMR*, 18(12), 6-9.
- Urinary tract infections during deployment, active component, U.S. Armed Forces, 2008-2013. (2014). *MSMR*, 21(3), 2-5.
- Urinary tract infections, active component, U.S. Armed Forces, 2000-2013. (2014). *MSMR*, 21(2), 7-11; comment, 11-12.
- Uterine fibroids, active component females, U.S. Armed Forces, 2001-2010. (2011). *MSMR*, 18(12), 10-13.
- Vaginal yeast infections while deployed in Southwest/Central Asia, active component females, U.S. Armed Forces, 2008-2013. (2014). *MSMR*, 21(8), 13-15.
- Valenstein, M., Gorman, L., Blow, A. J., Ganoczy, D., Walters, H., Kees, M., . . . Dalack, G. W. (2014). Reported barriers to mental health care in three samples of U.S. Army National Guard soldiers at three time points. *J Trauma Stress*, 27(4), 406-414. doi:10.1002/jts.21942
- van Royen, A. R., Calvin, C. K., & Lightner, C. R. (2000). Knowledge and attitudes about emergency contraception in a military population. *Obstet Gynecol*, 96(6), 921-925.
- Vander Weg, M. W., DeBon, M., Peterson, A. L., Sherrill-Mittleman, D., Klesges, R. C., & Relyea, G. E. (2005). Prevalence and correlates of lifetime smokeless tobacco use in female military recruits. *Nicotine Tob Res*, 7(3), 431-441. doi:10.1080/14622200500125781
- Vander Weg, M. W., DeBon, M., Sherrill-Mittleman, D., Klesges, R. C., & Relyea, G. E. (2006). Binge drinking, drinking and driving, and riding with a driver who had been drinking heavily among Air National Guard and Air Force Reserve Personnel. *Mil Med*, 171(2), 177-183.
- Vander Weg, M. W., Mengeling, M. A., Booth, B. M., Torner, J. C., & Sadler, A. G. (2015). Prevalence and correlates of cigarette smoking among operation Iraqi freedom-era and operation enduring freedom-era women from the Active Component military and Reserve/National Guard. *Med Care*, 53(4 Suppl 1), S55-62. doi:10.1097/mlr.0000000000000285

- Varner, D. F., & Foutch, B. K. (2014). Depression and burnout symptoms among Air Force family medicine providers. *JAAPA: Journal of the American Academy of Physician Assistants (Lippincott Williams & Wilkins)*, 27(5), 42-46. doi:10.1097/01.JAA.0000446373.63790.c9
- Vento, T. J., Prakash, V., Murray, C. K., Brosch, L. C., Tchandja, J. B., Cogburn, C., & Yun, H. C. (2011). Pneumonia in military trainees: a comparison study based on adenovirus serotype 14 infection. *J Infect Dis*, 203(10), 1388-1395. doi:10.1093/infdis/jir040
- Vest, K. G., & Clark, L. L. (2014). Serosurvey and Observational Study of US Army Veterinary Corps Officers for Q Fever Antibodies from 1989 to 2008. *Zoonoses Public Health*, 61(4), 271-282. doi:10.1111/zph.12067
- Villines, T. C., Hatzigeorgiou, C., Feuerstein, I. M., O'Malley, P. G., & Taylor, A. J. (2005). Vitamin K1 intake and coronary calcification. *Coron Artery Dis*, 16(3), 199-203.
- Vincent, A. S., Bleiberg, J., Yan, S., Ivins, B., Reeves, D. L., Schwab, K., . . . Warden, D. (2008). Reference data from the automated Neuropsychological Assessment Metrics for use in traumatic brain injury in an active duty military sample. *Mil Med*, 173(9), 836-852.
- Vincent, A. S., Roebuck-Spencer, T., Gilliland, K., & Schlegel, R. (2012). Automated Neuropsychological Assessment Metrics (v4) Traumatic Brain Injury Battery: military normative data. *Mil Med*, 177(3), 256-269.
- Vincent, A. S., Roebuck-Spencer, T., Lopez, M. S., Twillie, D. A., Logan, B. W., Grate, S. J., . . . Gilliland, K. (2012). Effects of military deployment on cognitive functioning. *Mil Med*, 177(3), 248-255.
- Vinokur, A. D., Pierce, P. F., & Lewandowski-Romps, L. (2009). Disentangling the relationships between job burnout and perceived health in a military sample. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 25(4), 355-363.
- Viral hepatitis A, active component, U.S. Armed Forces, 2000-2010. (2011). *MSMR*, 18(8), 2-4.
- Viral hepatitis B, active component, U.S. Armed Forces, 2000-2010. (2011). *MSMR*, 18(8), 5-9.
- Viral hepatitis C, active component, U.S. Armed Forces, 2000-2010. (2011). *MSMR*, 18(8), 10-14.
- Visco, R. (2009). Postdeployment, self-reporting of mental health problems, and barriers to care. *Perspect Psychiatr Care*, 45(4), 240-253. doi:10.1111/j.1744-6163.2009.00227.x
- Vogt, D., Smith, B., Elwy, R., Martin, J., Schultz, M., Drainoni, M. L., & Eisen, S. (2011). Predeployment, deployment, and postdeployment risk factors for posttraumatic stress symptomatology in female and male OEF/OIF veterans. *J Abnorm Psychol*, 120(4), 819-831. doi:10.1037/a0024457
- Vogt, D., Vaughn, R., Glickman, M. E., Schultz, M., Drainoni, M. L., Elwy, R., & Eisen, S. (2011). Gender differences in combat-related stressors and their association with postdeployment mental health in a nationally representative sample of U.S. OEF/OIF veterans. *J Abnorm Psychol*, 120(4), 797-806. doi:10.1037/a0023452
- Vogt, D. S., Pless, A. P., King, L. A., & King, D. W. (2005). Deployment stressors, gender, and mental health outcomes among Gulf War I veterans. *J Trauma Stress*, 18(2), 115-127. doi:10.1002/jts.20018
- Vogt, D. S., Proctor, S. P., King, D. W., King, L. A., & Vasterling, J. J. (2008). Validation of scales from the Deployment Risk and Resilience Inventory in a sample of Operation Iraqi Freedom veterans. *Assessment*, 15(4), 391-403. doi:10.1177/1073191108316030
- Vogt, D. S., Rizvi, S. L., Shipherd, J. C., & Resick, P. A. (2008). Longitudinal investigation of reciprocal relationship between stress reactions and hardiness. *Pers Soc Psychol Bull*, 34(1), 61-73. doi:10.1177/0146167207309197
- von Sadvoszky, V., & Ryan-Wenger, N. (2007). Army women's sexual health information needs. *J Obstet Gynecol Neonatal Nurs*, 36(4), 348-357. doi:10.1111/j.1552-6909.2007.00153.x
- von Sadvoszky, V., Ryan-Wenger, N., Germann, S., Evans, M., & Fortney, C. (2008). Army women's reasons for condom use and nonuse. *Womens Health Issues*, 18(3), 174-180. doi:10.1016/j.whi.2008.01.004
- von Sadvoszky, V., Ryan-Wenger, N., Moore, D., & Jones, A. (2009). Army women's evaluations of a self-administered intervention to prevent sexually transmitted diseases during travel. *Travel Med Infect Dis*, 7(4), 192-197. doi:10.1016/j.tmaid.2009.02.004
- Voss, J. D., Allison, D. B., Webber, B. J., Otto, J. L., & Clark, L. L. (2014). Lower obesity rate during residence at high altitude among a military population with frequent migration: a quasi experimental model for investigating spatial causation. *PLoS One*, 9(4), e93493. doi:10.1371/journal.pone.0093493

- Wagner, A. W., Wolfe, J., Rotnitsky, A., Proctor, S. P., & Erickson, D. J. (2000). An investigation of the impact of posttraumatic stress disorder on physical health. *J Trauma Stress, 13*(1), 41-55. doi:10.1023/a:1007716813407
- Walker, J. J., Kelly, J. F., McCriskin, B. J., Bader, J. O., & Schoenfeld, A. J. (2012). Combat-related gunshot wounds in the United States military: 2000-2009 (cohort study). *Int J Surg, 10*(3), 140-143. doi:10.1016/j.ijsu.2012.01.005
- Wallace, R. F., Kriebel, D., Punnett, L., Wegman, D. H., & Amoroso, P. J. (2007). Prior heat illness hospitalization and risk of early death. *Environ Res, 104*(2), 290-295. doi:10.1016/j.envres.2007.01.003
- Wallace, R. F., Kriebel, D., Punnett, L., Wegman, D. H., Wenger, C. B., Gardner, J. W., & Kark, J. A. (2006). Risk factors for recruit exertional heat illness by gender and training period. *Aviat Space Environ Med, 77*(4), 415-421.
- Wallace, R. F., Wahi, M. M., Hill, O. T., & Kay, A. B. (2011). Rates of ankle and foot injuries in active-duty U.S. Army soldiers, 2000-2006. *Mil Med, 176*(3), 283-290.
- Walsh, K., Galea, S., Cerda, M., Richards, C., Liberzon, I., Tamburrino, M. B., . . . Koenen, K. C. (2014). Unit Support Protects Against Sexual Harassment and Assault Among National Guard Soldiers. *Womens Health Issues, 24*(6), 600-604. doi:10.1016/j.whi.2014.05.006
- Ward, K. D., Vander Weg, M. W., Klesges, R. C., Kovach, K. W., Elrod, M. C., DeBon, M., . . . Lando, H. A. (2003). Characteristics of highly physically active smokers in a population of young adult military recruits. *Addict Behav, 28*(8), 1405-1418.
- Ward, K. D., Vander Weg, M. W., Kovach, K. W., Klesges, R. C., DeBon, M. W., Haddock, C. K., . . . Lando, H. A. (2002). Ethnic and gender differences in smoking and smoking cessation in a population of young adult air force recruits. *Am J Health Promot, 16*(5), 259-266.
- Ward, K. D., Vander Weg, M. W., Relyea, G., Debon, M., & Klesges, R. C. (2006). Waterpipe smoking among American military recruits. *Prev Med, 43*(2), 92-97. doi:10.1016/j.ypmed.2006.03.010
- Wardell, D. W., & Czerwinski, B. (2001). A military challenge to managing feminine and personal hygiene. *J Am Acad Nurse Pract, 13*(4), 187-193.
- Warner, C., Warner, C., Matuszak, T., Rachal, J., Flynn, J., & Grieger, T. A. (2007). Disordered eating in entry-level military personnel. *Mil Med, 172*(2), 147-151.
- Warner, C. H., Warner, C. M., Breitbach, J., Rachal, J., Matuszak, T., & Grieger, T. A. (2007). Depression in entry-level military personnel. *Mil Med, 172*(8), 795-799.
- Warr, B. J., Alvar, B. A., Dodd, D. J., Heumann, K. J., Mitros, M. R., Keating, C. J., & Swan, P. D. (2011). How do they compare?: an assessment of predeployment fitness in the Arizona National Guard. *J Strength Cond Res, 25*(11), 2955-2962. doi:10.1519/JSC.0b013e31822dfba8
- Warr, B. J., Scofield, D. E., Spiering, B. A., & Alvar, B. A. (2013). Influence of training frequency on fitness levels and perceived health status in deployed National Guard soldiers. *J Strength Cond Res, 27*(2), 315-322. doi:10.1519/JSC.0b013e31827e1347
- Wasserman, G. M., Grabenstein, J. D., Pittman, P. R., Rubertone, M. V., Gibbs, P. P., Wang, L. Z., & Golder, L. G. (2003). Analysis of adverse events after anthrax immunization in US Army medical personnel. *J Occup Environ Med, 45*(3), 222-233.
- Waterman, B. R., Burns, T. C., McCriskin, B., Kilcoyne, K., Cameron, K. L., & Owens, B. D. (2014). Outcomes after bankart repair in a military population: predictors for surgical revision and long-term disability. *Arthroscopy, 30*(2), 172-177. doi:10.1016/j.arthro.2013.11.004
- Waterman, B. R., Laughlin, M., Kilcoyne, K., Cameron, K. L., & Owens, B. D. (2013). Surgical treatment of chronic exertional compartment syndrome of the leg: failure rates and postoperative disability in an active patient population. *J Bone Joint Surg Am, 95*(7), 592-596. doi:10.2106/jbjs.l.00481
- Waterman, B. R., Liu, J., Newcomb, R., Schoenfeld, A. J., Orr, J. D., & Belmont, P. J., Jr. (2013). Risk factors for chronic exertional compartment syndrome in a physically active military population. *Am J Sports Med, 41*(11), 2545-2549. doi:10.1177/0363546513497922
- Weatherill, R. P., Vogt, D. S., Taft, C. T., King, L. A., King, D. W., & Shipherd, J. C. (2011). Training Experiences as Mediators of the Association Between Gender-Role Egalitarianism and Women's Adjustment to Marine Recruit Training. *Sex Roles, 64*(5-6), 348-359. doi:10.1007/s11199-010-9921-0

- Webber, B. J., Cropper, T. L., & Federinko, S. P. (2013). Syncope among U.S. Air Force basic military trainees, August 2012-July 2013. *MSMR*, *20*(11), 2-4.
- Webber, B. J., Federinko, S. P., Tchandja, J. N., Cropper, T. L., & Keller, P. L. (2013). Staphylococcus aureus and other skin and soft tissue infections among basic military trainees, Lackland Air Force Base, Texas, 2008-2012. *MSMR*, *20*(1), 12-15; discussion 15-16.
- Weber, N. S., Cowan, D. N., Bedno, S. A., & Niebuhr, D. W. (2010). Descriptive epidemiology of bipolar I disorder among United States military personnel. *Mil Med*, *175*(4), 247-251.
- Weina, S. U. (2006). Effects of pregnancy on the Army Physical Fitness Test. *Mil Med*, *171*(6), 534-537.
- Weintrob, A. C., Grandits, G. A., Agan, B. K., Ganesan, A., Landrum, M. L., Crum-Cianflone, N. F., . . . Marconi, V. C. (2009). Virologic response differences between African Americans and European Americans initiating highly active antiretroviral therapy with equal access to care. *J Acquir Immune Defic Syndr*, *52*(5), 574-580. doi:10.1097/QAI.0b013e3181b98537
- Wells, T. S., Horton, J. L., LeardMann, C. A., Jacobson, I. G., & Boyko, E. J. (2013). A comparison of the PRIME-MD PHQ-9 and PHQ-8 in a large military prospective study, the Millennium Cohort Study. *J Affect Disord*, *148*(1), 77-83. doi:10.1016/j.jad.2012.11.052
- Wells, T. S., LeardMann, C. A., Fortuna, S. O., Smith, B., Smith, T. C., Ryan, M. A., . . . Blazer, D. (2010). A prospective study of depression following combat deployment in support of the wars in Iraq and Afghanistan. *Am J Public Health*, *100*(1), 90-99. doi:10.2105/ajph.2008.155432
- Wells, T. S., Sato, P. A., Smith, T. C., Wang, L. Z., Reed, R. J., & Ryan, M. A. (2006). Military hospitalizations among deployed US service members following anthrax vaccination, 1998-2001. *Hum Vaccin*, *2*(2), 54-59.
- Wells, T. S., Seelig, A. D., Ryan, M. A., Jones, J. M., Hooper, T. I., Jacobson, I. G., & Boyko, E. J. (2015). Hearing loss associated with US military combat deployment. *Noise Health*, *17*(74), 34-42. doi:10.4103/1463-1741.149574
- White, D. W., Feigley, C. E., McKeown, R. E., Hout, J. J., & Hebert, J. R. (2011). Association between barracks type and acute respiratory infection in a gender integrated Army basic combat training population. *Mil Med*, *176*(8), 909-914.
- White, D. W., Wenke, J. C., Mosely, D. S., Mountcastle, S. B., & Basamania, C. J. (2007). Incidence of major tendon ruptures and anterior cruciate ligament tears in US Army soldiers. *Am J Sports Med*, *35*(8), 1308-1314. doi:10.1177/0363546507301256
- White, J. W., Merrill, L. L., & Koss, M. P. (2001). Predictors of premilitary courtship violence in a Navy recruit sample. *J Interpers Violence*, *16*(9), 910-927.
- White, M. R., Jacobson, I. G., Smith, B., Wells, T. S., Gackstetter, G. D., Boyko, E. J., & Smith, T. C. (2011). Health care utilization among complementary and alternative medicine users in a large military cohort. *BMC Complement Altern Med*, *11*, 27. doi:10.1186/1472-6882-11-27
- Wiesen, A. R., & Gunzenhauser, J. D. (2004). Laboratory-measured pregnancy rates and their determinants in a large, well-described adult cohort. *Mil Med*, *169*(7), 518-521.
- Wiesen, A. R., & Littell, C. T. (2002). Relationship between prepregnancy anthrax vaccination and pregnancy and birth outcomes among US Army women. *JAMA*, *287*(12), 1556-1560.
- Williams, E. C., Frasco, M. A., Jacobson, I. G., Maynard, C., Littman, A. J., Seelig, A. D., . . . Boyko, E. J. (2015). Risk factors for relapse to problem drinking among current and former US military personnel: A prospective study of the Millennium Cohort. *Drug Alcohol Depend*, *148*, 93-101. doi:10.1016/j.drugalcdep.2014.12.031
- Williams, R. A., Hagerty, B. M., Yousha, S. M., Hoyle, K. S., & Oe, H. (2002). Factors associated with depression in navy recruits. *J Clin Psychol*, *58*(4), 323-337.
- Williamson, D. A., Martin, P. D., Allen, H. R., Most, M. M., Alfonso, A. J., Thomas, V., & Ryan, D. H. (2002). Changes in food intake and body weight associated with basic combat training. *Mil Med*, *167*(3), 248-253.
- Wilmoth, B. G. M. C., Linton, A., Gromadzki, R., Larson, M. J., Williams, T. V., & Woodson, J. (2015). Factors associated with psychiatric evacuation among service members deployed to Operation Enduring Freedom and Operation Iraqi Freedom, January 2004 to September 2010. *Mil Med*, *180*(1), 53-60. doi:10.7205/MILMED-D-14-00213

- Wilmoth, M. C. (2003). The Federal Nursing Services Award. Enlisted women with breast cancer: balancing demands and expectations. *Mil Med*, *168*(7), 514-519.
- Wilson, C., McClung, J. P., Karl, J. P., & Brothers, M. D. (2011). Iron status of military personnel deployed to Afghanistan. *Mil Med*, *176*(12), 1421-1425.
- Wilson, C., & Nelson, J. P. (2012). Exploring the patterns, practices, and experiences of military women who managed genitourinary symptoms in deployed settings. *J Obstet Gynecol Neonatal Nurs*, *41*(2), 293-302. doi:10.1111/j.1552-6909.2012.01347.x
- Wojcik, B. E., Akhtar, F. Z., & Hassell, L. H. (2009). Hospital admissions related to mental disorders in U.S. Army soldiers in Iraq and Afghanistan. *Mil Med*, *174*(10), 1010-1018.
- Wojcik, B. E., Curley, K. C., Szeszel-Fedorowicz, W., Stein, C. R., & Humphrey, R. J. (2015). Spinal Injury Hospitalizations Among US Army Soldiers Deployed to Iraq and Afghanistan. *Mil Med*, *180*(2), 216-223. doi:10.7205/milmed-d-14-000061
- Wojcik, B. E., Humphrey, R. J., Czejdo, B., & Hassell, L. H. (2008). U.S. Army disease and nonbattle injury model, refined in Afghanistan and Iraq. *Mil Med*, *173*(9), 825-835.
- Wojcik, B. E., Stein, C. R., Bagg, K., Humphrey, R. J., & Orosco, J. (2010). Traumatic brain injury hospitalizations of U.S. army soldiers deployed to Afghanistan and Iraq. *Am J Prev Med*, *38*(1 Suppl), S108-116. doi:10.1016/j.amepre.2009.10.006
- Wolf, J. M., Dawson, L., Mountcastle, S. B., & Owens, B. D. (2009). The incidence of scaphoid fracture in a military population. *Injury*, *40*(12), 1316-1319. doi:10.1016/j.injury.2009.03.045
- Wolf, J. M., Mountcastle, S., Burks, R., Sturdivant, R. X., & Owens, B. D. (2010). Epidemiology of lateral and medial epicondylitis in a military population. *Mil Med*, *175*(5), 336-339.
- Wolf, J. M., Sturdivant, R. X., & Owens, B. D. (2009). Incidence of de Quervain's tenosynovitis in a young, active population. *J Hand Surg Am*, *34*(1), 112-115. doi:10.1016/j.jhsa.2008.08.020
- Wolfe, J., Proctor, S. P., Erickson, D. J., & Hu, H. (2002). Risk factors for multisymptom illness in US Army veterans of the Gulf War. *J Occup Environ Med*, *44*(3), 271-281.
- Wolfe, J., Turner, K., Caulfield, M., Newton, T. L., Melia, K., Martin, J., & Goldstein, J. (2005). Gender and trauma as predictors of military attrition: a study of Marine Corps recruits. *Mil Med*, *170*(12), 1037-1043.
- Wong, T. Y., Smith, G. S., Lincoln, A. E., & Tielsch, J. M. (2000). Ocular trauma in the United States Army: hospitalization records from 1985 through 1994. *Am J Ophthalmol*, *129*(5), 645-650.
- Wood, M. D., Britt, T. W., Thomas, J. L., Klocko, R. P., & Bliese, P. D. (2011). Buffering Effects of Benefit Finding in a War Environment. *Military Psychology (Taylor & Francis Ltd)*, *23*(2), 202-219. doi:10.1080/08995605.2010.521732
- Wood, M. D., Britt, T. W., Wright, K. M., Thomas, J. L., & Bliese, P. D. (2012). Benefit finding at war: a matter of time. *J Trauma Stress*, *25*(3), 307-314. doi:10.1002/jts.21701
- Wood, M. D., Foran, H. M., Britt, T. W., & Wright, K. M. (2012). The Impact of Benefit Finding and Leadership on Combat-Related PTSD Symptoms. *Military Psychology (Taylor & Francis Ltd)*, *24*(6), 529-541. doi:10.1080/08995605.2012.736321
- Woodall, K. A., Jacobson, I. G., & Crum-Cianflone, N. F. (2014). Deployment experiences and motor vehicle crashes among U.S. service members. *Am J Prev Med*, *46*(4), 350-358. doi:10.1016/j.amepre.2013.11.015
- Woodruff, S. I., Conway, T. L., & Edwards, C. C. (2000). Effect of an eight week smoking ban on women at US navy recruit training command. *Tob Control*, *9*(1), 40-46.
- Woodruff, S. I., Conway, T. L., Shillington, A. M., Clapp, J. D., Lemus, H., & Reed, M. B. (2010). Cigarette smoking and subsequent hospitalization in a cohort of young U.S. Navy female recruits. *Nicotine Tob Res*, *12*(4), 365-373. doi:10.1093/ntr/ntq007
- Woolpert, T., Phillips, C. J., Sevick, C., Crum-Cianflone, N. F., Blair, P. J., & Faix, D. (2014). Health-related behaviors and effectiveness of trivalent inactivated versus live attenuated influenza vaccine in preventing influenza-like illness among young adults. *PLoS One*, *9*(7), e102154. doi:10.1371/journal.pone.0102154

- Wooten, N. R., Mohr, B. A., Lundgren, L. M., Adams, R. S., Merrick, E. L., Williams, T. V., & Larson, M. J. (2013). Gender differences in substance use treatment utilization in the year prior to deployment in Army service members. *J Subst Abuse Treat*, *45*(3), 257-265. doi:10.1016/j.jsat.2013.04.001
- Worthen, M., Rathod, S. D., Cohen, G., Sampson, L., Ursano, R., Gifford, R., . . . Ahern, J. (2014). Anger problems and posttraumatic stress disorder in male and female National Guard and Reserve Service members. *J Psychiatr Res*, *55*, 52-58. doi:10.1016/j.jpsychires.2014.04.004
- Wyatt, R. J., Henter, I. D., Mojtabai, R., & Bartko, J. J. (2003). Height, weight and body mass index (BMI) in psychiatrically ill US Armed Forces personnel. *Psychol Med*, *33*(2), 363-368.
- Wynd, C. A., & Ryan-Wenger, N. A. (2004). Factors predicting health behaviors among Army Reserve, active duty Army, and civilian hospital employees. *Mil Med*, *169*(12), 942-947.
- Yamane, G. K. (2006). Cancer incidence in the U.S. Air Force: 1989-2002. *Aviat Space Environ Med*, *77*(8), 789-794.
- Yamane, G. K., & Butler, J. L. (2009). Suicide burden in the U.S. Air Force: 1990-2004. *Mil Med*, *174*(10), 1019-1023.
- Yen, S., Shafer, M. A., Moncada, J., Campbell, C. J., Flinn, S. D., & Boyer, C. B. (2003). Bacterial vaginosis in sexually experienced and non-sexually experienced young women entering the military. *Obstet Gynecol*, *102*(5 Pt 1), 927-933.
- Yun, H. C., Fugate, W. H., Murray, C. K., Cropper, T. L., Lott, L., & McDonald, J. M. (2014). Pandemic influenza virus 2009 H1N1 and adenovirus in a high risk population of young adults: epidemiology, comparison of clinical presentations, and coinfection. *PLoS One*, *9*(1), e85094. doi:10.1371/journal.pone.0085094
- Zenilman, J. M., Glass, G., Shields, T., Jenkins, P. R., Gaydos, J. C., & McKee, K. T., Jr. (2002). Geographic epidemiology of gonorrhoea and chlamydia on a large military installation: application of a GIS system. *Sex Transm Infect*, *78*(1), 40-44.
- Zhou, J., Enewold, L., Zahm, S. H., Devesa, S. S., Anderson, W. F., Potter, J. F., . . . Zhu, K. (2011). Melanoma incidence rates among whites in the U.S. Military. *Cancer Epidemiol Biomarkers Prev*, *20*(2), 318-323. doi:10.1158/1055-9965.epi-10-0869
- Zhou, J., Enewold, L., Zahm, S. H., Jatoi, I., Shriver, C., Anderson, W. F., . . . Zhu, K. (2013). Breast conserving surgery versus mastectomy: the influence of comorbidities on choice of surgical operation in the Department of Defense health care system. *Am J Surg*, *206*(3), 393-399. doi:10.1016/j.amjsurg.2013.01.034
- Zimmerman, L., Fajardo, M., Seward, J., Ludwig, S., Johnson, J., & Wharton, M. (2003). Varicella susceptibility and validity of history among U.S. Coast Guard recruits: an outbreak-based study. *Mil Med*, *168*(5), 404-407.
- Zouris, J. M., Wade, A. L., & Magno, C. P. (2008). Injury and illness casualty distributions among U.S. Army and Marine Corps personnel during Operation Iraqi Freedom. *Mil Med*, *173*(3), 247-252.

Appendix B: Subject Matter Experts (SMEs)

Maj Cynthia Adams	CAPT Traci Brooks MSN., FNP-C Surface Warfare Medical Institute
Cheryl L Albright, PhD, MPH University of Hawaii at Manoa	Maj Amy Brown
Maj Aimee Alviar, MSN, WHNP-BC	MAJ Jodi Brown, MPH, RN-BC US Army Public Health Center
Dr. Jomana Amara, Ph.D., P.E. Naval Postgraduate School	CDR Jennifer Buechel, NC, USN, PhD Naval Medical Center San Diego
Dr. Amy Amidon	Linda Bullock, PhD, RN, FAAN University of Virginia School of Nursing
Ms. Jessica Anderson	LCDR Christine Burns, RN, MSN, CNOR
Ms. Morgan Anderson	Cynthia Bush, MPH
MAJ Manushka Angoy	Mercedes Butitta , CNM Evans Army Community Hospital
Richard F. Armenta, PhD, MPH Naval Health Research Center	LCDR Patricia D. Butler, DNP Naval Medical Center San Diego
Col Nicole Armitage	Lisa Callegari, MD, MPH VA Puget Sound Health Care System; University of Washington
Kathleen C. Ashton, PhD, RN, ACNS-BC Drexel University College of Nursing & Health Professions	Michelle Canham-Chervak, Ph.D. M.P.H. Army Public Health Center
Billy J. Atherton, 1LT, USAF, PA-C Family Health, JB Andrews, MD	Lt Col Miev Carhart, DNP, WHNP-BC Minot AFB
Linnea M. Axman, DrPH, MSN, FNP-BC, FAANP (CAPT, NC, USN, Ret) CSU San Marcos & Family Health Partnership	Jane M. Carrington, PhD, RN University of Arizona College of Nursing
Capt Leslie Balcazar	Candra Case, PA-C Tampa, FL
Lt Col Jennifer D. Bankston, DNP, WHNP-BC	John W. Castellani, Ph.D. U.S. Army Research Institute of Environmental Medicine
MAJ Samantha Bazan	CDR Paulette R. T. Cazares, MD, MPH Naval Medical Center San Diego
Theresa Bedford Maj, USAF, NC, FNP-BC Los Angeles AFB	LCDR Francesca Cimino, MD, FAAFP Uniformed Services University of Health Sciences
Jagruti Pravin Bhakta, PhD Naval Center for Combat & Operational Stress Control	Elizabeth Clearfield, MHS Baltimore, MD
Tina Bloom, PhD, MPH, RN University of Missouri	CDR Wendy Anne Cook, PH.D., RN Naval Medical Center San Diego
LCDR Colleen C. Blosser, MSN, RNC Naval Medical Center Portsmouth	CPT Adam Cooper, Ph.D. Naval Health Research Center
Deborah Boggs Bookwalter, ScD	Patricia Cox, DNP, MPH, FNP-BC University of Portland, OR
CAPT Lisa A. Braun, Ph.D., FNP-BC, FAANP Naval Medical Center, Portsmouth	Maj Carol Crisp
Cory A. Briggs, Capt, USAF, BSC, PA-C Joint Base Andrews, MD	Madeline Cross, MPH

Michael A. Cucciare, PhD North Little Rock, AR	LTC Andrea J. Fuller DNP, FNP-BC Uniformed Services University of the Health Sciences
Rachel L. Deen, RN, CNOR WRNMMC Bethesda, MD	Erin Gaffney-Stomberg, PhD, RD US Army Research Institute of Environmental Medicine
MAJ David DeGroot, Ph.D., FACSM Army Public Health Center	CDR Michael Galitz M.D., FACP, FACE Naval Medical Center Portsmouth
May Rose I. Dela Cruz, Dr.P.H. University of Hawaii	CAPT Cynthia Jean Gantt
Major Karla M. Dennard, DNP, WHNP-BC Wilford Hall Ambulatory Surgical Center	Ryland Gaskins, Ph.D. OASD, Health Affairs
COL Robert Dettmer	Capt Carmen George
Dr. Patricia Deuster	April A. Gerlock Ph.D., ARNP, PMHNP-BC University of Washington
Melissa E. Dichter, Ph.D., M.S.W. VA Center for Health Equity Research and Promotion, University of Pennsylvania	Anne Germain, Ph.D. University of Pittsburgh School of Medicine
Susanna Didrickson APRN PhD Kaiser Foundation Hospitals Oakland, CA	CDR Tracey R. Giles
Dr. Michelle DiGiovanni-Harold	Abegail A. Gill, MPH
CPT Patricia Millner Dominguez, M.D. Darnall Army Medical Center, Fort Hood	Lisa Glassman, Ph.D.
Emily Drake, PhD, RN, FAAN University of Virginia	LCDR Elizabeth K. Gloor, NP-C BHC Washington Navy Yard
Col Susan Dukes, USAF, NC, PhD Uniformed Services University	CDR Carl Goforth, RN, PhD Naval Medical Research Center
RADM Michelle E. Dunwoody, MS, BSN, WHNP-C US Public Health Service	Lt Col Michelle L. Gonzales Ph.D., WHNP-BC SAMHS
Gina Dwyer, MPH Washington, DC	Maj Nicole E. Gramlick, RN, MSN, ACNS-BC
Judy L. Dye RN, MS, ANP-C Naval Health Research Center, San Diego	Kristen E. Gray, PhD, MS VA Puget Sound Health Care System
CDR Dennis J. Faix MD MPH Naval Health Research Center	Kathleen Greenhalgh, CNM McChord Clinic, MAMC JBLM
Rebecca E. Fellin, Ph.D. U.S. Army Research Institute of Environmental Medicine	Tyson Grier, M.S. U.S. Army Public Health Center
Mitzi A. Fields LTC, AN MSN, SAMFE, PLNC	LCDR Shawna G. Grover MSN,RN,ACNS-BC,ANP- BC,AOCNS Naval Medical Center Portsmouth
MAJ LaKisha Flagg, DrPH, CPH, APHN-BC JBSA/Ft. Sam Houston	CDR Lydia Battey Haase MSN, NP-C Boone Clinic, Joint Expeditionary Base Little Creek, VA
Colonel Kathleen Flarity, USAF DNP, PhD, CEN, CFRN, FAEN	Teresa L. Hagan, PhD, RN University of Pittsburgh School of Nursing
MAJ Courtney Folderauer	Lt Col Linda Ailene Hagemann, MS., NP-C Joint Base Andrews, MD
CDR Karen Reilly Follin ACNP-BC, CCNS, SANE-A, CEN Washington, DC	Lisa Hall MSN, APN, BC Brooke Army Medical Center
CAPT Jane French, MSN, Retired Naval Health Clinic Charleston, SC	CAPT Tony Han. MD Naval Medical Center San Diego

Michelle M. Harmon, MSN, CNM, WHNP	LTC Ann Ketz
Lt Col Hatzfeld, PhD, RN TriService Nursing Research Program	Mr. Andrew Kewley
Jennifer G Hensley, EdD, CNM, WHNP Vanderbilt University School of Nursing	Stephanie Booth Kewley, PhD Naval Health Research Center
Lt Col Stephen H. A. Hernandez, PhD, RN University of New Mexico 302d Aeromedical Staging Squadron, USAFR	Zeina G. Khodr, PhD Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.
Col Adele Hill	Lt Col Jacqueline Killian, Ph.D., MHR, MSN Joint Base San Antonio, Texas
Rene Hinton, MD Maj, USAF, MC RAF Lakenheath	Dr. Yeong Kim
Dr. Katherine Hoggatt	Major Erika L. King, Ph.D., LCSW Colorado Springs, CO
Cindra Holland, DNP, RNC-OB, ACNS-BC Wright State University	Casey Kohen, MA Naval Health Research Center
MAJ Dawn Kimberly Hopkins	Dr. Joyce Kong
COL Susan G. Hopkinson, PhD, RN-BC U.S. Army	Lt Col Jennifer A. Korkosz, DNP, WHNP-BC Uniformed Services University
Julie Hughes, PH.D. US Army Research Institute of Environmental Medicine	Elizabeth A. Kostas-Polston, PhD, APRN, WHNP-BC, FAANP, FAAN, Uniformed Services University of the Health Sciences
MAJ Kyong Hyatt	Dr. Cheryl Krause-Parello
Katherine M. Iverson, Ph.D. National Center for PTSD VA Boston Healthcare System Boston University School of Medicine	Dr. Cara Krulewicz
CDR Terri Jandron MSN, RNC-MNN US Naval Hospital Okinawa	Dr. Nicole Lanouette
Dr. Patricia Jordan	Arlene B. Le Doux MSN, APHN-BC
CAPT Michele Ashton Kane	CDR Rachel U. Lee, M.D., FACP, FAAAAI Naval Medical Center San Diego
Dr. Jane Kass-Wolff	Lt Col Wendy Lee
Jodie G Katon, PhD, MS VA Puget Sound Center of Innovation for Veteran-Centered and Value Driven Care	Keren Lehavot, PhD VA Puget Sound Center of Innovation for Veteran-Centered Value Driven Care
Ms. Navjot Kaur	CAPT Wm. M. Leininger, MD Naval Medical Center San Diego
LTC Heidi Kelly	ENS Akil Lett
Ursula Kelly, PhD, APRN, ANP-BC, PMHNP-BC Atlanta VA Medical Center, Emory University	COL Paul C. Lewis, PhD, FNP-BC Fayetteville, NC
Capt Janet Kemp	Dr. Catherine Ling
Capt Kristin M. Kepler, RN, DNP(S), WHNP(S)	Lt Col Cheryl Lockhart

Kyna Z Long, MS	COL Robin Neumeier, DNP, CNM, FACNM
CDR Eddie Lopez	Claudio R. Nigg, PH.D. University of Hawaii
CDR David Michael Loshbaugh, CNM Bremerton, WA	CDR Katherine Noel, MSN, ACNP-BC, RN-BC, CEN Naval Health Clinic Charleston
CDR Monica A. Lutgendorf, MC USN, MD FACOG Naval Medical Center, San Diego	Vanessa R. North, Maj, USAF, NC CNM/WHNP
Capt Amy B. Lynn, MSN, WHNP-BC	Maj Brittany Nutt, DNP, WHNP-BC Landstuhl Regional Medical Center, Germany
Dr. Tena Malone	MAJ Elizabeth Nutter, DNP, CNM US Army
Antoinette M. Marengo-Barbick, MD, FACOG Naval Medical Center San Diego	Karen M. O'Connell, Lt Col, USAF, NC PhD, RN United States School of Aerospace Medicine
Debra D. Mark, LTC (Ret.), PhD, RN, FAAN University of Hawaii at Manoa	Sarah Ohm, MSN, CNM MAJ, AN Martin Army Community Hospital Fort Benning, GA
Rayna K. Matsuno, PhD, MPH	LCDR Adeline L. Ong, PsyD
COL Tammy Mayer	Regina D. Owen, DNP, PMHNP-BC
Dr. Shira Max	Jacquelyn Owens, DNP, FNP-BC West Chester University of Pennsylvania
Maj Jennifer McAndrews, MSN, RNC-OB Lackland AFB, TX	LT Rhys Aaron Parker, NC, USN. DNP, CPNP-PC, FNP-BC US Naval Hospital Naples, Italy
Mary S. McCarthy, PhD, RN, FAAN Madigan Army Medical Center	CAPT Justice Parrott USN, DNAP, MS, CRNA Bethesda, MD
LTC Kristal C. Melvin, PhD, NP-C Brooke Army Medical Center	COL Nancy Parson
Michelle A Mengeling, PH.D. Iowa City VA Health Care System & The University of Iowa	Darpan I. Patel, PhD School of Nursing University of Texas Health San Antonio
LCDR Reginald Middlebrooks, DNP, CRNA Uniformed Services University	Ms. Avni Patel
Joseph M. Molloy, PT, PhD, SCS Office of The U.S. Army Surgeon General	Capt Carolyn Perrotti
Domini Montgomery, MPH Saint Louis, MO	Kellie Perry Ph.D. Knowesis Inc., Defense Health Agency
Dr. Ruth Mooney	CDR Joel Peterson
Brenda J. Morgan, Col, USAF, NC, PhD	Capt Angela K. Phillips, USAF, NC
Maj Patrick J. Moser, MS, FNP-BC Keesler Medical Center	Dr. Kristy Popp
COL Dana Munari, MSN, ER CNS, ANP, ER Consult Army TSG, Ft Hood TX	Ben Porter, Ph.D
COL Michelle Munroe	Col Marcia A. Potter, DNP, FNP-BC Joint Base Andrews, MD
CDR Ryan L. Nations, PhD, CRNA Uniformed Services University of the Health Sciences	Major Jodi A. Potterton, MSN, WHNP-C Wright-Patterson AFB
Ms. Jennifer Nestor	Nicole Powell-Dunford MD, MPH FAAFP

Susan Prion, EdD, RN, CNE University of San Francisco	CDR Virginia Schmied Blackman, PhD, RN, CCNS Uniformed Services University of Health Sciences
Mary Jo V. Pugh PhD, RN, FACMPH University of Texas San Antonio South Texas Veterans Health Care System	Joseph F. Seay, Ph.D. U.S. Army Research Institute of Environmental Medicine
LCDR Valerie Rene Quinn	Diane Seibert, PhD, ARNP, FAAN, FAANP Uniformed Services University of the Health Sciences
Kristine Qureshi, PhD, RN, FAAN, CEN, APHN-BC University of Hawaii at Manoa	Tetine Sentell, PhD University of Hawaii at Manoa
Vasudha Ram, MPH Naval Center for Combat & Operational Stress Control	Jessica J. Shank, M.D. Naval Medical Center San Diego
CDR Elizabeth Thomas Reeves, MD, MPH Uniformed Services University	Phyllis W Sharps, PhD, RN, FAAN Johns Hopkins School of Nursing
Judith G Regensteiner, PhD University of Colorado School of Medicine	Shalli Sherman, MS US Army NSRDEC
Maj Kathryn Reggio	Lt Col Antoinette Shinn
Elizabeth D. Richardson, RNC/NP Women's Health SAMMC Ft. Sam Houston, TX	LTC Leilani Siaki
LTC Kathleen Richardson	COL Angela M Simmons, PhD, RN Madigan Army Medical Center
LTC Cheryl Rivera RN, CNOR Madigan Army Medical Center	LCDR Erin M. Simmons, Ph.D., ABPP Naval Medical Center San Diego
MAJ Danielle Rodondi	Tracy Simpson, PhD VA Puget Sound Healthcare
MAJ Jose A. Rodriguez, MSN, RN, CCNS, CNOR Womack Army Medical Center, Fort Bragg	Denise A Smart. DrPH, MPH, BSN, RN (LtCol, retired) Washington State University
José Rodríguez-Vázquez, M.D., M.P.H., F.A.A.F.P. Defense Health Agency	Lt Col Debra Smith, MS, WHNP-BC Holloman AFB NM
Patricia Rohrbeck, DrPH, MPH, MS, CPH (Lt Col USAF) JB Andrews, MD	CAPT (s) Deirdre O. Smith, PhD., ANP-BC EMF Bethesda
Elian A. Rosenfeld, PH.D. Pittsburgh, PA	CAPT David G. Smith, PhD U.S. Naval Academy
Alicia Gill Rossiter, DNP, FNP, PCPNP-BC, FAANP Lt Col (Ret), USAFR NC University of South Florida	Lt Col Melissa C. Smith, PMHNP-C 78 Medical Group, Robins AFB
Sandra G. Rosswork, PH.D Annapolis, MD	CDR Andrea Snitchler, MC USN US Naval Hospital Naples, Naples Italy
LTC Amy K. Roy, MSN, CNOR JBLM, WA	LT Katherine A.M. Snyder, M.D.
Nancy A. Ryan-Wenger, PhD, RN, CPNP, FAAN LTC (ret.), AN, USAR Columbus, OH	Marissa Spitz, MS US Army Natick Soldier Research
Anne G. Sadler, Ph.D., R.N. University of Iowa & Iowa City VA Health Care System	LTC (ret) Nancy Steele, Ph.D, WHNP-BC University of North Florida
CDR Arlene Saitzyk, Ph.D. Quantico, VA	Ryan A Steelman, MPH Defense Health Agency
Ms. Rosemarie Saldana Subala San Diego, CA	Evelyn Sun, MPH
ENS Carla Santiago	Danielle Symons Downs, Ph.D. The Pennsylvania State University

Colonel (ret.) Laura A. Talbot, RN, PhD, EdD University of Tennessee Health Science Center	Dr. Jennifer Webb-Murphy
COL Katherine Taylor Pearson	LTC Christopher P. Weidlich, Ph.D., ARNP-PMH San Antonio Military Medical Center
CDR David V. Thomas, MPA, BSN, RN-BC, CMSRN, CEN Naval Hospital Okinawa, Japan	MAJ Dalia J Wenckus, MD Wright Patterson Medical Center
Glenna L. Tinney MSW, ACSW, DCSW Captain, USN (Ret.) Alexandria, VA	LCDR Allyson Whalen
Ms. Carlette Toft	MG Margaret C. Wilmoth, PhD, MSS, RN, FAAN Deputy Surgeon General, US Army Reserve, The Pentagon
Lori Trego, PhD, CNM, FAAN Colonel (retired), U.S. Army University of Colorado Denver	Lt Col Candy Wilson, PhD, APRN, WHNP-BC Joint Base-Andrews, MD
LCDR Melissa R. Troncoso MSN, NP-C, CHWC Bureau of Medicine and Surgery	Kaye Wilson-Anderson, RN, DNS, CNE University of Portland
LTC Christopher A. VanFosson, MSN/MHA, RN	JoEllen Windsor, RNC
MAJ Virginia Vardon-Smith RN, MSN, CCRN, CCNS-AG Joint Base San Antonio US Army Nurse Corps	CDR Kenneth A. Wofford, PhD, CRNA Uniformed Services University of the Health Sciences
Dr. Margaret Venuto	Elizabeth M. Yano, PhD, MSPH VA Greater Los Angeles Healthcare System
1Lt Alissa Vigil, WHNP-BC, AGPCNP-BC Joint Base Elmendorf-Richardson, AK	MAJ Duane J. Zaricor, MSN, CNOR, CCNS, CNS-CP Madigan Army Medical Center
Molly Wade, MS, CSCS United States Air Force School of Aerospace Medicine	Yunnuo Zhu, MPH
CPT Tameka Walker	Capt Denean Zozo, WHNP-BC, NCMP Royal Air Force Lakenheath, United Kingdom

Appendix C: Medical Subject Heading (MeSH) Terms

Women's health	Urination	Gynecological care	Aeromedical evacuation
Neoplasms by site	Early detection of cancer	Reproductive techniques	Body weight
Contraception	Sexually transmitted diseases	Maternal health services	Body composition
Postpartum period (lactation)	Menstruation	Field sanitation	Sex offenses
Women's health education	Immunization	Unintended pregnancy	<i>rape</i>
Congenital abnormalities	Vaccines	Resilience, psychological	<i>child sexual abuse</i>
Female urogenital diseases	Interpersonal violence	Combat injury	High-g /acceleration
<i>vaginal diseases</i>	Cardiovascular diseases (HTN)	Therapeutics	Disease nonbattle injury
<i>urological diseases</i>	Circadian rhythm	<i>hygiene</i>	Behavior and behavior mechanisms
<i>female genital diseases</i>	Disability	<i>complementary therapies</i>	<i>dangerous behavior</i>
Pregnancy complications	Physical fitness	<i>emergency treatment</i>	<i>suicide</i>
<i>spontaneous abortion</i>	Metabolic syndrome X	Environmental pollution	<i>drinking behavior</i>
<i>gestational diabetes</i>	Overnutrition	<i>environmental exposure</i>	<i>impulsive behavior</i>
<i>fetal death</i>	Mental disorders	<i>inhalation exposure</i>	<i>risk-taking</i>
<i>perinatal death</i>	<i>traumatic stress disorders</i>	<i>maternal exposure</i>	<i>unsafe sex</i>
<i>preterm labor</i>	<i>combat disorders</i>	<i>occupational exposure</i>	<i>tobacco use</i>
<i>infertility</i>	<i>post-traumatic stress disorder</i>	<i>noise</i>	Occupational diseases
<i>miscarriage</i>	<i>acute stress disorder</i>	Violence	<i>sleep disorders</i>
<i>polycystic ovary syndrome</i>	<i>substance-related disorder</i>	<i>domestic violence</i>	<i>circadian rhythm</i>
<i>eclampsia</i>	<i>alcohol use</i>	<i>child abuse</i>	Nutritional physiological phenomena
<i>uterine cervical diseases</i>	<i>tobacco use</i>	<i>child maltreatment</i>	<i>nutritional requirements</i>
Infection	<i>eating disorders</i>	Respiratory tract diseases	<i>nutritional status</i>
Exercise	<i>mood disorders</i>	Urological injury	<i>diet</i>
Deployment	<i>personality disorders</i>	Performance-enhancing substance	<i>energy intake</i>
Protective equipment	Overweight	Non-deployable status	Body armor
Musculoskeletal diseases	Hot temperature (extreme heat)	Pathologic processes	Wounds and injuries
<i>musculoskeletal pain</i>	Pain	<i>dehydration</i>	<i>stress fractures</i>
<i>spinal diseases</i>	<i>back pain</i>	<i>acute disease</i>	Body composition
<i>bone diseases</i>	<i>chronic pain</i>	<i>chronic disease</i>	


Appendix D: Literature Search Terms

Acceptability of healthcare	Acupuncture	Adolescent pregnancy
Aeromedical evacuation	Alternative medicine	Alternative therapy(s)
Alternative treatment(s)	Aromatherapy	Assisted reproductive technology
Asthma	Behavior and behavior mechanisms	Behavioral and mental disorders
Body armor	Body composition	Body mass index
Body weight	Breastfeeding	Cancer screening
Cardiovascular diseases	Child abuse	Child maltreatment
Childhood trauma	Chiropractic	Chiropractic treatment
Chronic back pain	Chronic pain	Circadian rhythm
Cold effects	Combat injury(s)	Combat stress
Combat wounds	Complementary and alternative medicine	Complementary medicine
Congenital abnormality(s)	Congenital disorders	Contraception
Contraceptive	Death	Delivery of healthcare
Deployment	Diabetes mellitus, gestational	Disability
Disease nonbattle injury	Domestic violence	Eating disorders
Early detection of cancer	Eclampsia	Emergency medical services
Emergency services	Environmental effects	Environmental exposure
Ergogenic product(s)	Exercise	Eye protection
Faith healing	Female(s)	Female genital disease
Female urogenital disease(s)	Field hygiene	Field sanitation
Folk medicine	General obstetric care	Genital diseases, female
Gynecology	Gynecological care	Healthcare delivery
Health services	Hearing protection	Heat
Heat effects	Hematologic cancer	High-g acceleration
Hot temperature	Immunization(s)	Infants
Infection(s)	Infectious disorders	Infertility
Injury	Interpersonal violence	Intimate partner violence
Intrapersonal violence	Lactation	Lactation consultants
Lung disorders	Massage	Maternal health services
Medicine	Menstruation	Mental disorders
Metabolic syndrome (x)	Military deployment	Military medicine
Military psychology	Mindfulness	Mindfulness based stress reduction
Miscarriage	Musculoskeletal diseases	Neoplasms (by site)
Nondeployable status	Nutrition	Nutritional and metabolic diseases

Literature Search Terms (continued)

Nutritional physiological phenomena	Obesity	Obstetric care
Occupational disease(s)	Occupational exposure	Occupational stress
Overnutrition	Overweight	Pain disability
Pathologic processes	Patient acceptance of healthcare	Patient care
Patient transport	Patient(s)	Performance-enhancing substances
Performance enhancing drugs	Performance enhancing product(s)	Perinatal death
Perinatal loss	Perinatal period	Physical fitness
Poisoning	Polycystic ovary syndrome	Postpartum issues
Postpartum period	Posttraumatic stress disorder, PTSD	Pregnancy
Pregnancy complications	Pregnancy outcomes	Prenatal care
Preterm labor	Protective devices	Protective equipment
Psychology	Psychiatric diagnosis	Psychiatric treatment
Psychological resilience	Psychotherapy	Pulmonary disease
Rape	Reproductive techniques, assisted	Reproductive and urinary physiology
Resilience	Respiratory tract diseases	Risk taking behavior
Sex	Sex offense(s)	Sexually transmitted diseases
Sexual transmitted diseases, viral	Sexually transmitted infection	Sexual trauma
Sleep disorders	Spontaneous abortion	Sterility
Stress	Stress disorders, post-traumatic	Therapeutics
Transportation of patients	Unintended pregnancy	Urination
Urogenital injury or urological injury	Vaccine(s)	Vaginitis
Violence	War	War injuries
War wounds	Weight control	Weight control program
Weight gain	Weight loss	Weight reduction programs
Women	Women's health	Women's health issues
Working women	Wounds and injuries	

Appendix E: Level 3 Article Review Form

Today's date (mm/dd/yyyy) *
 

Reviewer last name * Reference ID *

Is this article appropriate for level 2B review? *
 Yes
 No (please specify)
 *

2. Theoretical or conceptual framework? *
 Yes
 No

3. Research question or hypothesis? *
 Yes
 No

4. Sample Size & Response Rate

Total sample size Unknown?
 total sample unknown

Response rate (if applicable):

5. Males

Male sample: Unknown?
 male sample unknown

6. Females

Female sample: Unknown?
 female sample unknown

7. Branch of Service (select all that apply):

	Army	Air Force	Navy	Marines	Coast Guard	Unknown
Active Duty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Guard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Sample Characteristics

Demographics:

	Officer	Enlisted	Recruit	Age	Gender	Occupation
Demographics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Specific occupation(s)

9. Selection Criteria:

Inclusion:

Exclusion

10. Study Design *

- Experimental
- Quasi-experimental
- Case-Control
- Cohort
- Correlational
- Descriptive: Cross-sectional
- Descriptive: Longitudinal
- Qualitative
- Meta-analysis
- Other - Write In (Required)

*

11. Hierarchy of Evidence Rating System (Modified from Meinyk & Fineout-Overholt, 2010)

- I. **Meta-analysis**: A meta-analysis of evidence from all relevant randomized controlled trials
- II. **Experimental**: An experiment in which subjects are **randomized** to a treatment group or control group
- III. **Quasi-Experimental**: An experiment in which subjects are **non-randomly** assigned to a treatment group or control group
- IV. **Case-control study**: a comparison of subjects with a condition (case) with those who don't have the condition (control) to determine characteristics that might predict the condition
 - Cohort study**: an observation of a group(s) (cohort[s]) to determine the development of an outcome(s) such as disease
 - Correlational study**: determines whether a relationship or association exists between 2 or more variables, but does not determine causality
- V. **Meta-synthesis**: A synthesis of evidence from qualitative or descriptive studies to answer a clinical question
- VI. **Qualitative** study: gathers data on human behavior to understand why and how decisions are made
 - Descriptive** study: provides background information on the what, where, and when of a topic of interest

12. Sampling Method *

- | | |
|--|--|
| <input type="checkbox"/> Randomized | <input type="checkbox"/> Purposive |
| <input type="checkbox"/> Convenience | <input type="checkbox"/> Snowball |
| <input type="checkbox"/> Convenience - recruitment within a unit/group setting | <input type="checkbox"/> Entire Population |
| <input type="checkbox"/> Stratified non-random | <input type="checkbox"/> Other - Write In (Required) |
| | <input type="text"/> |

*

13. Method of Data Collection *

- | | | |
|--|---|--|
| <input type="checkbox"/> Record/Chart review | <input type="checkbox"/> Program evaluation | <input type="checkbox"/> Survey: anonymous |
| <input type="checkbox"/> Extracted from database | <input type="checkbox"/> Real time clinical data collection | <input type="checkbox"/> Survey: confidential/identified |
| <input type="checkbox"/> Part of a larger study | <input type="checkbox"/> Focus group | <input type="checkbox"/> Other - Write In (Required) |
| <input type="checkbox"/> Secondary analysis | <input type="checkbox"/> Interview (specify type) | <input type="text"/> |
| | <input type="text"/> | * |

14. Research Setting (check all that apply)

	Data collected in this setting	Data about this setting
Military treatment facility (MTF)	<input type="checkbox"/>	<input type="checkbox"/>
Member's duty station	<input type="checkbox"/>	<input type="checkbox"/>
Fleet/Ship (related to shipboard setting)	<input type="checkbox"/>	<input type="checkbox"/>
Field exercise/physical training	<input type="checkbox"/>	<input type="checkbox"/>
Basic training/bootcamp	<input type="checkbox"/>	<input type="checkbox"/>
Speciality/advanced training school	<input type="checkbox"/>	<input type="checkbox"/>
Multi-site study	<input type="checkbox"/>	<input type="checkbox"/>
Record Review/database	<input type="checkbox"/>	<input type="checkbox"/>

15. Specific Research Location(s)

16. Setting for Deployment Data Collection

	Pre (in setting)	During (in setting)	Post (in setting)	Pre (about setting)	During (about setting)	Post (about setting)
OEF/OIF/OND - (2001-2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bosnia - (1996-2004)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gulf War (Persian) - (1990-1991)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vietnam - (1961 to 1975)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not specified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humanitarian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Time Frame of Data Collection:

From Month: From Year:

0 0

To Month: To Year:

0 0

18. Source of Database Records

- CHAMPS (Career History Archival Medical and Personnel System)
- DEERS (Defense Enrollment Eligibility Reporting System)
- DMDC (Defense Manpower Data Center)
- DMED (Defense Medical Epidemiology Database)
- DMSS (Defense Medical Surveillance System)
- TMDS (Theatre Medical Data System)
- MDR (Military Health System Data Repository)
- Source of data unknown

19. Other Database Sources not listed above :

Database

20. Specific Research Instruments Used:

Instrument

Validated?

Yes No **21. List Physiologic/Clinical/Other Measures Collected:****22. Are Study Limitations Addressed? *** Yes No**23. Does the Study Make Sense Throughout? *** Yes No**24. Is this a Qualitative Study? *** Yes No**25. Is this a Quantitative Study? *** Yes No

26. You indicated that this study is both qualitative and quantitative.
Is it a mixed methods study design?

- Yes
- No

27. *Discussion about steps to ensure researchers were consistent in the way they asked questions or gathered data?*

***or** was data gathered via eForms/survey/database/online?*

- Yes
- No

28. *Do the results of the research apply to other contexts or settings for military servicewomen?*

- Yes
- No

29. *Was there documentation of checking data, analyses, or potential biases with other team members?*

- Yes
- No

Appendix F: Level 4 SME Survey

Study Question: Please describe the purpose or study question(s) from the article.

Overall Findings: Please describe the overall findings/conclusions from the article. This could include answers to the research question posed by the author(s), or other general findings.

Gender Specific Findings: Check each box below as appropriate, based on the findings of the article

- No statistically significant differences found between men and women
- Statistically significant differences found between men and women
- No findings by gender

Please note gender specific findings: Please describe findings by the author(s) that are gender specific (e.g. NO differences in stress levels between men and women following deployment; some differences in healthcare utilization between servicemen and women). Any findings in which author(s) discuss gender specific results should be listed below.

Limitations: Please describe the limitations as listed by the author(s). If you feel there are other limitations to the study that were not addressed, please write these as well.

General Comments: Please provide your general comments about the article you reviewed. This could include what this study adds to current knowledge about the topic, suggestions for further research on this topic, or other comments that could benefit the broad review of literature of women in the U.S. military.

Appendix G: Phase I Topics and Subtopics

Phase I Report Topics and Subtopics		
Readiness/Health Promotion/Disease Prevention	Deployment Health	Chronic Disease
Exercise/Fitness	Disease Non-Battle Injury	Chronic Back Pain
Complementary & Alternative Medicine	Aeromedical Evacuation	Pulmonary Disease
Vaccines	Body Armor	Cardiovascular
Nutrition/Energy/Weight	Healthcare Utilization	Chronic Pain
Healthy and Risky Behaviors	Gynecological Care	Disability
Eyes, Ears, Nose, Throat	Environmental & Occupational Exposures	Stem Cell/Hematological Cancers
Musculoskeletal Injury	Infectious Disease	Obstetrics/Postpartum/Fertility
Healthcare Utilization	Chemical and Miscellaneous Harmful Exposures	General Obstetric Care
Acute Illness	High-Level Acceleration	Postpartum Issues
Nondeployable Status	Gynecological Health	Preterm Labor
Psychological Health	Menstruation	Prenatal Care
Mental Healthcare Utilization	Contraception	Breastfeeding
Addictions (Tobacco, Alcohol)	STI	Interpersonal Violence/Sexual Trauma
Stress	Hygiene	Intimate Partner Violence
Suicide	Sexual Health	Sexual Trauma
Eating Disorders	Vaginal Health	Child Maltreatment/Abuse
Mood Disorders	Urological Health	
PTSD	Cervical Cancer	
Personality Disorder	Breast Cancer	

Appendix H: Detailed Description on Article Quality

Summative scores from the QIC questions were calculated after the data were exported to SPSS. Quality was scored across the six domains.

1. The conceptual framing subscale was comprised of two items for all article types. Points were assigned in the following manner: “1” (item present in article) or “0” (item not present in article). Articles could receive up to two points.
2. The appropriateness subscale was comprised of five items for all article types. Points were assigned in the following manner: “.4” (item present in article) or “0” (item not present in article). Articles could receive up to a total of two points.
3. The transparency subscale was comprised of five items for all article types. Points were assigned in the following manner: “.4” (item present in article) or “0” (item not present in article). Articles could receive up to two points.
4. The validity subscale was comprised of two items for quantitative articles, one item for qualitative articles, and all three items for mixed methods articles. Alternative scoring rubrics were necessary, as each study design employed different data collection methods (e.g. many qualitative studies gathered data through focus groups, not standardized questionnaires). Points were assigned in the following manner:
 - Quantitative: “2” (66-100% of instruments used within the study were valid), “1” (33-65.99% of instruments used within the study were valid), or “0” (<33% of instruments used within the study were valid). Quantitative articles could receive up to two points.
 - Qualitative: “2” (results of the research do apply to other contexts or settings for military service women) or “0” (results of the research do not apply to other contexts or settings for military service women). Qualitative articles could receive up to two points.
 - Mixed methods: “2”, “1”, or “0” (proportion of instruments used within the study that were valid) and “2” or “0” (whether results of the research apply to other contexts or settings for military service women). Points for each component were summed, and mixed methods articles could receive up to four points.
5. The reliability subscale was comprised of one item for quantitative articles, one item for qualitative articles, and both items for mixed methods articles. As previously stated, study design necessitated alternative scoring rubrics. Points were assigned in the following manner:

- Quantitative and Qualitative: “2” (item present in article) or “0” (item not present in article). Quantitative and qualitative articles could receive up to two points each.
 - Mixed methods: “2” or “0” (was there discussion about steps to ensure that researchers were consistent in the way they asked questions or gathered data?) and “2” or “0” (whether there was documentation of checking data, analyses, or potential biases with other team members). Mixed methods articles could receive up to four points.
6. The cogency subscale was comprised of two items for all article types. Points were assigned in the following manner: “1” (item present in article) or “0” (items not present in article). Articles could receive up to two points.

Exclusively quantitative and qualitative study designs provide researchers with well-established approaches for understanding various phenomena. However, compared with mixed methods study designs, exclusively quantitative and qualitative study designs need fewer objective criteria to achieve the same level of quality. To account for these differences, the team scaled the base quality scores. Quantitative articles were scored out of a total of 10 points if instruments were not used (e.g. surveillance studies), and out of a total of 12 points if instruments were used. Qualitative articles were scored out of a total of 12 points, and mixed methods articles were scored out of a total of 16 points. The base quality score was divided by the appropriate number of points, and the resulting score was called the “scaled quality score”. The “scaled quality score” was then multiplied by 100, and the resulting score was called the “scaled quality score percentage.”

Appendix I: Quality Scoring Example

Subscale	Items	Points
Conceptual Framing	Theoretical Framework	0
	Research Question/Hypothesis	1
Appropriateness	Sampling Method	.4
	Research Setting	.4
	Study Design	.4
	Timeframe of Data Collection	.4
	Number of Female Participants	.4
Transparency	Age	.4
	Sex	.4
	Rank	.4
	Sample Size	.4
	Service Branch	.4
Validity	At least one-third of instruments/measures used valid?	N/A
	66% or more instruments/measures used validated?	N/A
Reliability	Discussion about steps to ensure researchers were consistent in way they asked questions/gathered data? Data gather online/e-format?	2
Cogency	Study limitations addressed?	1
	Study makes sense throughout?	1
Base Quality Score		9
Scaled Quality Score % ^a		90
Quality Rating		Excellent

Note. ^aDivide base quality score by 10 if quantitative article without instruments. Multiply by 100.

Appendix J: Article Author Affiliations

Research Disciplines	Topic Count	Percent (%)
Aerospace Medicine	1	0.19
Anesthesiology	1	0.19
Anthropology	4	0.77
Audiology	1	0.19
Behavioral Science	2	0.38
Biology	2	0.38
Cardiovascular Medicine	5	0.96
Communication	2	0.38
Dentistry	5	0.96
Deployment Health	2	0.38
Dermatology	1	0.19
Disease Prevention	1	0.19
Economics	2	0.38
Emergency Medicine	1	0.19
Endocrinology	1	0.19
Epidemiology	109	20.88
General Medicine	6	1.15
General Surgery	1	0.19
Health Policy	4	0.77
Health Promotion	1	0.19
Human Development And Aging	1	0.19
Immunology	3	0.58
Infectious Disease	16	3.07
Injury	3	0.58
Kinesiology	3	0.58
Nephrology	1	0.19
Neuroscience	5	0.96
Nursing	27	5.17
Nutrition	15	2.87
Ob/Gyn	15	2.87
Occupational Medicine	6	1.15
Occupational Therapy	1	0.19
Oncology	1	0.19
Optometry	3	0.58
Orthopedics	34	6.51
Otolaryngology	1	0.19
Pain	1	0.19
Pediatrics	4	0.77

Article Author Affiliations (continued)

Research Disciplines	Topic Count	Percent (%)
Physical Therapy	3	0.58
Physiology	8	1.53
Podiatry	1	0.19
Preventative Medicine	11	2.11
Psychiatry	45	8.43
Psychology	106	20.31
Public Health	28	5.36
Pulmonology	1	0.19
Radiology	1	0.19
Social Psychology	1	0.19
Social Work	3	0.58
Sociology	4	0.77
Speech Pathology	1	0.19
Sports Medicine	9	1.72
Statistics	5	0.96
Urology	1	0.19
Women's Health	3	0.58

Appendix K: Gap Analysis Matrices

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Mood Disorders & Anxiety	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Mental Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Depression * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	Anxiety and mood disorders were in the top most utilized ICD-9 chapter; across outpatient and inpatient settings, and across ranks, the Mental Disorders chapter was in the top 5 for women. Enlisted women were over 2 times more likely to be diagnosed with depressed mood than their male peers. Numerous organizations have identified mental health as a research priority; three of them within the past 5 years. There was a wealth of research on mood disorders and anxiety, with 39% being of excellent quality.								
	Number of Articles 140	ICD-9 Categories Anxiety, dissociative, and somatoform disorders (300)										
	Excellent Quality 39%	ICD-9 Subcategories Anxiety (300.0) Depressed Mood (309.0, 309.1)		With these factors in mind, there is not a significant gap in the existing gender-inclusive literature on this subtopic.								
	Low Quality 6%	Top 5 Utilized Chapter										
	Definition Anxiety and mood disorders, such as depression and bipolar disorder	F:M ratio Anxiety, dissociative, and somatoform disorders (300)		<table border="1"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td>Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations			Gap identified in existing research	Continue ongoing research trajectory	None at this time
		Recommendations										
		Gap identified in existing research					Continue ongoing research trajectory	None at this time				
		<u>Outpatient</u> Enlisted: 1.8 Officer: 1.9										
<u>Inpatient</u> Enlisted: 1.6 Officer: 1.4 ^{NS}												
<u>Outpatient</u> Enlisted: 1.9 Officer: 2.4												
<u>Inpatient</u> Enlisted: 1.8 Officer: 1.5												
TCC Rank Central Nervous System Agents #1 of 26												
F:M Rate Ratio 1.18												

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Post-Traumatic Stress Disorder (PTSD)	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Adjustment reaction (309) ICD-9 Classification PTSD (309.81)	PTSD/Depression * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016) Traumatic Stress * IOM (1995) Combat * IOM (1995)	<p>Military populations are at higher risk for PTSD than civilian populations; service members are the first line of defense in peacekeeping or combat operations. Being included in combat operations can lead to a higher likelihood of living through challenging experiences, such as defending wounded comrades, or handling dead bodies, all of which can contribute to PTSD symptomology.</p> <p>PTSD was within the top 5 ICD-9 chapters and categories within DMED. Females were more likely than males to be diagnosed with PTSD in an outpatient setting but these values were not greater than 2. Multiple organizations have specifically targeted PTSD as a research priority; two within the past 5 years. Within the large number of articles on this subtopic, more than a third was of excellent quality.</p> <p>Based on this information, there is not a significant gap in the existing gender-inclusive literature on PTSD.</p>		
	Number of Articles 115	Top 5 Utilized Chapter & Category				
	Excellent Quality 37%	F:M ratio PTSD (309.81) <i>Outpatient</i> Enlisted: 1.5 Officer: 1.5				
	Low Quality 6%	TCC Rank Central Nervous System Agents #1 of 26				
	Definition Diagnostic evaluations and treatments for Post-Traumatic Stress Disorder (PTSD)	F:M Rate Ratio 1.18				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Alcohol	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Substance Abuse * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	<p>There was no PDTS data on this subtopic. Alcohol abuse was within the top 5 ICD-9 chapters. Men were more likely to be diagnosed with alcohol dependence syndrome and nondependent abuse of drugs than women. This was true across rank (officer vs. enlisted) and setting (inpatient vs. outpatient). Four organizations have highlighted substance abuse as a research priority; two of them in the past 5 years. There is a relatively large body of literature on alcohol abuse within the military population; almost one third is of high quality.</p> <p>Based on this information, there is not a significant gap in the existing gender-inclusive literature on alcohol abuse.</p>		
	Number of Articles 107	ICD-9 Category Alcohol dependence syndrome (303) Nondependent Abuse of Drugs (305)				
	Excellent Quality 32%	Top 5 Utilized Chapter				
	Low Quality 8%	F:M ratio Alcohol Dependence Syndrome (303) <i>Outpatient</i> Enlisted: 0.7 Officer: 0.6 <i>Inpatient</i> Enlisted: 0.9 Officer: 0.4				
	Definition Alcohol use (whether occasional or chronic) and abuse of alcohol	Nondependent Abuse of Drugs (305) <i>Outpatient</i> Enlisted: 0.7 Officer: 0.6 <i>Inpatient</i> Enlisted: 0.6 Officer: 1.2 ^{NS}				
		TCC Rank N/A				
		F:M Rate Ratio N/A				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Tobacco	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Nondependent abuse of drugs (305)	Substance Abuse * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	Tobacco abuse was within the top 5 ICD-9 chapters. Men were more significantly more likely to be diagnosed with tobacco abuse than women. This was true across rank (officer vs. enlisted) and setting (inpatient vs. outpatient).		
	Number of Articles 85	Top 5 Utilized Chapter				
	Excellent Quality 15%	F:M ratio Nondependent abuse of drugs (305) <i>Outpatient</i> Enlisted: 0.7 Officer: 0.6 <i>Inpatient</i> Enlisted: 0.6 Officer: 1.2 ^{NS}		There was no PDTS data for this subtopic. Tobacco abuse fits under the substance abuse umbrella. Four organizations have highlighted substance abuse as a research priority; two of them in the past 5 years. There is a relatively large body of literature on tobacco abuse within the military population. It is concerning that 20% of the research was of low quality.		
	Low Quality 20%					
	Definition Tobacco use (occasional or chronic)	TCC Rank N/A		However, taking all factors into consideration (e.g. DMED data did not highlighted tobacco abuse as a top-utilized diagnosis for women), there is not a significant gap in the existing gender-inclusive literature on tobacco abuse.		
		F:M Rate Ratio N/A				
			Recommendations			
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Drug	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Substance Abuse * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	<p>Due to the military's "zero tolerance" policy on drug use, in combination with random drug testing, substance abuse cases are relatively infrequent across the military population.</p> <p>There was no PDTS data on this subtopic. Drug abuse was within the top 5 ICD-9 chapters. Men across ranks were significantly more likely to be diagnosed with drug abuse than women in the outpatient setting. Four organizations have highlighted substance abuse as a research priority; two of them in the past 5 years. Despite the relatively light body of gender-inclusive literature in this area, almost one third of this research is of excellent quality.</p> <p>Based on this information, there is not a significant gap in the existing gender-inclusive literature on drug abuse.</p>		
	Number or Articles 37	ICD-9 Categories Drug Dependence (304) Nondependent Abuse of Drugs (305)				
	Excellent Quality 32%	Top 5 Utilized Chapter				
	Low Quality 11%	F:M ratio Drug Dependence (304)				
	Definition Illegal drug use (e.g. marijuana, cocaine) or drug rehabilitation and treatment programs	<u>Outpatient</u> Enlisted: 0.6 Officer: 1.0 ^{NS}				
		<u>Inpatient</u> Enlisted: 0.8 ^{NS} Officer: 2.3 ^{NS}				
		Nondependent Abuse of Drugs (305) <u>Outpatient</u> Enlisted: 0.7 Officer: 0.6 <u>Inpatient</u> Enlisted: 0.6 Officer: 1.2 ^{NS}				
	TCC Rank N/A		Recommendations			
	F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time	

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Stress	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Acute reaction to stress (308)	Stress-Related Disorders * MOMRP (1994)	Stresses experienced by service members are often different than those experienced by civilians (e.g. deployment separations, combat exposures).								
	Number of Articles 74	Top 5 Utilized Chapter					There was no PDTS data on this subtopic. It was difficult to map stress to a diagnosis within DMED; 'acute reaction to stress' was used, and this was within the top 5 diagnosed ICD-9 chapters. This ICD-9 category was more than twice as likely to be diagnosed in women as men for all ranks and settings for which data was available. One organization more than 20 years ago discussed stress-related disorders as a research priority. Of the numerous articles in this area, 22% are of excellent quality.					
	Excellent Quality 22%	F:M ratio Acute reaction to stress (308)		Based on this information, there is not a significant gap in the existing gender-inclusive literature on stress.								
	Low Quality 11%	<i>Outpatient</i> Enlisted: 2.6 Officer: 3.5								Recommendations		
	Definition Psychological or physiological stress	<i>Inpatient</i> Enlisted: 2.1 Officer: n/a										
		TCC Rank N/A										
		F:M Rate Ratio N/A										

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Distress	Topic Psychological Health	ICD-9 Chapter N/A	Mental/Psychological Health * IOM (1995) * VA (2011) * DHA (2015) * DOD (2016)	There was no DMED or PDTS data on this diffuse topic; conditions in this subtopic are not specific to ICD-9 codes, which makes them difficult to track. There have been numerous organizations that have highlighted the topic of mental health as a concern. Three organizations have listed mental health as a research priority within the past 5 years. Despite the moderate number of articles on this topic, over 95% of these met a good quality threshold.		
	Number of Articles 34	Top 5 Utilized N/A				
	Excellent Quality 29%	F:M ratio N/A		Based on this information, there is not a significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 3%					
	Definition Areas that were not discussed as a mental health disorder, but included topics such as anger or grief			TCC Rank N/A	Recommendations	
		F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis				
Subtopic: Stigma	Topic Psychological Health	ICD-9 Chapter N/A	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	There was no DMED or PDTS data on this subtopic. Mental health was recognized as a research priority by 6 out of the 7 research priority lists consulted for this project, with 3 highlighting mental health within the past 5 years. Although the quality of the existing research on this subtopic is good to excellent overall, the number of articles in this area is scant. This means that female service members may not be well-studied in terms of mental health stigma.				
	Number of Articles 13	Top 5 Utilized N/A					Based on this information, there is a significant gap in the existing gender-inclusive literature on this subtopic.	
	Excellent Quality 38%	F:M ratio N/A		Recommendations				
	Low Quality 0%						<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">Gap identified in existing research</td> <td style="width: 33%; text-align: center;">Continue ongoing research trajectory</td> <td style="width: 33%; text-align: center;">None at this time</td> </tr> </table>	
	Gap identified in existing research	Continue ongoing research trajectory		None at this time				
	Definition Self-reported individual barriers to seeking mental healthcare	TCC Rank N/A						
	F:M Rate Ratio N/A							

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis	
Subtopic: Mental Healthcare Utilization	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Mental Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	<p>Within DMED, the ICD-9 chapter of Mental Disorders was used as a proxy for this subtopic, which was within the top 5 utilized chapters. Multiple organizations have identified mental health as an area of concern for women in the military, but do not specifically target mental healthcare utilization. Within the numerous articles on this topic, over 95% were of good to excellent quality.</p> <p>Based on this information, there is not a significant gap in the existing gender-inclusive literature.</p>	
	Number of Articles 57	Top 5 Utilized Chapter			
	Excellent Quality 37%	F:M ratio Mental & Behavioral Disorders (290-319) <i>Outpatient</i> Enlisted: 1.6 Officer: 2.0	Physical/Mental Conditions * VA (2011)		
	Low Quality 2%	<i>Inpatient</i> Enlisted: 1.5 Officer: 1.7			
	Definition Includes rates of hospitalizations and outpatient encounters	TCC Rank Central Nervous System Agents #1 of 26	Recommendations		
		F:M Rate Ratio 1.18	Gap identified in existing research		Continue ongoing research trajectory

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Resilience Factors	Topic Psychological Health	ICD-9 Chapter N/A	Resilience * VA (2011) * DOD (2016)	There was no DMED or PDTS data on this subtopic. Resilience has been recognized by several organizations as a priority research area, with one naming it as recently as 2016. While there were no ICD-9 codes to measure psychological resilience factors, there were a surprising amount of articles that focused on this area. Within this subtopic, 32% of the articles were of excellent quality.		
	Number of Articles 50	Top 5 Utilized N/A	Social Support * MOMRP (1994) * IOM (1995) * VA (2011)			
	Excellent Quality 32%	F:M ratio N/A	Job Satisfaction & Stress * IOM (1995) * MOMRP (1994)	Based on the information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 8%					
	Definition Factors which enhance resilience, such as benefit finding, social support or spirituality	TCC Rank N/A	Recommendations			
		F:M Rate Ratio N/A				Gap identified in existing research

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Suicide	Topic Psychological Health	ICD-9 Chapter N/A	Suicide * VA (2011) * DOD (2016)	There was no DMED or PDTS data on this subtopic. Two recent reports in the past 6 years have highlighted suicide as a research priority concern. Of the numerous articles within this subtopic, over 90% were of good to excellent quality.		
	Number of Articles 46	Top 5 Utilized N/A				
	Excellent Quality 37%	F:M ratio N/A		Recommendations		
	Low Quality 7%	TCC Rank N/A				
	Definition Suicide, suicide prevention, or suicidal ideation	F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Cognition	Topic Psychological Health	ICD-9 Chapter Diseases of the nervous system and sense organs (302-389)	Neurosensory Conditions * IOM (1995) TBI General Care * VA (2011) * ACOG (2012)	Many of the articles in this subtopic were related to measuring cognition in individuals before deficits ensued.		
	Number of Articles 12	Top 5 Utilized Chapter		<p>There was no PTSD data for this subtopic. This subtopic definition was difficult to map to DMED. Cognition does fall within the top 5 utilized ICD-9 chapters, but women were only slightly more likely to be diagnosed with a condition in this overall chapter than men. Cognition specifically has not been highlighted as a topic of concern, although TBI has been highlighted by 2 different organizations in the past 6 years. Of the very little research that has been done on cognition, over 80% is of good to excellent quality.</p> <p>Based on this information, there is not a significant gap in the current gender-inclusive literature.</p>		
	Excellent Quality 8%	F:M ratio Diseases of the nervous system and sense organs (302-389)				
	Low Quality 17%	<u>Outpatient</u> Enlisted: 1.2 Officer: 1.1				
	Definition Cognitive functioning or performance					
		TCC Rank N/A				
	F:M Rate Ratio N/A	Recommendations				
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Other Mental Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Chronic physical & mental conditions * MOMRP (1994) * VA (2011) * DHA (2015)	This category was broad, and could only be mapped generally to the Mental Disorders chapter within DMED, which was in the top 5 utilized chapters. Central Nervous System (CNS) agents were the top most utilized therapeutic class category (TCC). Women were slightly more likely to be diagnosed with a condition or a prescription in these categories than men. Six organizations highlighted this subtopic as a research priority, but only four within the past six years. The number of articles was fair and over 90% were of good to excellent quality.		
	Number of Articles 48	Top 5 Utilized Chapter				
	Excellent Quality 21%	F:M ratio Mental & Behavioral Disorders (290-319) <i>Outpatient</i> Enlisted: 1.6 Officer: 2.0		Based on the current information there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 8%	<i>Inpatient</i> Enlisted: 1.5 Officer: 1.7				
	Definition Any diagnosed mental disorders which were not captured by other categories (e.g. ADHD)	TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26		Recommendations		
		F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis			
Subtopic: Adjustment Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	Mental and behavioral disorders were in the top most utilized ICD-9 chapters, and adjustment disorders were one of the top most utilized ICD-9 categories. Women were close to two times more likely to be diagnosed with an adjustment disorder than men across setting and rank. Six organizations highlighted mental/psychological disorders as a research priority and four of these were within the past six years. Although the quality for all articles was good to excellent, the number of articles is extremely low. This means that female service members may not be well studied in terms of adjustment disorders. Based on this information, there is a significant gap in the existing gender-inclusive literature on adjustment disorders.			
	Number of Articles 10	ICD-9 Category Adjustment Reaction (309)					
	Excellent Quality 30%	Top 5 Utilized Chapter & Category					
	Low Quality 0%	F:M ratio Adjustment Reaction (309) <i>Outpatient</i> Enlisted: 1.7 Officer: 1.9 <i>Inpatient</i> Enlisted: 1.6 Officer: 2.1					
	Definition Diagnosis and treatment of adjustment disorders	TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26					
		F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13					
				Recommendations			
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">Gap identified in existing research</td> <td style="width: 33%; text-align: center;">Continue ongoing research trajectory</td> <td style="width: 33%; text-align: center;">None at this time</td> </tr> </table>	Gap identified in existing research	Continue ongoing research trajectory	None at this time
Gap identified in existing research	Continue ongoing research trajectory	None at this time					

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Personality Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Personality Disorders (301)	Mental/Psychological Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	This subtopic falls within the top 5 diagnosed chapters and categories within DMED data. Personality disorders were the 2 nd most common diagnosis within the Mental Disorders chapter for enlisted women. Women across ranks and settings were much more likely to be diagnosed with a personality disorder than men. CNS agents were the top most utilized therapeutic class category. Mental health continues to be highlighted as a research priority for the military by many organizations.		
	Number of Articles 10	Top 5 Utilized Chapter & Category				
	Excellent Quality 30%	F:M ratio Personality Disorders (301)				
	Low Quality 0%	<i>Outpatient</i> Enlisted: 2.8 Officer: 3.2				
	Definition Diagnosis and treatment of personality disorders (e.g. Antisocial Personality, Narcissistic Personality Disorder)	<i>Inpatient</i> Enlisted: 8.3 Officer: 6.3				
		TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26				
F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13						
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Eating Disorders	Topic Psychological Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319) ICD-9 Category Special Symptoms, not elsewhere classified (307) ICD-9 Subcategories Eating Disorders (307.5) Anorexia Nervosa (307.1)	Eating Disorders * IOM (1995) * VA (2011) * DOD (2016)	Service members may be at a higher risk for disordered eating. They are held to predetermined physical fitness and weight criteria throughout their career, and can be separated from service if these criteria are not consistently met.					
	Number of Articles 6						This subtopic was within the top 5 most utilized chapters and categories within the DMED data. Women across ranks and settings were significantly more likely to be diagnosed with an eating disorder than their male peers. This is an area that has been identified as a research priority by three different organizations, two in the past 10 years.		
	Excellent Quality 50%			Bearing this in mind, the scant number of articles within this subtopic is very concerning. There is a significant gap in the existing gender-inclusive literature on eating disorders.					
	Low Quality 0%	Top 5 Utilized Chapter & Category					Recommendations		
	Definition Specific risk factors for, and diagnosis and treatment of, eating disorders	F:M ratio Eating Disorders & Anorexia Nervosa (307.1 & 307.5) <u>Outpatient</u> Enlisted: 4.1		Gap identified in existing research					
		TCC Rank Central Nervous System Agents #1 of 26 Miscellaneous Therapeutic Agents #14 of 26							
F:M Rate Ratio Central Nervous System Agents 1.18 Miscellaneous Therapeutic Agents 1.13		None at this time							

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Healthcare Utilization	Topic Readiness	ICD-9 Chapter N/A	Health Services (i.e. general health) * IOM (1995) * VA (2011) * DHA (2015) Database *IOM (1995) *IOM (1998) * DHA (2015) Medical Technology * IOM (1995) * VA (2011)	There was no DMED or PDTS data on this subtopic. Healthcare utilization was highlighted as a military research priority by four organizations, two in the past six years. There were a large number of articles in this area with almost one third of excellent quality.								
	Number of Articles 210	Top 5 Utilized N/A					Based on this information, there is not a significant gap in the existing gender-inclusive literature.					
	Excellent Quality 31%	F:M ratio N/A		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="width: 33%; height: 150px;">Gap identified in existing research</td> <td style="width: 33%;">Continue ongoing research trajectory</td> <td style="width: 33%; background-color: #f4a460;">None at this time</td> </tr> </tbody> </table>						Recommendations		
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory					None at this time					
	Low Quality 6%											
Definition Trends in hospitalizations and/or ambulatory care visits by service members and their families	TCC Rank N/A											
	F:M Rate Ratio N/A											

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Nutrition/Energy/Weight	Topic Readiness	ICD-9 Chapters Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders (240-279) Symptoms, Signs, and Ill-Defined Conditions (780-799)	Anthropometry * MOMRP (1994) * IOM (1995) * IOM (1998) Performance * MOMRP (1994) * IOM (1995) Body Composition & Obesity * IOM (1995) * IOM (1998) * VA (2011) Bone Health * IOM (1995) Nutrition * IOM (1995) * IOM (1998) Anemia and blood disorders * IOM (1998)	This subtopic spans two different ICD-9 Chapters illustrating its broad nature. The 'Symptoms, Signs, and Ill-Defined Conditions' chapter was in top utilized codes within the outpatient setting. Females were more likely to be diagnosed with one of these conditions compared to males, and in the PDTS data had higher prescription rates for both vitamins and electrolytes. Four organizations identified this area as a research priority from performance to body composition, one within the past six years. This is a broad topic, with a large number of articles; of those 85% were or good to excellent quality. Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 129					
	Excellent Quality 20%	F:M ratio Symptoms, Signs, and Ill-Defined Conditions (780-799) <i>Outpatient</i> Enlisted: 1.9 Officer: 1.8 <i>Inpatient</i> Enlisted: 1.6 Officer: 1.3		Recommendations		
	Low Quality 15%					
	Definition Service member nutrition, energy levels, or weight including anthropometric assessments	F:M Rate Ratio Vitamins: 10.0 Electrolytes: 3.78		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Physical Fitness	Topic Readiness	ICD-9 Chapter N/A	Body Composition * IOM (1995) * IOM (1998) * VA (2011) Physical fitness * MOMRP (1994) * IOM (1995) * IOM (1998) Performance * MOMRP (1994) * IOM (1995) * IOM (1998) Load bearing * MOMRP (1994) * IOM (1995) * IOM (1998)	Physical fitness is a key aspect in the readiness of service members. Four organizations highlighted physical fitness as a research priority, but only one within the past decade. Due to the broad nature of the topic no single ICD-9 chapter was identified for DMED data, however, females were almost 4 times more likely to be prescribed electrolytes compared to males. There are a large number of articles in this subtopic, and over 80% are of good to excellent quality. Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 105	Top 5 Utilized N/A				
	Excellent Quality 15%	F:M ratio N/A		Recommendations		
	Low Quality 18%					
	Definition Physical activity or fitness of service members, including Physical Fitness Testing (PFT)	TCC Rank #11 electrolytic, caloric, water balance		Gap identified in existing research	Continue ongoing research trajectory	None at this time
		F:M Rate Ratio Electrolytes: 3.78				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Work Environment	Topic Readiness	ICD-9 Chapter N/A	Occupational Health *MOMRP (1994) Job Satisfaction and Stress *MOMRP (1994) *IOM (1995) Protective Clothing and Equipment *MOMRP (1994) *IOM (1995)	There was no DMED or PDTS data for this subtopic. Only two organizations highlighted military work environment as a research priority. Both organizations highlighted this subtopic over two decades ago. There were many articles in this area, with over 85% being of good to excellent quality.		
	Number of Articles 91	Top 5 Utilized N/A				
	Excellent Quality 27%	F:M ratio N/A		Based on this information there is not a gap in the current gender-inclusive research on this subtopic.		
	Low Quality 14%					
	Definition How the work environment may impact health and/or readiness.	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Career Outcomes	Topic Readiness	ICD-9 Chapter N/A	Job Satisfaction and Stress * MOMRP (1994) * IOM (1995)	<p>There was no DMED or PDTS data for this subtopic. Two organizations highlighted this subtopic as a military research priority, but neither within the past decade. Both organizations recognized job satisfaction/stress and occupational health as important research areas. There are numerous articles in this subtopic, and over 95% are of good to excellent quality.</p> <p>Based on this information there is not a gap in the current gender-inclusive literature on this subtopic.</p>		
	Number of Articles 80	Top 5 Utilized N/A				
	Excellent Quality 35%	F:M ratio N/A	Recommendations			
	Low Quality 4%					TCC Rank N/A
	Definition Career outcomes including service member retention and attrition	F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Health Behaviors	Topic Readiness	ICD-9 Chapter N/A	N/A	<p>There was no DMED or PDTS data for this subtopic, and none of the organizations sampled for this project referred to health behaviors as a priority. This could be due to the broad scope of the subtopic. There were a moderate number of articles about health behaviors, but over 85% were of good to excellent quality.</p> <p>Based on this information there is not a gap in the current gender-inclusive literature on this subtopic.</p>		
	Number of Articles 59	Top 5 Utilized N/A				
	Excellent Quality 15%	F:M ratio N/A				
	Low Quality 15%					
	Definition Non-sexual behaviors that may impact the health and/or readiness of service members. May include both positive and negative behaviors and risk reduction interventions (e.g. tobacco cessation programs)	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Training	Topic Readiness	ICD-9 Chapter N/A	Performance * MOMRP (1994) * IOM (1995)	There was no DMED or PDTS data for this subtopic. Two organizations indicated this subtopic as a military research priority, but not within the past twenty years. There was a relatively light body of literature on this topic, but over 90% were of good to excellent quality.		
	Number of Articles 27	Top 5 Utilized N/A	Load bearing * MOMRP (1994) * IOM (1995)			
	Excellent Quality 19%	F:M ratio N/A	Job satisfaction and stress * MOMRP (1994) * IOM (1995)	Based on this information there is not a gap in the current gender-specific literature on this subtopic.		
	Low Quality 7%					
	Definition How training for military specific tasks may impact the health and/or readiness of service members	TCC Rank N/A	Protective clothing and equipment * MOMRP (1994) * IOM (1995)	Recommendations		
		F:M Rate Ratio N/A				
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sleep	Topic Readiness	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	Sleep * VA (2011)	While shift work and variable sleeping schedules are common in both civilian and military sectors, service personnel may be more susceptible to sleep difficulties by virtue of their unpredictable work schedules and locations.		
	Number of Articles 16	ICD-9 Category Special Symptoms, not elsewhere classified (307)	Performance * MOMRP (1994) * IOM (1995)			
	Excellent Quality 25%	ICD-9 Subcategory Specific disorders of sleep of nonorganic origin (307.4)		Sleep disorders were in the top 5 most utilized chapters and categories for outpatient officers. Three organizations highlighted sleep and performance as a military priority, one in the past six years. While over 90% of the research was of good to excellent quality, the number of articles in this area were scant, which may indicate that service women are not well studied in terms of sleep.		
	Low Quality 6%	Top 5 Utilized Chapter & Category				
	Definition Factors contributing to alteration in sleeping habits or circadian rhythm	F:M ratio Specific disorders of sleep of nonorganic origin (307.4) <i>Outpatient</i> Officer: 1.2		Based on this information, there is a significant gap in the existing gender-inclusive literature on sleep.		
		TCC Rank #1 Central Nervous System Agents				
		F:M Rate Ratio 1.18				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Mortality	Topic Readiness	ICD-9 Chapter N/A	N/A	This subtopic included articles for all non-combat related deaths, such as motor vehicle crashes.		
	Number of Articles 14	Top 5 Utilized N/A		There was no DMED or PDTS data for this subtopic, and no organizations sampled for this project have highlighted non-combat mortality as an area of research concern. The number of articles in this area was quite small, and less than 80% were of good to excellent quality.		
	Excellent Quality 29%	F:M ratio N/A		Based on the current information, there is not a significant gap in the existing gender-inclusive literature in this area.		
	Low Quality 21%			Recommendations		
	Definition Non-combat related deaths (e.g. car accidents)	TCC Rank N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Musculoskeletal Injury	Topic Injury	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Category Sprains and Strains (840-848)	Musculoskeletal * MOMRP (1994) * IOM (1995) * IOM (1998) * DHA (2015)	Musculoskeletal injury was among the top most utilized ICD-9 chapters in an outpatient setting for both enlisted and officer personnel. Men and women were equally as likely to experience a musculoskeletal injury.		
	Number of Articles 97	Top 5 Utilized Chapter				
	Excellent Quality 35%	F:M ratio Sprains and Strains (840-848) <i>Outpatient</i>		Four organizations highlighted musculoskeletal injury as a military research priority; one within the past five years. There were a large number of articles in this area and 90% were of good to excellent quality.		
	Low Quality 10%	Enlisted: 1.2 Officer: 1.1 <i>Inpatient</i> Enlisted: 0.6 Officer: 0.7 ^{NS}				
	Definition Injuries to the musculoskeletal system; may include overuse or acute injuries	TCC Rank Central Nervous System Agents #1 of 26		Recommendations		
F:M Rate Ratio 1.18		Gap identified in existing research	Continue ongoing research trajectory			

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Traumatic Injury	Topic Injury	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Categories Injury Cluster:	Polytrauma & TBI * VA (2011) * ACOG (2012)	Traumatic injury was among the top most utilized ICD-9 chapters and categories for both outpatient and inpatient settings. Females were less likely than males to be diagnosed with traumatic injury. However they were more likely to be prescribed central nervous system agents according to PDTS data. Two organizations within the past six years have indicated this area as research priority for military populations. The numbers of articles for this subtopic was fair and over 95% of articles in this area were of good to excellent quality.		
	Number of Articles 54	Certain traumatic complications and unspecified injuries (958-959) Fractures (800-829) Dislocation (830-839)				
	Excellent Quality 37%	Open wounds (870-897) Crushing Injuries (925-929)		Based on this information, there is not a significant gap in the existing gender-inclusive literature in this area.		
	Low Quality 4%	Top 5 Utilized Chapter & Category (Traumatic Injuries: 958-959)				
	Definition Injury caused by trauma (includes intentional and accidental injuries)	F:M ratio Injury Cluster <u>Outpatient</u> Enlisted: 0.8 Officer: 0.7 <u>Inpatient</u> Enlisted: 0.3 Officer: 0.6		Recommendations		
		TCC Rank Central Nervous System Agents #1 of 26				
	F:M Rate Ratio 1.18	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

	Scoping Review	Healthcare Utilization Data (DMED & PDTs)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Traumatic Brain Injury (TBI)	Topic Injury	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Category Intracranial injury (850-854)	TBI General Care * VA (2011) * ACOG (2012)	Traumatic brain injury (TBI) was listed among the top most utilized ICD-9 chapters and categories. Women officers were slightly more likely than men to be diagnosed with an intracranial injury in an outpatient setting than male officers. Two organizations within the past six years have highlighted TBI as a military research priority. Although the number of articles for this subtopic was relatively light, all were of good to excellent quality.		
	Number of Articles 24	Top 5 Utilized Chapter				
	Excellent Quality 50%	F:M ratio Intracranial injury (850-854)		Considering the impact this type of injury may have on the health of affected service members, research on this subtopic should continue. However, based on current information, there is not a significant gap in the existing gender-inclusive literature in this area.		
	Low Quality 0%	<u>Outpatient</u> Enlisted: 0.6 Officer: 1.3				
	Definition Traumatic brain injuries (TBI) include concussions and mild TBI	<u>Inpatient</u> Enlisted: 0.4 Officer: 0.4 ^{ns}		Recommendations		
		TCC Rank N/A				
	F:M Rate Ratio N/A	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Deployment Injury	Topic Injury	ICD-9 Chapter N/A	Musculoskeletal Injuries on Deployment * DHA (2015) Polytrauma * VA (2011)	There was no DMED or PDTS data available for this subtopic. Two organizations within the past six years highlighted this area as a military research priority. There were a moderate number of articles with over 90% being of good to excellent quality.		
	Number of Articles 51	Top 5 Utilized N/A				
	Excellent Quality 41%	F:M ratio N/A		Considering the high importance and relevance of injury during deployment, gender-inclusive research should continue. However, there is not a significant gap in the existing gender-inclusive literature in this area.		
	Low Quality 6%					
	Definition Injuries sustained specifically during deployment (combat and non-combat related)	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: General Injury	Topic Injury	ICD-9 Chapter Injury and poisoning (800-999)	Musculoskeletal Injuries * MOMRP (1994) * IOM (1995) * IOM (1998) * DHA (2015)	Injury overall was among the top most utilized ICD-9 chapters across outpatient and inpatient settings. Men and women were just as likely to receive diagnoses of general injuries. Four organizations identified musculoskeletal injuries as a research priority, but only one organization has done so in the past 5 years. There were a fair number of articles on this subtopic and over 85% were of good to excellent quality.		
	Number of Articles 43	Top 5 Utilized Chapter				
	Excellent Quality 23%	F:M ratio Injury and poisoning (800-999) <i>Outpatient</i>		Due to the broad and non-specific nature of this subtopic, research could be done on specific injuries covered elsewhere. There is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 12%	Enlisted: 1.1 Officer: 1.1 <i>Inpatient</i>				
	Definition Injuries that do not fit into any other 'Injury' Subtopic areas; includes non-specific injury types or locations	Enlisted: 0.9 Officer: 0.8 ^{NS}		Recommendations		
		TCC Rank Central Nervous System Agents #1 of 26				
	F:M Rate Ratio 1.18	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Heat/Cold/Altitude	Topic Injury	ICD-9 Chapter Injury and poisoning (800-999)	Stress responses (i.e. temperature and pressure) * MOMRP (1994) * IOM (1995)	Health/Cold/Altitude was in the top most utilized ICD-9 chapters and categories; however numbers for female to male comparisons were too low to calculate rate ratios and PDTS data was not available. Two organizations highlighted this area as a research priority, but both were from over two decades ago. The number of articles in this area is relatively light, however all are of good to excellent research quality.					
	ICD-9 Categories Other and unspecified effects (990-995)	Top 5 Utilized Chapter & Category					Based on this current information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 22	F:M ratio Other and unspecified effects (991,992, 993)		Recommendations					
	Excellent Quality 23%	Female rate is 3.08 per 1,000 years.					Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Low Quality 0%	TCC Rank N/A							
	Definition Injuries to service members related to extremes of heat, cold, or altitude	F:M Rate Ratio N/A							

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis						
Subtopic: Eye/Ear Injury	Topic Injury	ICD-9 Chapter Injury and poisoning (800-999) ICD-9 Categories Certain traumatic complications/unspecified injuries (958-959) Open wounds (870-879) Crushing injuries (925-929)	Otolaryngological conditions * IOM (1995) Noise/Hearing Loss * IOM (1995)	Ear/Eye injury was among the top most utilized ICD-9 chapters (Injury and Poisoning) and categories. All ratios calculated from DMED data were insignificant across all settings and personnel rankings. Two organizations identify this area as a research priority for military populations; however, both were recommendations from over two decades ago. Although the number of articles in this subtopic was scant, all articles were of good to excellent quality.						
	Number of Articles 15						Top 5 Utilized Chapter & Category (Certain traumatic complications/unspecified injuries: 958-959)	Based on this current information, there is not a significant gap in the existing gender-inclusive literature.		
	Excellent Quality 33%	F:M ratio Certain traumatic complications/unspecified injuries (958-959) <u>Outpatient</u> Enlisted: 1.0 ^{NS} Officer: 1.0 ^{NS} <u>Inpatient</u> Enlisted: 0.7 ^{NS} Officer: 0.5 ^{NS}		Recommendations						
	Low Quality 0%						TCC Rank Eye, Ear, Nose, and Throat Preparations #4 of 26	Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Definition Injuries of the eye and/or ear, including intracranial injury									

Note. NS indicates F:M ratio was not significant.

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Other Organ Systems	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter N/A	Gastrointestinal conditions * IOM (1995)	There was no DMED or PDTS data for this subtopic. Two organizations highlighted multiple organ systems as research priorities, but both sources were published almost twenty years ago. There were a large number of articles on this subtopic and over 90% were of good to excellent quality.		
	Number of Articles 89	Top 5 Utilized N/A	Respiratory conditions * IOM (1995)			
	Excellent Quality 24%	F:M ratio N/A	Endocrine * IOM (1995)	The subtopic is broad and priorities in this area could be covered under other subtopics. Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 8%		Dermatological conditions * IOM (1995)			
	Definition Acute or preventative care for other organ systems not covered in the other subtopics	Neurosensory * IOM (1995)				
		ENT conditions * IOM (1995)				
		Anemia and blood disorders * IOM (1998)				
	TCC Rank N/A		Recommendations			
	F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Infectious Disease	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter Infectious and Parasitic Diseases (001-139)	Communicable diseases * IOM (1995)	<p>Infectious Diseases were not among the top 5 most utilized ICD-9 chapters. Women were slightly more likely to be diagnosed with an infectious or parasitic disease than men across setting and rank. Women were also more likely to be prescribed an anti-infective prescription compared to men. One organization highlighted this topic as a research priority, but is cited over twenty years ago. Of the articles found for this topic, over 90% were of good to excellent quality.</p> <p>Based on this information there is not a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 58	Top 5 Utilized N/A				
	Excellent Quality 38%	F:M ratio Infectious and Parasitic Diseases (001-139) <i>Outpatient</i>				
	Low Quality 7%	Enlisted: 1.8 Officer: 1.3 <i>Inpatient</i>				
	Definition Most infectious diseases; including Hepatitis A/B/C and influenza; excluding other sexually transmitted infections	Enlisted: 1.3 Officer: 1.8				
		TCC Rank #2 Anti-Invectives				
	F:M Rate Ratio 1.43		Recommendations			
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Musculoskeletal	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter Diseases of the musculoskeletal system and connective tissue (710-739) ICD-9 Categories Other and Unspecified Disorders of the Joint (719) Other Disorders of Soft Tissues (729)	Musculoskeletal * MOMRP (1994) * IOM (1995) * IOM (1998) * DHA (2015)	This subtopic was in the top most utilized ICD-9 chapters/categories and central nervous system agents were the top ranked within PDTS data. Both men and women were almost equally likely to receive diagnoses for musculoskeletal conditions. Four organizations highlighted musculoskeletal issues as research priorities, but only one within the past five years. There were a fair number of articles for this subtopic and over 90% were of good to excellent quality.		
	Number of Articles 40					
	Excellent Quality 35%	Top 5 Utilized Chapter & Category		Based on this information there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 8%	F:M ratio Other/Unspecified Disorders of Joint (719) <i>Outpatient</i> Enlisted: 1.2 Officer: 1.1 <i>Inpatient</i> Enlisted: 1.4 Officer: 1.0 ^{NS} Other Disorders of Soft Tissues (729) <i>Outpatient</i> Enlisted: 1.4 Officer: 1.3 <i>Inpatient</i> Enlisted: 1.5 Officer: 1.8 ^{NS}				
	Definition Non-injury and non-chronic musculoskeletal diagnoses, including surgical repair, bone health, and other preventative measures			Recommendations		
		TCC Rank Central Nervous System Agents #1 of 26				
		F:M Rate Ratio 1.18		Gap identified in existing research	Continue ongoing research trajectory	None at this time

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sexually Transmitted Infections	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter Infectious and Parasitic Diseases (001-139) ICD-9 Categories Other diseases due to viruses and chlamydiae (070-079) Chlamydia (078-079) Syphilis and other venereal diseases (090-099) Gonococcal (098) Venereal disease (099)	Gynecological/genitourinary health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)	Although this subtopic is not in the top utilized ICD-9 chapters/categories, outpatient women across rank were much more likely to be diagnosed with an STI than men. Anti-infective medications were also the 2nd most highly prescribed TCC for women. Five organizations highlighted various areas of reproductive health as priorities for military populations. Of these organizations, three were within the past 10 years. The number of articles in this area was relatively light given the high priority given to this topic by multiple organizations.		
	Number of Articles 37	Top 5 Utilized N/A	Reproductive health * IOM (1995) * VA (2011) * ACOG (2012)			
	Excellent Quality 19%	F:M ratio <i>Outpatient</i> Syphilis (090-099) Enlisted: 2.3	Sexually Transmitted Diseases (STDs) * MOMRP (1994) * IOM (1995)	Based on this information, there is a significant gap in the existing gender-inclusive literature on STIs.		
	Low Quality 14%	Officer: 0.8 Viral Warts (078.1) Enlisted: 0.8 Officer: 0.9 Chlamydia (078.88) Enlisted: 3.3 Officer: 0.7 Other chlamydia (079.88) Enlisted: 3.5 Officer: 5.0 Unspecified chlamydial (079.98) Enlisted: 4.7 Officer: 2.0	Communicable diseases * IOM (1995)			
	Definition Sexually transmitted infections including Trichomonas vaginalis, chlamydia, and genital warts; excludes HIV and Hepatitis A/B/C	TCC Rank #2 Anti-Infectives		Recommendations		
		F:M Rate Ratio 1.43		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Vaccinations	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter N/A	N/A	<p>There was no DMED data for this subtopic, and no organizations listed vaccinations as a priority. Vaccinations were not in the top 10 most utilized medications for women. The number of articles in this area was relatively light, but all were of good to excellent quality.</p> <p>A gender specific research focus may not be needed in this area. There is not a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 35	Top 5 Utilized N/A				
	Excellent Quality 29%	F:M ratio N/A				
	Low Quality 0%					
	Definition Research on vaccine administration and immunity	TCC Rank #16 of 26		Recommendations		
		F:M Rate Ratio 1.79				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Cardiovascular	Topic Acute Care and Preventative Medicine (ACPM)	ICD-9 Chapter Diseases of the Circulatory System (390-459)	Cardiovascular Health * IOM (1995)	The ICD-9 chapter for cardiovascular health is not among the top 5 most utilized chapters. Men are more often diagnosed with circulatory diseases than women. This also holds true for the rate ratio of cardiovascular drug prescriptions. One organization listed cardiovascular health as a research priority for military populations, but this was cited over twenty years ago. Over 90% of the articles in this area are of good to excellent quality; however, the number of articles is relatively light. It may be that fewer studies have been done in military populations because the civilian literature has sufficient data to address these health concerns.		
	Number of Articles 24	Top 5 Utilized N/A				
	Excellent Quality 25%	F:M ratio Diseases of the Circulatory System (390-459) <i>Outpatient</i> Enlisted: 1.1 Officer: 1.0 ^{ns}		Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 8%	<i>Inpatient</i> Enlisted: 0.8 Officer: 0.6				
	Definition Acute cardiovascular conditions (such as syncope) or preventative measures, such as evaluation of lipid panels	TCC Rank Cardiovascular Drugs #12 of 26		Recommendations		
		F:M Rate Ratio 0.65		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Combat Exposure	Topic Deployment Health	ICD-9 Chapter N/A	Polytrauma * ACOG (2012) TBI (General Care) * VA (2011) * ACOG (2012)	There was no DMED or PDTS data for combat exposure. Two organizations from the past six years highlighted this subtopic as a research priority. The number of articles in this area was quite large and 95% were of good to excellent quality. Research on this topic is likely to continue as combat exposure is a main concern for military populations.		
	Number of Articles 149	Top 5 Utilized N/A				
	Excellent Quality 36%	F:M ratio N/A		Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 5%					
	Definition Exposure to combat during deployment	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Symptomatic Conditions	Topic Deployment Health	ICD-9 Chapter Symptoms, Signs, and Ill-Defined Conditions (780-799)	N/A	<p>The ICD-9 chapter for Symptoms, Signs, and Ill-Defined conditions is among the top utilized codes for enlisted and officer personnel in an outpatient setting. No organizations referenced in this report highlighted this area as a research priority. The number of articles was relatively light, but over 85% were of good to excellent quality. Additionally, this subtopic is broad and non-specific, limiting interpretation of the data.</p> <p>Based on the current information, there is not a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 31	Top 5 Utilized Chapter				
	Excellent Quality 13%	F:M ratio Symptoms, Signs, and Ill-Defined Conditions (780-799) <i>Outpatient</i> Enlisted: 1.9 Officer: 1.8				
	Low Quality 13%					
	Definition Illness that occurs during deployment, such as respiratory infections. Excludes injuries	<i>Inpatient</i> Enlisted: 1.6 Officer: 1.3				
		TCC Rank N/A				
	F:M Rate Ratio N/A	Recommendations				
		Gap identified in existing research	Continue ongoing research trajectory	None at this time		

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Aeromedical Evacuation	Topic Deployment Health	ICD-9 Chapter N/A	Stress responses (i.e. temperature and pressure) *MOMRP (1994) * IOM (1995) Noise and hearing loss * IOM (1995)	There was no DMED or PDTS data for aeromedical evacuation. This subtopic was highlighted by two organizations as a research priority, but not within the past 20 years. The number of articles in the subtopic were relatively light but over 95% were of good to excellent quality.		
	Number of Articles 23	Top 5 Utilized N/A				
	Excellent Quality 39%	F:M ratio N/A		A gender specific research focus may not be needed in this area. Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 4%					
	Definition Aeromedical evacuation from a deployment setting, including evacuation for both combat and non-combat related injuries or illnesses	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Mental Health	Topic Deployment Health	ICD-9 Chapter Mental & Behavioral Disorders (290-319)	PTSD/Depression * VA (2011) Mental Health * DHA (2015)	Mental and behavioral disorders were among the top most utilized ICD-9 chapters. Women were more likely than men to be diagnosed with a mental or behavioral health disorder in both outpatient and inpatient settings. Two organizations within the past ten years have highlighted mental health as a research priority for military populations. The number of articles in this area is relatively light but all were of good to excellent quality. Conducting research on mental health in a deployed setting may be very difficult. Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 21	Top 5 Utilized Chapter				
	Excellent Quality 29%	F:M ratio Mental & Behavioral Disorders (290-319) <i>Outpatient</i> Enlisted: 1.6 Officer: 2.0				
	Low Quality 0%	<i>Inpatient</i> Enlisted: 1.5 Officer: 1.7				
	Definition Mental health during deployment, which includes access to care or other factors impacting the mental health of deployed service members	TCC Rank #1 Central Nervous System Agent				
		F:M Rate Ratio 1.18				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Gynecological Care	Topic Deployment Health	ICD-9 Chapter Disease of the genitourinary system (580-629)	Bacterial Vaginosis * ACOG (2012) * DHA (2015)	<p>The ICD-9 chapter for Diseases of the Genitourinary System is among the top utilized chapters. Women were far more likely to be diagnosed with genitourinary conditions than men. Three different organizations, two within the past 5 years, have identified gynecological care in deployment as a research priority. The number of articles for this subtopic was scant, which may indicate that service women are not well studied in relation to deployment gynecological health. Additionally, 21% of the articles in this subtopic were of low quality.</p> <p>Based on the current information, there is a significant gap in the existing literature.</p>								
	Number of Articles 19	Top 5 Utilized Chapter	Cervical Cancer Screening * ACOG (2012)									
	Excellent Quality 11%	F:M ratio Disease of the genitourinary system (580-629)	Contraception * ACOG (2012) * DHA (2015)									
	Low Quality 21%	<u>Outpatient</u> Enlisted: 7.0 Officer: 5.5	Facilities and hygiene in Deployment * ACOG (2012) * DHA (2015)									
	Definition Gynecological care during deployment, includes access to care or necessary supplies	<u>Inpatient</u> Enlisted: 6.3 Officer: 5.4	Gynecological/ Genitourinary Health in Deployment * DHA (2015) * MOMRP (1994)	<table border="1"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory	None at this time									
	TCC Rank N/A	Menstruation * ACOG (2012) * DHA (2015)										
	F:M Rate Ratio N/A	Pregnancy * ACOG (2012) * DHA (2015)										
		UTIs * ACOG (2012) * DHA (2015)										

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Environmental Exposure	Topic Deployment Health	ICD-9 Chapter N/A	Occupational Health * MOMRP (1994)	There was no DMED or PTDS data for environmental exposure. Two organizations highlighted this area as a research priority for military populations but neither within the past twenty years. The number of articles in this area was scant but over 85% were of good to excellent quality. The scant number of articles may indicate that environmental exposures are not well-studied, so ongoing research in this area should continue.		
	Number of Articles 16	Top 5 Utilized N/A	Chemical defense * IOM (1995)			
	Excellent Quality 31%	F:M ratio N/A	Stress responses (i.e. temperature and pressure) * MOMRP (1994) * IOM (1995)	Based on the current information, there is not a significant gap in existing gender-inclusive research.		
	Low Quality 13%		Toxins * MOMRP (1994) * IOM (1995)			
	Definition Environmental exposures during deployment	TCC Rank N/A	Radiation * MOMRP (1994) * IOM (1995)	Recommendations		
	Protective clothing and equipment * MOMRP (1994) * IOM (1995)					
		Noise and hearing loss * IOM (1995)	Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sexual Assault	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999)	Military Sexual Trauma * VA (2011) Sexual Assault * MOMRP (1994) * IOM (1995) * ACOG (2012) Intimate Relationships * DOD (2016) Intimate Partner Violence * DOD (2016)	There was no PDTS data for this subtopic. There were a fair number of articles on this subtopic and over 85% were of good to excellent quality. However, this subtopic was in the most utilized ICD-9 chapters. Women were far more likely to receive a sexual assault diagnosis compared to men, and rate ratios were significantly higher for women compared to men. Sexual assault has been highlighted by five different organizations, three in the past six years.		
	Number of Articles 47	ICD-9 Categories Other and Unspecified Effects (990-995) Certain adverse effects (995)				
	Excellent Quality 34%	ICD-9 Subcategory Other specified adverse effects, not otherwise specified (995.8)		Based on the current information, there is a significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 13%	ICD-9 Subclassification Adult sexual abuse (995.83)				
	Definition Sexual assault experienced or perpetrated by military populations, includes military sexual trauma	Top 5 Utilized Chapter		Recommendations		
		F:M ratio Adult sexual abuse (995.83) <i>Outpatient</i> Enlisted: 24.6 Officer: 22.3				
		TCC Rank N/A				
	F:M Rate Ratio N/A					

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Military Family Relationships	Topic Social Relationships	ICD-9 Chapter N/A	Family Issues * IOM (1995) * VA (2011) * DOD (2016) Social Support * MOMRP (1994) * IOM (1995) * VA (2011)	There was no DMED or PDTS data for this subtopic. Four organizations, two in the past six years, highlighted family issues and social support as research priorities. The number of articles in this area was moderate and 90% were of good to excellent quality. Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 42	Top 5 Utilized N/A				
	Excellent Quality 33%	F:M ratio N/A				
	Low Quality 10%					
	Definition Social relationships between military members and their families, does not include child abuse or intimate partner violence					
		TCC Rank N/A		Recommendations		
	F:M Rate Ratio N/A	Gap identified in existing research	Continue ongoing research trajectory			

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Military Work Relationships	Topic Social Relationships	ICD-9 Chapter N/A	Job satisfaction and stress * MOMRP (1994) * IOM (1995) * VA (2011) Social support * MOMRP (1994) * IOM (1995) * VA (2011)	There was no DMED or PDTS data for this subtopic. Three organizations highlighted job satisfaction/stress and social support as research priorities, but only one within the past six years. The number of articles for this subtopic was fair and 85% were of good to excellent quality.								
	Number of Articles 40	Top 5 Utilized N/A					Based on the current information, there is not a significant gap in the existing gender-inclusive literature.					
	Excellent Quality 35%	F:M ratio N/A		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="width: 33%;">Gap identified in existing research</td> <td style="width: 33%;">Continue ongoing research trajectory</td> <td style="width: 33%;">None at this time</td> </tr> </tbody> </table>						Recommendations		
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory		None at this time								
	Low Quality 15%	TCC Rank N/A										
Definition Social relationships between military members and either other military service members or their civilian co-workers	F:M Rate Ratio N/A											

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Child Abuse	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999)	Intimate Partner Violence * MOMRP (1994) * VA (2011) * ACOG (2012) * DOD (2016) Child Abuse * MOMRP (1994) * VA (2011) * ACOG (2012) * DOD (2016)	There was no PDTS data for this subtopic. This subtopic was among the top 5 most utilized ICD-9 chapters. Female to male rate ratios were unavailable due to low numbers within the DMED data. Four organizations, three within the last six years, highlighted child abuse as a research priority. The number of articles in the area was relatively light but all were of good to excellent quality.					
	Number of Articles 35	ICD-9 Categories Other and Unspecified Effects (990-995) Certain adverse effects (995)					Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Excellent Quality 46%	ICD-9 Subcategory Child maltreatment syndrome (995.5)		Recommendations					
	Low Quality 0%	Top 5 Utilized Chapter					Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Definition Includes physical, emotional, and sexual maltreatment, abuse victimization and perpetration, and adult after-effects of child abuse	F:M ratio Child maltreatment syndrome (995.5) Female rate is 0.49 per 1,000 years (80 cases)							
		TCC Rank N/A							
	F:M Rate Ratio N/A								

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sexual Harassment	Topic Social Relationships	ICD-9 Chapter N/A	Sexual harassment * MOMRP (1994) * VA (2011) * ACOG (2012)	There was no DMED or PDTS data for sexual harassment. Three organizations, two within the past six years, highlighted this subtopic as a research priority. The number of articles in this subtopic was relatively light but over 90% were of good to excellent quality.		
	Number of Articles 32	Top 5 Utilized N/A				
	Excellent Quality 41%	F:M ratio N/A		Based on the current information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 9%					
	Definition Sexual harassment experienced or perpetrated by military populations	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Intimate Partner Violence	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Category Other and Unspecified Effects (990-995) ICD-9 Subcategory Certain adverse effects (995.8) ICD-9 Classification Forms of adult abuse (995.80-995.89)	Intimate Partner Violence * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	<p>There was no PDTS data for this subtopic. This subtopic was within the top 5 most utilized ICD-9 chapters. Five organizations, two within the past six years, highlighted this subtopic as a research priority. It was not possible to calculate rate ratios due to low numbers of cases for men. The number of articles in this subtopic was relatively low but over 90% are of good to excellent quality.</p> <p>Based on the current information, there is not a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 28	Top 5 Utilized Chapter				
	Excellent Quality 50%					
	Low Quality 0%					
	Definition Violence experience or perpetrated by military members and/or their spouse/romantic partner	F:M ratio Certain adverse effects (995.8) Female rate is 6.29 per 1,000 years				
		TCC Rank N/A				
		F:M Rate Ratio N/A				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Physical Assault	Topic Social Relationships	ICD-9 Chapter Injury and Poisoning (800-999) ICD-9 Categories Injury and Poisoning Other and Unspecified Effects (990-995) ICD-9 Subcategory Certain adverse effects (995.8) ICD-9 Subclassification Adult physical abuse (995.81)	N/A	There was no PDTS data on physical assault. This subtopic was within the top 5 most utilized ICD-9 chapters. Females were over twice as likely as males to be diagnosed with physical abuse in an outpatient setting. Physical assault would also be coded clinically specific to particular bodily injuries, and as the potential diagnoses would be so wide-ranging, rate ratios in other diagnostic clusters could not be calculated. No organizations referenced in this report highlighted physical assault as a research priority for military populations. The number of articles in this area was scant, meaning that only 6 of the 12 articles in this subtopic were of excellent quality.		
	Number of Articles 12					
	Excellent Quality 50%					
	Low Quality 8%					
	Definition Violence experienced or perpetrated by military members, excludes violence from/against partners or children	Top 5 Utilized Chapter		Based on the current information, there is a significant gap in the existing gender-inclusive literature on this subtopic.		
		F:M ratio Adult physical abuse (995.81) <i>Outpatient:</i> Enlisted: 2.8 Officer: 3.5				
		Female rate is 1.77 per 1,000 years				
	TCC Rank N/A	Recommendations				
	F:M Rate Ratio N/A	Gap identified in existing research	Continue ongoing research trajectory	None at this time		

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Contraception	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Contraception * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015)	There was no DMED data for this subtopic. PDTS data showed that women were overwhelmingly more likely to be prescribed contraception compared to men. Five organizations, three within the past six years, highlighted contraception as a research priority for military populations. There were a relatively light number of articles on contraception, and of these, 31% were of low quality.		
	Number of Articles 29	Top 5 Utilized N/A				
	Excellent Quality 21%	F:M ratio N/A		Based on the current information, there is a significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 31%					
	Definition Contraception used for any purpose (e.g. birth control, menstrual suppression), including male condoms	TCC Rank Hormones and synthetic substitutes #3 of 26 Contraceptives #16 of 26		Recommendations		
	F:M Rate Ratio Hormones: 6.74 Contraceptives: 83.6	Gap identified in existing research	Continue ongoing research trajectory			

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Uterine Wellness	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the genitourinary system (580-629)	Cervical Cancer Screening * VA (2011) * ACOG (2012)	<p>There was no PDTS data on uterine wellness. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were over five times more likely to be diagnosed with genitourinary diseases compared to men across setting and rank. Two organizations within the past six years highlighted uterine wellness as a research priority. The number of articles in this area was light with over 30% of articles being of low quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-specific literature on this subtopic.</p>								
	Number of Articles 24	Top 5 Utilized Chapter	Uterine Health * ACOG (2012)									
	Excellent Quality 17%	F:M ratio Diseases of the genitourinary system (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory	None at this time									
	Low Quality 33%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4										
Definition Health outcomes involving the uterus or cervix, including pap smears	TCC Rank N/A											
	F:M Rate Ratio N/A											

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Sexual Health	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Sexual Health * VA (2011)	<p>There was no DMED or PDTS data for sexual health. One organization within the past six years highlighted this subtopic as a research priority. The number of articles for sexual health research is relatively light with over 85% being of good to excellent quality.</p> <p>Based on the current information, there is not a significant gap in the existing gender-inclusive literature.</p>		
	Number of Articles 23	Top 5 Utilized N/A				
	Excellent Quality 13%	F:M ratio N/A				
	Low Quality 13%					
	Definition Sexual behaviors, sexual education, or sexual interventions.	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Menstruation	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the genitourinary system (580-629)	Menstruation * MOMRP (1994) * IOM (1995) * ACOG (2012) * DHA (2015)	<p>There was no PDTS data on menstruation. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were over five times more likely to be diagnosed with a genitourinary disease compared to men across setting and rank. Four organizations, two within the past five years, highlighted menstruation as a research priority. The number of articles on menstruation research is scant and an alarming 47% of those articles were of low quality.</p> <p>Based on this information, there is a significant gap in the existing gender-specific literature on this subtopic.</p>		
	Number of Articles 17	Top 5 Utilized Chapter				
	Excellent Quality 18%	F:M ratio Diseases of the genitourinary system (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5				
	Low Quality 47%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4				
	Definition Menstruation, but not menstrual suppression	TCC Rank N/A				
		F:M Rate Ratio N/A				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Menstrual Suppression	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Menstruation * MOMRP (1994) * IOM (1995) * ACOG (2012) * DHA (2015) Contraception * IOM (1995) * ACOG (2012) * DHA (2015)	No DMED data was available on the subtopic of menstrual suppression. Women were over six times more likely to be prescribed hormones and synthetic substitutes compared to men. Four organizations, two within the past five years, highlighted this subtopic as a research priority. There were very few articles on menstrual suppression with an alarming 60% being of low quality.		
	Number of Articles 10	Top 5 Utilized N/A				
	Excellent Quality 10%	F:M ratio N/A		Based on the current information, there is a significant gap in the existing gender-specific literature.		
	Low Quality 60%					
	Definition Menstrual suppression and/or regulation	TCC Rank Hormones and Synthetic Substitutes #3 of 26		Recommendations		
		F:M Rate Ratio 6.74				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Postpartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Birth and Postpartum Outcomes * MOMRP (1994) * IOM (1995) * IOM (1998) * ACOG (2012)	<p>There was no DMED or PDTS data for this subtopic. Four organizations, one within the past five years, highlighted birth and postpartum outcomes as a research priority. The number of articles in this area were scant with only 6% being of excellent quality.</p> <p>Based on current information, there is a significant gap in the existing gender-specific literature.</p>		
	Number of Articles 16	Top 5 Utilized N/A				
	Excellent Quality 6%	F:M ratio N/A				
	Low Quality 19%	TCC Rank N/A				
	Definition Medical care given following the delivery of the child	F:M Rate Ratio N/A		Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Antepartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	There was no DMED data for antepartum diagnoses; however, women were more likely to be prescribed vitamins/dietary supplements than men which may reflect the use of prenatal vitamins in the antepartum period. Seven organizations highlighted pregnancy as a research priority; four within the past six years. The number of articles in this area was extremely low and 27% were of low quality.		
	Number of Articles 11	Top 5 Utilized N/A				
	Excellent Quality 9%	F:M ratio N/A		Based on this information, there is a significant gap in the existing gender-specific literature.		
	Low Quality 27%					
	Definition Medical care given during pregnancy but before the mother is in active labor	TCC Rank #10 Vitamins/ Dietary Supplements		Recommendations		
	F:M Rate Ratio 1.63	Gap identified in existing research	Continue ongoing research trajectory			

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Intrapartum	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)	There was no DMED or PDTS data for this subtopic. Seven organizations, four within the past six years, highlighted pregnancy as a research priority. The number of articles on intrapartum health outcomes was very low and 50% were of low quality.								
	Number of Articles 6	Top 5 Utilized N/A					Based on this information, there is a significant gap in the existing gender-specific literature.					
	Excellent Quality 0%	F:M ratio N/A		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>						Recommendations		
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory		None at this time								
	Low Quality 50%	TCC Rank N/A										
Definition Medical care given during the period from the start of active labor to delivery of an infant	F:M Rate Ratio N/A											

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Birth Outcomes/Infant Health	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Birth and postpartum outcomes * MOMRP (1994) * IOM (1995) * IOM (1998) * ACOG (2012)	<p>There was no DMED or PDTS data on this subtopic. Four organizations, one within the past five years, highlighted birth and postpartum outcomes as a research priority. There were a scant number of articles on this subtopic and 25% were of low quality.</p> <p>Based on this information, there is a significant gap in the existing literature.</p>		
	Number of Articles 16	Top 5 Utilized N/A				
	Excellent Quality 6%	F:M ratio N/A				
	Low Quality 25%					
	Definition Delivery of the baby, and health outcomes for both the mother and baby	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Vaginal Health	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Bacterial Vaginosis * MOMRP (1994) * ACOG (2012) * DHA (2015)	<p>There was no PDTS data on vaginal health. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were five to seven times more likely to be diagnosed with genitourinary diseases than men across setting and rank. Five organizations, three within the past six years, highlighted various genitourinary concerns as research priorities. There were a very scant number of research articles on this area and over 40% were of low quality.</p> <p>Based on this information, there is a significant gap in the existing gender-specific literature.</p>								
	Number of Articles 12	Top 5 Utilized Chapter	Facilities and hygiene * MOMRP (1994) * ACOG (2012) * DHA (2015)									
	Excellent Quality 8%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5	Gynecological/ Genitourinary Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Recommendations											
	Gap identified in existing research	Continue ongoing research trajectory	None at this time									
Low Quality 42%	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4											
Definition Related to the vaginal health of the female genital tract, as well as related conditions and diseases	TCC Rank N/A											
	F:M Rate Ratio N/A											

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: General Obstetrics	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Gynecological/ Genitourinary Health * MOMRP (1994) * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016) Reproductive Health * IOM (1995) * VA (2011) * ACOG (2012) * DOD (2016)	There was no DMED data for general obstetrics; women were more likely to be prescribed vitamins than men. Seven organizations, four within the past six years, highlighted gynecological and pregnancy topics as priorities for research. There were a very low number of articles on general obstetrics and 22% of them were of low quality. Based on the current information there is a significant gap in the existing gender-specific literature.		
	Number of Articles 9	Top 5 Utilized N/A				
	Excellent Quality 11%	F:M ratio N/A				
	Low Quality 22%					
	Definition Non-medical care aspects of pregnancy	TCC Rank Vitamins/ Dietary Supplements #10 of 26				
		F:M Rate Ratio 1.63				
				Recommendations		
				Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis					
Subtopic: Urological Health	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	UTIs * MOMRP (1994) * ACOG (2012) * DHA (2015)	<p>There was no PDTS data on urological health. This subtopic was within the top 5 most utilized ICD-9 chapters. Women were five to seven times more likely to be diagnosed with genitourinary diseases compared to men across settings and rank. Five organizations, three within the past six years, highlighted priorities on urological health. A very low number of articles were reported on this subtopic, and 22% were of low quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-inclusive literature.</p>					
	Number of Articles 9	Top 5 Utilized Chapter	Gynecological/ Genitourinary Health * IOM (1995) * VA (2011) * ACOG (2012) * DHA (2015)						
	Excellent Quality 22%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i>		<p>Recommendations</p> <table border="1"> <tr> <td style="background-color: #f4a460;">Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </table>			Gap identified in existing research	Continue ongoing research trajectory	None at this time
	Gap identified in existing research	Continue ongoing research trajectory	None at this time						
	Low Quality 22%	Enlisted: 7.0 Officer: 5.5 <i>Inpatient</i>							
	Definition Male and female urinary tracts and related medical conditions, such as urinary tract infections (UTIs) and urinary stones	Enlisted: 6.3 Officer: 5.4							
	TCC Rank N/A								
	F:M Rate Ratio N/A								

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Unplanned Pregnancy	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Unintended Pregnancy * ACOG (2012) * DHA (2015)	There was no DMED or PDTS data for unplanned pregnancy. Two organizations within the past five years highlighted this subtopic as a research priority. There were an extremely low number of articles in this area and 29% were of low quality, and none were of excellent quality.		
	Number of Articles 7	Top 5 Utilized N/A				
	Excellent Quality 0%	F:M ratio N/A		More research is needed to reduce the number of unintended pregnancies, and to promote family planning and health birth spacing. Based on current information there is significant gap in the existing gender-specific literature on this subtopic.		
	Low Quality 29%					
	Definition Rates, and prevention of, unintended pregnancies	TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A				
		Gap identified in existing research	Continue ongoing research trajectory	None at this time		

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Breast Wellness	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Breast Cancer Screening/Care * VA (2011)	Breast Wellness was within the top 5 most utilized ICD-9 chapters. One organization with the past six years highlighted breast care as a research priority. The number of articles on this subtopic was scant; the 7 articles within the subtopic were of good to excellent quality.		
	Number of Articles 7	Top 5 Utilized Chapter				
	Excellent Quality 43%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i>		Based on this information, there is a significant gap in the existing literature.		
	Low Quality 0%	<i>Enlisted: 7.0</i> <i>Officer: 5.5</i> <i>Inpatient</i>				
	Definition Breast cancer and breast examinations, such as mammograms	<i>Enlisted: 6.3</i> <i>Officer: 5.4</i>		Recommendations		
		TCC Rank Antineoplastic Agents #21 of 26				
	F:M Rate Ratio 3.72					

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Breastfeeding	Topic Obstetrics and Gynecology	ICD-9 Chapter N/A	Breastfeeding/ Lactation * IOM (1995) * IOM (1998)	<p>There was no DMED or PDTS data for this subtopic. Two organizations highlighted breastfeeding/lactation as a research priority; however, both organizations cited this priority near two decades ago. There were an extremely low number of research articles on this subtopic and 40% were of low quality, and none were of excellent quality.</p> <p>Based on the current information, there is a significant gap in the existing gender-specific literature.</p>		
	Number of Articles 5	Top 5 Utilized N/A				
	Excellent Quality 0%	F:M ratio N/A				
	Low Quality 40%					
	Definition Breastfeeding practices, studies of breastfeeding experiences, and rates of breastfeeding					
		TCC Rank N/A				
	F:M Rate Ratio N/A		Recommendations			
			Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Fertility	Topic Obstetrics and Gynecology	ICD-9 Chapter Diseases of the Genitourinary System (580-629)	Reproductive Health * IOM (1995) * VA (2011) * ACOG (2012)	There was no PDTS data on this subtopic. Fertility was within the top 5 most utilized ICD-9 chapters. Seven organizations, four within the past six years, highlighted pregnancy and/or reproductive health as research priorities. The number of articles in this area was miniscule; all 3 articles on this subtopic were of good or excellent quality.		
	Number of Articles 3	Top 5 Utilized Chapter	Pregnancy * MOMRP (1994) * IOM (1995) * IOM (1998) * VA (2011) * ACOG (2012) * DHA (2015) * DOD (2016)			
	Excellent Quality 33%	F:M ratio Diseases of the Genitourinary System (580-629) <i>Outpatient</i> Enlisted: 7.0 Officer: 5.5	Gynecological/ Genitourinary Health * IOM (1995) * VA (2011) * ACOG (2012)	Based on this information, there is a significant gap in the existing gender-inclusive literature on this subtopic.		
	Low Quality 0	<i>Inpatient</i> Enlisted: 6.3 Officer: 5.4				
	Definition Rates of infertility among active duty service women	TCC Rank N/A		Recommendations		
	F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time	

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis								
Subtopic: Other Organ Systems	Topic Chronic Illness	ICD-9 Chapter N/A	Chronic Disease * VA (2011)	<p>There was no DMED or PDTS data for this subtopic. Two organizations, one in the past six years, highlighted numerous research priorities on multiple organ systems. There were a relatively light number of articles on this subtopic, but over 95% were of good to excellent quality. This topic is broad and covers a wide array of conditions covered in other research areas.</p> <p>Based on this information, there is not a significant gap in the existing gender-inclusive literature.</p>								
	Number of Articles 29	Top 5 Utilized N/A	Anemia and other blood disorders * IOM (1995)									
	Excellent Quality 24	F:M ratio N/A	Gastrointestinal conditions * IOM (1995)									
	Low Quality 3%		Endocrine conditions * IOM (1995)									
	Definition Chronic illness in other organ systems, such as kidney disease, lung disease, or prostatic disease		Dermal conditions * IOM (1995)									
			Neurosensory conditions * IOM (1995)				<table border="1"> <thead> <tr> <th colspan="3">Recommendations</th> </tr> </thead> <tbody> <tr> <td>Gap identified in existing research</td> <td>Continue ongoing research trajectory</td> <td>None at this time</td> </tr> </tbody> </table>			Recommendations		
	Recommendations											
Gap identified in existing research	Continue ongoing research trajectory	None at this time										
	TCC Rank N/A	ENT conditions * IOM (1995)										
	F:M Rate Ratio N/A	Respiratory conditions * IOM (1995)										

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Musculoskeletal	Topic Chronic Illness	ICD-9 Chapter Diseases of the Musculoskeletal System and Connective Tissue (710-739)	Musculoskeletal * IOM (1995) * DHA (2015) Chronic physical conditions * MOMRP (1994) * VA (2011)	There was no PDTS data on this subtopic. Diseases of the musculoskeletal system were among the top most utilized ICD-9 chapters. Men and women were just as likely to be diagnosed with musculoskeletal disease. Four organizations, two within the past six years, highlighted this subtopic as a research priority. There were a relatively light number of articles and over 95% were of good to excellent quality. Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 28	Top 5 Utilized Chapter				
	Excellent Quality 50%	F:M ratio Diseases of the Musculoskeletal System and Connective Tissue (710-739)				
	Low Quality 4%	<u>Outpatient</u> Enlisted: 1.5 Officer: 1.4				
	Definition Chronic musculoskeletal conditions (i.e. non-injury)	<u>Inpatient</u> Enlisted: 0.9 Officer: 1.0 ^{ns}				
		TCC Rank N/A				
	F:M Rate Ratio N/A	Recommendations				
		Gap identified in existing research	Continue ongoing research trajectory	None at this time		

Note. NS indicates F:M ratio was not significant

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Multisystem Illness	Topic Chronic Illness	ICD-9 Chapter N/A	Chronic Disease * VA (2011) Chronic physical conditions * MOMRP (1994)	<p>There was no DMED or PDTS data for this subtopic. Two organizations, one with the past six years, highlighted multisystem illness as a research priority. There were a scant number of articles on this topic and 35% were of low quality.</p> <p>Based on this information, there is not a significant gap in the existing literature.</p>		
	Number of Articles 20	Top 5 Utilized N/A				
	Excellent Quality 10%	F:M ratio N/A				
	Low Quality 35%					
	Definition Non-specific chronic illness (e.g. Gulf War syndrome) or a chronic illness that affects multiple body systems (e.g. HIV/AIDS)					
		TCC Rank N/A		Recommendations		
		F:M Rate Ratio N/A		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Cancer	Topic Chronic Illness	ICD-9 codes Neoplasms (140-239)	Chronic disease * VA (2011) Cervical Cancer screening * VA (2011) * ACOG (2012)	Neoplasms were among the top 5 most utilized ICD-9 chapters. Women were more likely than men to be diagnosed with neoplasms compared to men across rank in an inseting. Two organizations within the past six years highlighted cancer as a research priority. There were a scant number of articles on this subtopic; all 14 articles were of good or excellent quality.		
	Number of Articles 14	Top 5 Utilized Chapter (Inpatient)				
	Excellent Quality 29%	F:M ratio Neoplasms (140-239) <i>Outpatient</i> Enlisted: 2.0 Officer: 1.7 <i>Inpatient</i> Enlisted: 3.9 Officer: 4.8		Based on this information, there is a significant gap in the existing literature.		
	Low Quality 0%					
	Definition Diagnosis and treatment of any type of cancer	TCC Rank Antineoplastic Agents #21 of 26		Recommendations		
		F:M Rate Ratio 3.72				

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Pain	Topic Chronic Illness	ICD-9 Chapter Diseases of the Nervous System and Sense organs (320-389)	N/A	This subtopic was within the top 5 most utilized ICD-9 chapters. Men and women were just as likely to be diagnosed with nervous system/sense organ diagnoses. None of the organizations referred to in this report highlighted pain as a research priority. Although there were a scant number of articles on this subtopic, over 90% were of good to excellent quality. Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Number of Articles 11	Top 5 Utilized Chapter				
	Excellent Quality 27%	F:M ratio Diseases of the Nervous System and Sense organs (320-389) <i>Outpatient</i>				
	Low Quality 9%	Enlisted: 1.2 Officer: 1.1				
	Definition Chronic pain diagnosis and treatment	TCC Rank Central Nervous System Agents #1 of 26		Recommendations		
		F:M Rate Ratio 1.18		Gap identified in existing research	Continue ongoing research trajectory	None at this time

	Scoping Review	Healthcare Utilization Data (DMED & PDTS)	Organizational Priorities	Reviewer Synthesis		
Subtopic: Cardiovascular	Topic Chronic Illness	ICD-9 Chapter Diseases of the Circulatory System (390-459)	Cardiovascular health * IOM (1995)	Diseases of the circulatory system were not among the top 5 most utilized ICD-9 chapters. Men were more likely than women to be diagnosed with cardiovascular issues. Men were also more likely to be prescribed cardiovascular drugs than women. Two organizations, one within the past six years, highlighted cardiovascular health as a research priority. Although the number of articles in this area was very low, over 85% were of good to excellent quality. This could be due to the fact that civilian research is abundant in this area, and that the military is comprised of a mostly young and healthy population.		
	Number of Articles 7	Top 5 Utilized N/A	Chronic health * VA (2011)			
	Excellent Quality 29%	F:M ratio Diseases of the Circulatory System (390-459) <i>Outpatient</i>		Based on this information, there is not a significant gap in the existing gender-inclusive literature.		
	Low Quality 14%	Enlisted: 1.1 Officer: 1.0 ^{NS} <i>Inpatient</i>				
	Definition Chronic cardiovascular disease (e.g. congestive heart failure)	Enlisted: 0.8 Officer: 0.6		Recommendations		
		TCC Rank Cardiovascular drugs #12 of 26				
		F:M Rate Ratio 0.65		Gap identified in existing research	Continue ongoing research trajectory	None at this time

Note. NS indicates F:M ratio was not significant

