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The Impact of Screening, Diagnosis and Management of Alcohol Use Disorders in HIV Care in Low and Middle Income Countries

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Abstract

Alcohol consumption is common globally, with an important impact on public health through the development of alcohol use disorders (AUDs). AUDs span a spectrum from mild to severe, (harmful use to alcohol dependence) all of which contribute significantly to poor health. Screening individuals for AUDs, followed by management of these disorders, are core interventions in HIV care and treatment in developed countries. For people living with HIV (PLHIV) in developed countries, these interventions improve the HIV –related outcomes of quality of life (QoL), retention in care, and anti-retroviral treatment (ART) adherence. This review examines the interventions: screening for and management of AUDs in HIV care and treatment in low and middle-income countries (LMIC), to determine the impact of the interventions on HIV-related outcomes in the areas of morbidity and mortality, retention in care and adherence to ART, QoL, and prevention of ongoing HIV transmission. The body of evidence regarding screening, diagnosis and management of AUDs in HIV care in LMIC indicates that screening for AUDs in HIV primary care or ART clinics identifies patients at-risk for poor clinical outcomes. The management of AUDs in a clinical setting in LMIC has significant impact in promoting ART treatment adherence and retention in care, QoL, as well as, reducing morbidity and mortality and prevention of ongoing HIV transmission in PLHIV.

INTRODUCTION

A diagnosis of an AUD is indicated by the presence of at least two alcohol–related specific symptoms [1]. AUDs range from mild, with the presence of 2-3 symptoms, to severe with the presence of 6 or more symptoms and a diagnosis of dependence. The World Health Organization (WHO) has recently provided an update on the global consumption of alcohol in the Global Status Report on Alcohol and Health 2014, which notes the high impact of AUDs on public health and social society, as well as, the economic burden of AUDs [2]. The report notes the harmful use of alcohol (mild AUD) contributes to more than 200 disease and injury conditions, including infectious diseases, such as HIV. Recent reviews of the use of alcohol in PLHIV in high resource countries have shown an impact of AUDs on adherence to ART, health-care utilization, and HIV treatment outcomes, as well as, a negative association across the HIV treatment cascade [3,4]. In addition, studies show that as the diagnosis of AUDs severity increases, there is a reduction in engagement in the HIV care continuum by PLHIV [5].Studies also indicate that AUDs are 2-4 times higher in PLHIV than the general population, and may be particularly important as a cause, as well as, contributor of morbidity and mortality in countries with both high alcohol consumption and an HIV epidemic [6,7].

When there is screening of PLHIV for AUDs in a HIV care setting, AUD shave been shown to be a highly prevalent HIV co-morbidity, as well as, a risk factor in HIV transmission. For example, studies in Africa have shown that the prevalence of an AUD in adult patients attending HIV primary care clinics prior to the initiation of ART was 17%, while those receiving treatment for HIV and tuberculosis had a prevalence of alcohol dependence of 27% for men and 4% for women [8,9]. Entry into HIV care has been shown to be an opportunity to engage patients for behavior change, and thereby reduce harmful alcohol consumption. However, relapse to harmful alcohol consumption, (a characteristic of addictive disorders), is frequent after initiating ART [10]. Based in part on the screening studies showing the higher prevalence of AUDs in PLHIV, WHO recommends that screening, diagnosis and

treatment of AUDs should be part of national HIV/AIDS programs and integrated into primary care programs for PLHIV [11,12]. WHO guidance explicitly recommends screening for alcohol use in the care of PLHIV, provision of brief interventions, and the integration of the management of alcohol use disorders into HIV care [11,13].

The purpose of this review is to provide an examination of the impact of the expanding data base of studies on the interventions comprising screening for and management of AUDs as part of HIV care in LMIC for the HIV outcomes of morbidity and mortality, retention in care and adherence to ART, QoL and HIV transmission.

METHODS

Studies addressing alcohol use, AUDs, behavioral health, mental health, HIV/AIDS and addiction were identified through Medline, Pubmed, Global Health, and Embase through Ovid; Cumulative Index to Nursing and Allied Health Literature (CINAHL) through EBSCO; Sociological Abstracts (SOCA) through ProQuest; and African Index Medicus (AIM) through the WHO. The databases were searched for all citations published between January 2004and December 2015. Search terms were intentionally chosen to produce a broad scope of results relating to HIV/AIDS and screening for AUDs, behavioral health, psychotherapy and pharmacotherapy in LMIC. Articles were included in the review if they: (a) evaluated screening and diagnosis for any AUD in PLHIV or screened for hazardous/harmful alcohol use followed by management of alcohol use in PLHIV (b) were conducted in LMIC, and(c) reported on a least one of the outcomes of interest: morbidity and mortality, retention in care and adherence to ART, QoL and HIV transmission. The included studies were assessed and summarized by study design, study period, country, number of participants, key findings, internal and external validity, overall quality of evidence, cost-effectiveness along with additional comments.Because of the heterogeneity of literature, there was no quantitative synthesis of study results overall. Instead, the evidence from all studies that addressed each HIV outcome were grouped with a summary of the overall quality of evidence, expected impact of the intervention, and evidence from economic evaluations. The overall quality of the body of evidence for each of the HIV outcomes was rated as good, fair and poor, and the expected impact of the intervention for PLHIV in HIV care in LMIC was rated as high, moderate, low or uncertain based on the global evidence base and the known clinical benefit of an established intervention or treatment for AUDs.

RESULTS

A majority of the meta-analyses, quantitative studies, qualitative studies, literature reviews, and reports from international organizations came from Africa, but studies were also noted from other LMIC in South America, the Caribbean, Eastern Europe and South Asia. From 2,555 abstracts reviewed, a total of 180 full-text articles were read; 56 met the inclusion criteria.The search of the literature identified studies in resource limited settings (RLS) which presented data on the prevalence of AUDs in PLHIV through screening utilizing validated screening tools. Overall, the search of the literature identified a limited number of studies in RLS providing data on the managementof AUDs in PLHIV applying cognitive behavioural therapy or pharmacotherapy, and the impact of these treatments on specific HIV-related outcomes. No studies were found that provided an economic analysis of the management of AUDs in LMIC for HIV outcomes. These findings resulted in the categorization of studies in two groupings: one grouping presented studies with data on AUDs screening, that is, the occurrence of harmful alcohol use or AUDs among PLHIV in a HIV care setting. These selected studies were the majority of studies. The second groups comprised those studies that screened for AUDs and provided data on the management of AUDs utilizing treatment and care options ranging from counselling to pharmacotherapy in a HIV care setting.

Ratings of overall quality of the body of evidence of articles reviewed ranged from “good” to “fair”. The quality of the overall body of evidence for the screening for and management of AUDs the rating was “good” for retention in care and adherence to ART, and “fair” for the other outcomes: morbidity and mortality, QoL, and prevention of onward HIV transmission. The expected impact of screening for and management of AUDs for the reviewed articles, consistent with the global evidence-based management strategies also referenced in this document, ranged from “high” to “low”. For AUDs, the ratings for mortality and morbidity as well as, retention in care and adherence to ART were “high”, and “moderate” for the other two outcomes: QoL and prevention of onward HIV transmission. Table 1 provides a summary of the impact of screening and treatment of AUDs for PLHIV in HIV care.

RESULTS BY OUTCOME

Screening for AUDs in HIV Care and Treatment

Morbidity and Mortality: Alcohol consumption can both cause and contribute to morbidity and mortality of PLHIV receiving HIV care and treatment. Mortality from alcohol consumption and AUDs can occur as a direct result of alcohol toxicity (poisoning) either from binge alcohol consumption or from exposure to toxins that could be found in unrecorded alcohol or “local home brew”. There is also a connection among AUDs, mental health and suicide [14]. A recent study has estimated that 6.4 % of all deaths in South Africa can be attributed to alcohol, but it is unknown how many of those deaths would be in the population of PLHIV [15]. Data for alcohol poisoning in PLHIV is not available in LMIC, however, data from health and demographic surveys in countries with generalized HIV epidemics and high alcohol consumption, such as Kenya, show that death due to poisoning is five times more likely in people who consume alcohol compared to abstainers [16].In a study of the impact of alcohol consumption on the morbidity and mortality related to HIV infection [7], it was estimated that 12% of the HIV/AIDS burden for men and 6% of the HIV/AIDS burden for women was attributable to alcohol consumption. This study indicated that roughly 90,000 deaths in PLHIV could be attributable to alcohol, based on 2012 demographic data in Africa.

Numerous instruments have been validated for screening for AUDs in PLHIV in LMIC. For patients in HIV care receiving ART, the prevalence of AUDs do not appear to be lower than PLHIV who are in care and not receiving ART [17]. For those screened positive for unhealthy alcohol use, significantly elevated levels

Table 1: Summary of the Review of the Impact of AUDs in HIV Care and Treatment in LMIC.

HIV Outcome	Number of Studies per Outcome	Overall Quality of the Evidence	Impact Rating[1,2]	Comments
Morbidity & Mortality	12	Fair	High	alcohol a direct and indirect factor in morbidity/ mortality
Retention in Care Adherence to ART	31	Good	High	AUDs a factor in & poor adherence & ART exclusion
Quality of Life	6	Fair	Moderate	reduced QoL due to medical & social factors
HIV Transmission	9	Fair	Moderate	reducing both alcohol & risky behavior
Intervention				
SBIRT & Treatment	12	High	High	education & counseling is effective in reducing alcohol consumption for PLHIV in care and culturally adapted cognitive behavioral therapy increases days abstinent

1.The expected impact of the intervention was rated as; **High**=Intervention expected to have a high impact on the outcome, **Moderate** =Likely to have a moderate impact on the outcome, **Low**=Intervention expected to have a low impact on the outcome and, **Uncertain**=Available information is not adequate to assess estimated impact on the outcome.
2.Note, assessment of the expected impact of the intervention was based on published evidence in both LMIC and high income countries. Additional considerations that would inform implementation decisions would have to take into account the cost effectiveness information and country specific contextual considerations.

of a marker for monocyte activation predict mortality in HIV infection [18]. Other studies have shown a food-related mortality risk for PLHIV in care who consumed alcohol since, frequently, there is poor nutritional status, food insecurity and malnutrition in this population [19-21]. PLHIV with AUDs are more likely to be co-infected with tuberculosis; those with co-infection, are more likely not to receive ART and have a prolonged delay in receiving treatment for tuberculosis [22-24].Increased morbidity has also been reported due to decreased CD4 counts and increased progression of HIV disease, which could be attributed to either late presentation to care and treatment, or the use of alcohol acting as an immunosuppressant [25- 27].

HIV Transmission

There is a large volume of data and studies to show the linkage between alcohol consumption and risky sexual behavior in the transmission of HIV infection from PLHIV to non-infected partners. There are more limited data regarding high-risk sexual behavior of PLHIV in HIV care in LMIC and the impact of alcohol use on sexual behavior. The studies [26-31] that address the issue show that PLHIV, who consume alcohol, exhibit high-risk sexual behavior (unprotected sexual practices) while in HIV care and receiving ART. In addition, the converse has been shown as well: PLHIV in HIV care who does not consume alcohol have a higher prevalence of consistent condom use, and thus lower sexual risk for the transmission of HIV [32,33]. PLHIV receiving ART, who are younger and who consume alcohol, are particularly vulnerable to risky sexual behavior [34].

QoL

While there is a growing body of evidence that the QoL improves for PLHIV in LMIC with the initiation of ART and adherence to HIV treatment regimens, there are a limited number of studies that have addressed the impact of alcohol use on QoL of PLHIV in HIV care and treatment. However, those six studies [35-40] clearly show a reduction in QoL for PLHIV who use alcohol. These studies also show lower scores for both physical health summary and mental health summary for PLHIV who consume alcohol. Studies of PLHIV in care also show that patients with AUDs experienced cognitive decline, depression and partner violence which contribute to a lower QoL.

Retention in Care and Adherence to ART

The impact of screening for AUDs in HIV care settings is shown across the care continuum for PLHIV in LMIC. From a total of 31 studies [24,26,38-66], 19 reported that PLHIV in HIV care with AUDs are not adherent to ART regiments with AOR ranging from 1.4 to 12.89. An additional three studies compare abstinent and alcohol using PLHIV and show better medication adherence in the non-drinking group. Three studies in Nigeria, India and Estonia did not report an association between non adherence to ART and alcohol consumption in their cohort studies. In addition, studies show that PLHIV with AUDs are less likely to receive ART, present late to care and treatment and are not retained in care and treatment. Two additional studies from India and South Africa show a greater likelihood of not obtaining an undetectable viral load or viral clearance in those with an AUD. These studies, in total, show the difficult path ahead to obtain the WHO goal of epidemic control without interventions to reduce alcohol consumption and treatment of AUDs for those in HIV care and treatment.

Interventions and Treatment for AUDs in HIV Care and Treatment

Interventions and treatment for AUDs have been developed and implemented in resource-rich countries and include peer behavioral interventions, psychotherapy, pharmacotherapy and recovery programs. Interventions and treatment can address alcohol use and AUDs through either of two approaches with divergent goals: complete abstinence from alcohol versus reduction of the harm associated with alcohol use [67]. Screening, brief interventions and referral to treatment (SBIRT), psychotherapy and pharmacotherapy can seek to reduce alcohol use while 12-step, peer-based sober housing and recovery programs focus on abstinence [68,69]. Interventions and treatments with outcomes that can be found in the review

are SBIRT, behavioral interventions, psychotherapy and pharmacotherapy. There have been limited interventions and treatments for AUDs implemented in HIV care in LMIC. What has been reported from LMIC in cohort studies is the use of peer treatment supporters, community education and counseling to reduce alcohol consumption, alcohol- focused ART adherence interventions and adaptive cognitive behavior therapy to reduce alcohol use and risky sexual behavior [70-74]. These interventions and treatment have been shown to be acceptable to both patients and the community to reduce stigma and reduce consumption. The cognitive behavioral therapy treatment has been shown to increase abstinence from alcohol consumption by 45%, be cost effective, and through modeling shown to prevent 18,000 new infections and add 46,000 quality-adjust life years to PLHIV in East Africa alone [72,75]. Individuals in care who acquire coping skills through psychotherapy or a 12 step program and who are spiritual are more likely to remain in HIV care and not lost to follow-up [76]. In addition, Prevention with Positive straining of health care workers on developing awareness of the harms of alcohol consumption for PLHIV, along with a brief intervention and counseling on alcohol reduction has been implemented in Mozambique [77, 78]. Finally a SBIRT trial protocol has been developed to determine the efficacy of screening for alcohol consumption along with a brief intervention in PLHIV receiving primary care [79]. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) Alcohol Initiative [80] has shown that when HIV care providers screen for and address alcohol with peer counseling, 79% of patients reduce their alcohol consumption. A pilot project has shown the feasibility of screening for alcohol use in HIV primary care clinics, with the provision of counseling and brief interventions for all those screened positive [81].

DISCUSSION

This evidence-based review of the literature for the interventions comprising screening for and management of AUDs in HIV care in LMIC for PLHIV resulted in the assessment of screening studies which demonstrate the substantial expected impact of AUDs in all HIV outcomes. In addition, a limited number of studies provide data on the clinical management of AUDs in HIV care programs in LMIC. These latter studies provide a foundation showing the importance of addressing the medical management of AUDs in HIV care. The definitive link between alcohol use and HIV infection in LMIC has been well established and show that alcohol use affects the course of HIV infection with an important impact on adherence to ART [82-84]. Studies have also reported that alcohol consumption can enhance the pathogenesis of HIV infection, as well as, directly cause organ specific pathogenesis or exasperate ongoing organ specific disease. Alcohol is a cause or contribution to cardiovascular disease, liver disease, neuropathy, and cancer [85-88]. Alcohol and infectious disease are interrelated and it has been estimated that alcohol-attributed infectious diseases increase the alcohol-attributed burden –of –disease in Africa by 50% [89]. However, resources in LMIC to address this major health issue are minimal, and where available, there is substantial variation in regional and national services.

Based on the contribution of alcohol consumption and AUDs to morbidity and mortality, as well as the corollary, the determination of low alcohol use/abstinence as a factor associated with survival for PLHIV [90], it is critical for HIV care and treatment programs to screen for alcohol use and AUDs. Screening for alcohol use and AUDs is a low cost intervention that should occur at the initiation of HIV care and at least every six months afterward using a standardized actualized assessment instrument. However, health care providers need to be aware that studies have shown that PLHIV initiating ART may underreport the use of alcohol [91]. Screening for alcohol use around the initiation of ART is also useful since PLHIV have been observed to initiate abstinence from alcohol consumption upon initiation of ART [92]. In addition, both men and women have been observed to decrease risky sexual behavior following the initiation of ART, but over time alcohol consumption has been noted to contribute to the relapse to risky sexual behavior while in care and treatment [93]. Alcohol use is also a contributing factor for being lost to follow-up during ART [94]. For these reasons, it may also be important to consider screening for alcohol consumption and providing a brief intervention or treatment as part of HIV counseling during the HIV testing process [95]. There are additional venues where screening for alcohol use and AUDs followed by providing a brief intervention to reduce hazardous or harmful alcohol use in high risk populations in LMIC has been shown to be effective. They include: primary health care settings, outpatient hospital settings, tuberculosis treatment settings and university settings [57, 96-99].

In LMIC, the management of AUDs utilizing treatment paradigms in HIV primary care can reduce morbidity and mortality, as well as, enhance retention in HIV care, adherence to ART and QoL for PLHIV. Treatment for those who suffer from AUDs can comprise psychosocial support and counseling as well as pharmacotherapy. In addition, peer-based programs focusing on recovery from AUDs can be developed in resource limited settings [100]. Recovery programs can be staff by peer support groups or by certified addiction counselors to provide recovery support services including sober housing. Recovery-community organizations using peers, volunteers, and certified addiction counselors can work together with sober living homes, recovery centers, faith-based/recovery ministries, and recovery schools to support PLHIV in care and treatment to reduce the stigma associated with both HIV infection and AUDs and reduce alcohol consumption [101,102].

The modest published evidence base detailing screening for and management of AUDs utilizing various interventions and treatment paradigms in HIV care in LMIC is limited. But, combined with the evidence of effectiveness from studies in high-income countries, these data indicate that adaption and acculturation of SBIRT, treatment paradigms and recovery programs, when implemented in HIV care in LMIC, can impact HIV outcomes. There is a significant need for these adaptation and acculturation studies in LMIC. With such studies, the additional data can inform health care providers and patients in HIV care in LMIC and provide answers to the fundamental question: Is there any safe level of alcohol consumption for PLHIV in HIV care in LMIC?

Programmatic considerations

Training of HIV care providers in proper screening and treatment of AUDs: Guidelines for AUDs services, such as counseling, pharmacotherapy and recovery programs, have

been developed and are being studied in LMIC [103]. These services are limited and not as developed as in high-income countries. Thus, in many LMIC, HIV service providers who are not appropriately trained to recognize and/or treat AUDs, may view substance-related and addictive disorders as a morality issue rather than a medical disorder –such as a study done in South Africa which revealed that many HIV service providers classify excessive alcohol use as "bad character" of patients rather than a medical disorder [104]. Thus, training health care workers in the screening for and management of AUDs is an important component to consider for improving HIV outcomes.

The WHO recommends that HIV programs provide screening, diagnosis and treatment of AUDs as important elements of HIV care to obtain good HIV clinical outcomes in LMIC [2,11-13]. Ministries of Health need to build and sustain the capacity of health-care providers to recognize and treat AUDs, and determine the services and referral processes to be offered through the HIV care systems. As shown in this review, training health workers to identify and appropriately manage AUDs could ultimately augment retention in HIV care and adherence to ART.

There are numerous screening tools that are validated for use in LMIC as well as for specific populations within these countries to identify AUDs [7,105]. Managing AUDs in a chronic care model for HIV care in LMIC includes basic, standardized regimens and formularies, standardized supervision and patient monitoring approaches, as well as integrated delivery of care at decentralized primary health centers and referring to specialized care as needed.

Enhanced access to treatment of AUDs in LMIC: Globally only a few countries in RLS have programs in place to treat AUDs [106,107]. There is also a lack of evidence-based treatment programs that use state-of-the-art medications in RLS to treat alcohol dependence. The current review and others show that the integration of services and treatment for AUDs into HIV care is an effective strategy to impact HIV outcomes and enhance PLHIV entry and retention in the clinical cascade [3,4]. Additional economic/cost-benefit analyses studies are need to provide the economic argument for programs and services to address AUDs for PLHIV.

Address barriers to HIV care experienced by PLHIV: The current analysis provides the evidence-base for the integration of services for AUDs into routine HIV care for PLHIV to improve HIV medical outcomes. It is important to address the barriers to services and treatment for AUDs experienced by PLHIV as they attempt to start the journey to recovery. As the screening and management of AUDs in HIV care is considered by policy makers and program planners, attention needs to be paid to reduce the stigma and discrimination experienced by PLHIV with AUDs, in particular key populations, and eliminate the barriers to care presented by incarceration of individuals for medical disorders.

CONCLUSION

There is a modest evidence base detailing the adoption of screening for and management of AUDs utilizing various interventions and treatment paradigms in HIV care in LMIC. Although limited, evidence suggests that integrating services to address AUDs provides enhanced clinical outcomes for PLHIV. More studies in LMIC are necessary to further develop evidence-based HIV care programs integrated with screening and management programs for AUDs. The data to date indicate that integrated services focused on HIV care and treatment and the screening and management of AUDs can result in improving overall treatment outcomes for PLHIV.

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