Non-Suicidal Self-Injury in Adolescents

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Objectives:

- Discuss prevalence of adolescent depression and symptomatic presentation
- Differentiate NSSI from suicidality including the prevalence, precursors and presentation
- Describe a cognitive neuroscience model of NSSI and how it can be used when planning interventions

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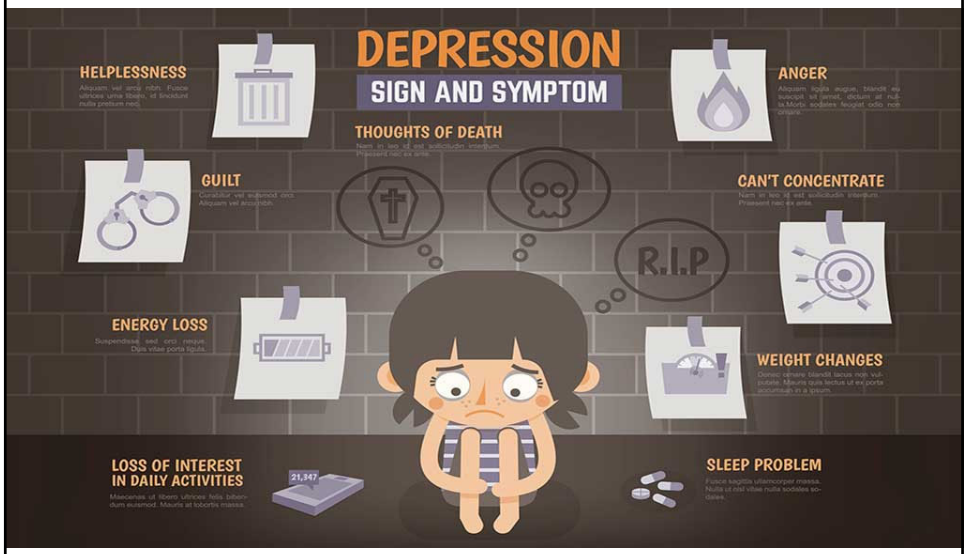

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2014 National Survey on Drug Use and Health (NDSUH)

- 1 in 11 adolescents experienced an MDE
- More prominent among non-Hispanic whites than minority groups
- Female > Male
- Adjusting for sociodemographic and household factors (single parent homes, income) did not account for increase, neither did change in prevalence of SUD

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2017 National Survey on Drug Use and Health (NDSUH)

- An estimated 3.2 million adolescents aged 12 to 17 in the United States had at least one major depressive episode.
  - This number represented 13.3% of the U.S. population aged 12 to 17.
- The prevalence of major depressive episode was higher among adolescent females (20.0%) compared to males (6.8%).
- The prevalence of major depressive episode was highest among adolescents reporting two or more races (16.9%).

nimh.nih.gov/health/statistics/major-depression.shtml

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- Trends in gender differences:
  - Greater increase in females than males in recent years
  - Increase in rates of suicide in teen girls and young women
  - Adolescent females may have been exposed to greater degree of risk factors such as cyberbullying[1] and mobile phone use[2]
  - Problematic mobile phone use among young people is linked to depressed mood[3]

1Kessell Schenier et al. Trends in cyberbullying and school bullying victimization in a regional census of high school students 2006-12. J Sch Health 2015

2Lenhart, A. Teen , Social Media and Technology Overview. Washington DC: Pew Research Center 2015)

3 Augner C, Hacker GW. Association between problematic mobile phone use and psychological parameters in young adults. Int J Public Health. 2012

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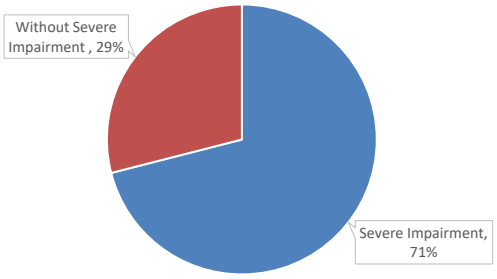
MDE with Impairment in Teens

Past Year Severity of Major Depressive Episode Among US Adolescents



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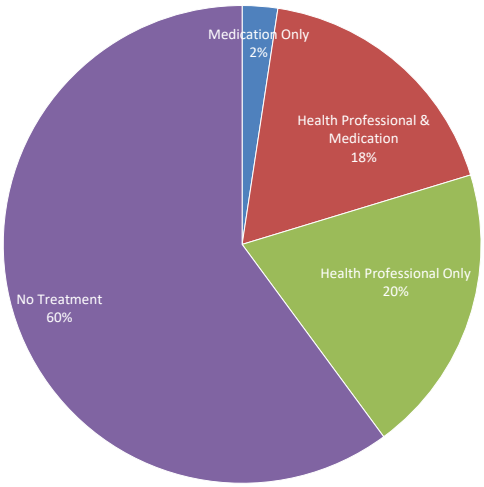
Treatment Received in Past Year (2017)



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2019 NSDUH Survey Data

- ❑ Prevalence in 12 month depression rates increased to 12.9%
- ❑ Use of mental health services remained essentially unchanged.
- ❑ Higher rates of depression observed in females, older teens and those from single-mother households.
- ❑ Less authoritative parents and negative school experiences were predictive of adolescent depression.
- ❑ Lower treatment rates and rates of medication use were found in racial/ethnic minorities and uninsured teens.
- ❑ Negative school experiences significantly increased rates of medication and treatment use.

Lu (2019) American Journal of Health Behavior

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- ❑ Depression
- ❑ Anxiety
- ❑ Violent Behavior/Aggression
- ❑ Hyper-Sexual Behavior
- ❑ Substance Abuse
- ❑ **Self-Harm Behavior**
- ❑ Suicidality

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Self-Harm: NSSI

- ❑ Receives less attention than suicidality, but is recognized as a distinct and important clinical phenomenon.
- ❑ Previously considered on a continuum of severity with suicidal behavior (eg a “less severe form” of self-injury).
- ❑ Included in DSM-5 as a disorder in need of further investigation.

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- There is data suggesting that NSSI is a strong predictor of suicidal behavior, particularly in teens (Asarnow et al, 2011), Wilkinson et al 2011).
- Recent metanalysis by Ribeiro et al (2016) found it to be a significant predictor of prospective suicide attempts.

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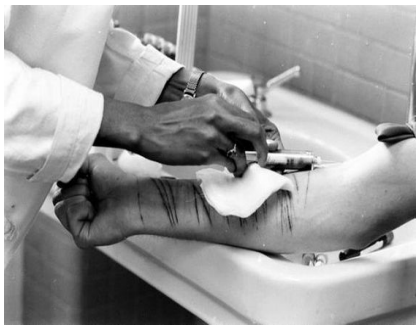
Non-Suicidal Self-Injury (NSSI)

The direct and deliberate destruction of one's own bodily tissue in the absence of any suicidal intent (Nock, 2010).



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ISSS Definition of NSSI (2007)

"Deliberate, self-inflicted destruction of body tissue without suicidal intent and for purposes not socially sanctioned."

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NSSI is…

- ❑ Often concealed (arms, legs, front of torso)
- ❑ Generally a cry for help

- ❑ Rationale is usually complex
  - Sexual abuse
  - Eating disorder
  - BPD
  - CI and associated disorders
  - OCD
  - DID
  - Psychosis with command hallucination
  - PTSD
  - Anger/rage
  - Impulsive or symbolic

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NSSI is an attempt to

- **Keep** loved ones concerned or connected
- **Recreate** a trauma experience
- **Relieve** stress
- **Displace** pain (substitute physical for emotional)
- **Punish** self
- **Gain** power and control
- **Feel** something other than despair
- **Influence** or **manipulate** others.

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Epidemiology and Phenomenology of NSSI in Teens (2007)

- ❑ Lifetime prevalence of 13-23.2%
- ❑ Reasons for NSSI:
  - regulate emotion
  - elicit attention
- ❑ Correlates:
  - History of sexual abuse
  - Depression
  - Anxiety
  - Alexithymia
  - Hostility
  - Smoking
  - Dissociation
  - Suicidal ideation
  - Suicidal behavior

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RNSSI in adolescents (Howe-Martin et al, 2012)

- Self-reports from 211 teens in 3 school based samples
- Assessed 3 forms of **experiential avoidance** (thought suppression, alexithymia, and avoidance/cognitive fusion), various aspects of **self-mutilating behavior**, and existence of **functionally equivalent behavior** (disordered eating, substance abuse, suicidal ideation/behavior)

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- 1/3 of participants had hx of NSSI, with 16% having RNSSI in the past 6 months
- Females 2x as likely to have RNSSI
- Unwanted inner experience, thought suppression and alexithymia differentiated those with hx of NSSI
- Functionally equivalent behaviors were more frequent in those with NSSI and increased in severity as NSSI increased (especially suicidal ideation and behaviors)
- Patterns of avoidance were different between males and females.

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NSSI– Prevalence (2014)

- Single incident of NSSI is associated with greater risk for negative psychiatric outcomes (Whitlock, 2010; Whitlock et al, 2006)
- **Lifetime prevalence in a non-clinical sample of adolescents 13-24%** (Health et al, 2009, Jacobson and Gould, 2007, Muehlenkamp et al, 2012, Swannell et al, 2014)
  - **55-68% in adolescent psychiatric inpatients** (Cha et al 2016, Guerry and Prinstein 2010)
- Longitudinal data suggests this behavior persists into adulthood for a substantial portion of those who start NSSI in adolescence (Selby et al 2015)

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NSSI and suicidal behavior in girls (Beauchaine, et al, 2019)

- 15-20% of teens (disproportionately girls)
- Strong predictor of eventual suicide attempts and suicide
- Many girls start NSSI prior to age 10
  - More frequency, more methods, more hospitalization
  - Pre-teen girls with ADHD and history of maltreatment (bullying, abuse) are at alarming risk of NSSI and suicide attempt by adolescence

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NSSI vs Suicidality

- ❑ More prevalent
- ❑ Cutting and burning
- ❑ Bodily harm (may risk infection, need for treatment)
- ❑ Those who engage in NSSI do not intend to end their own life
- ❑ Less prevalent
- ❑ Hanging, firearms, overdose
- ❑ Lethal injury
- ❑ Intent to die

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NSSI: A Cognitive Neuroscience Approach

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The Four Function Model of NSSI (Bentley et al, 2014; Nock and Prinstein, 2004)

NSSI is maintained by positive and negative self-reinforcing processes:

- Intrapersonal positive reinforcement (generates positive affective or cognitive states)
- **Intrapersonal negative reinforcements (reduces negative affective or cognitive states)**
- Interpersonal positive reinforcement (eliciting attention and help-seeking)
- Interpersonal negative reinforcement (facilitating removal from aversive social situations or decreasing interpersonal demands).

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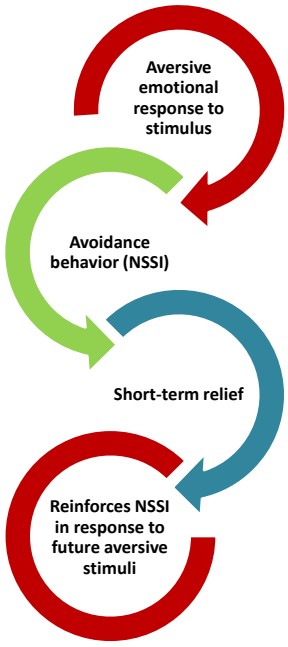
NSSI is therefore conceptualized as a *maladaptive emotion regulation strategy*… specifically a form of *emotional avoidance* (Chapman et al 2006).



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Existing literature focuses on self-reports (Bentley et al 2014).

- These are limited because self-report and behavioral measures of constructs such as impulsivity, self-control, emotion regulation and distress tolerance) are *incongruent*.
- Self-report measures are limited by the degree of insight into the processes (affective and cognitive) underlying behavior

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Neural Processes & NSSI

- Positive association between degree of relief after physically aversive stimulus and BOLD response in dorsal striatum (Osuch et al 2014).
- Neural circuits including the ventral striatal—posterior dorsomedial striatal network have been linked with learning and are involved in the acquisition of new behavior. Repeated engagement followed consistently by reward results in insensitivity to reward and a shift to habit learning.
- The transition from voluntary behavior to habitual behavior is reflected by a shift in striatal locus of control from the ventral to the dorsal striatum.
- Similar findings observed in substance use disorders in progression from abuse to addiction, and also anorexia
- Data may yield targets for intervention (eg TMS, DBS)

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Definitional Criteria for NSSI as a Habitual Behavior (1)

A repetitive behavior that becomes fixed over time
- NSSI has self-reinforcing properties

Neural circuitry
- Shift in striatal locus of control from ventral to dorsal striatum

Psychophysiology
- Decreased startle eye-blink response
- Increased spontaneous eye-blink
- Increase post-auricular reflex

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Definitional Criteria for NSSI as a Habitual Behavior (2)

A behavior requiring reduced effort over time
- Decreased aversion to physical pain
- Increased self-schema for self-harm

Neural circuitry
- Greater right inferior gyrus activation on tasks requiring dissociation from self-harm

Physiology
- Decreased baseline endogenous opiod concentrations

Behavior
- Increased physical pain tolerance
- Increased implicit self-association with self-harm on behavioral measures

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Assessment Tools

- Self-Injury Survey (1994) 31 self-harm self-report items, list of suicide attempts, and checklist for reasons for self-injury, types of past intervention and damage effects
- Self-injury questionnaire (SIQ, 1997) 54 item self-report, does not ask about suicide
- Deliberate Self-Harm Inventory (DSHI, 2001) 17-item yes/no self-report asking about direct destruction of body tissue (frequency and severity and duration)
- Adolescent Risk Inventory (2007) 33 item self-report; mostly yes/no, exploring high risk behaviors/attitudes; 6 items addressing self-harm

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Other tools

Really Long:

- Self-harm behavior survey (1986)- 174+ item self-report
- Chronic Self-Destructiveness Scale (1985) 73 item likert inventory

DD specific:

- Self-Injurious Behavior Questionnaire (SIB-Q, 1997) 25 item clinician rated
- Timed Self-Injurious Behavior Scale (16 item clinician rated looking at frequency of SIB at 6 intervals 10 minutes apart)

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Self-Harm Inventory (SHI) (Sansone, 1998)

- ❑ 22 item yes/no self-report
- ❑ Each item preceded by “have you ever intentionally or on purpose…”
- ❑ 3 eating disorder items, 2 high lethal items, 3 medical items
- ❑ All “yes” items score “1” for maximum of 22
- ❑ Utility in psychiatry and primary care

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Assessment & Treatment

Comprehensive diagnostic evaluation

- Medical hx and physical exam
- Comorbid psychiatric dx
- Suicide risk
- Physical/sexual abuse hx
- Substance abuse hx
- Risk factors
- Family functioning/social supports

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Functional Behavioral Analysis of NSSI

- Antecedents
- Behavior characteristics
- Consequences

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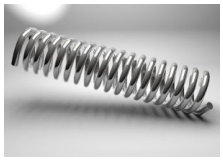

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Develop a Therapeutic Alliance

Treat Primary Psychiatric Disorders First

Target behavioral intervention based on FBA and need for

- Affective language skills
- Self-soothing skills
- Communication skills

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Inpatient Interventions

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- Establish severity and purpose of self-injury
- Teach alternative distress management strategies (medication, distraction, meditation, relaxation, journaling, individualized care plans, exercise)
- **Search belongings and secure the environment**
- Staff accordingly (if possible) – may work with multiple therapists if stay will be long
- Offer structure and reduce down time
- Instill hope
- Use positive reframing and support-seeking, especially when processing strong emotions
- Shift to being a non-self-injurer is internal

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What do we do?

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Interventions

- Listen actively
- Acknowledge the patient's emotional pain
- Set limits/ help the patient set limits
- Let the patient know she/he is ultimately in control of the behavior
- Be empathetic and supportive
- Stay informed about common causes of self-injury, current self-harm methods, and treatments

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- Promote honest expression of feelings
- Establish a relationship built on trust and openness.
- Use motivational interviewing
  - MI-a non-confrontational technique that allows the patient to review the pros and cons of continuing the behavior; giving the patient control and reducing fear of judgment.

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- Realize the patient may have experienced criticism and rejection from many individuals, including medical professionals. Scolding and chastising could lead only to more frustration and guilt and increase the patient's motivation to conceal self-injuring behavior.
- Instead, use simple interventions-- emphasize that the patient isn't alone.
- Individual and group therapy modalities (DBT, CBT)
- Pharmacotherapy

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