Nonsuicidal self-injury in children and adolescents: Epidemiology and risk factors

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INTRODUCTION

Nonsuicidal self-injury is the deliberate destruction of body tissue in the absence of any intent to die and occurs for purposes that are not socially sanctioned [1-3]. The behavior most commonly takes the form of skin-cutting, burning, and severe scratching [4,5]. Nonsuicidal self-injury occurs at high rates in adolescents and is associated with adverse clinical outcomes such as suicide attempts [6,7].

We conceptualize nonsuicidal self-injury as a distinct entity that differs qualitatively from suicidal behavior [2]. However, others argue that self-injury with and without suicidal intent represent different versions of the same behavior [8].

This topic discusses the epidemiology and risk factors for nonsuicidal self-injury, and focuses primarily upon adolescents because the behavior occurs far more often in this age group than in children [9]. In addition, the material is restricted to youth who do not have intellectual disabilities.

Separate topics discuss the pathogenesis, clinical features, assessment, and treatment of nonsuicidal self-injury, as well as the epidemiology, evaluation, and management of suicidal ideation and behavior in children and adolescents:

- (See "Nonsuicidal self-injury in children and adolescents: Pathogenesis".)

- (See "Nonsuicidal self-injury in children and adolescents: Clinical features and proposed diagnostic criteria".)
- (See "Nonsuicidal self-injury in children and adolescents: Assessment".)
- (See "Nonsuicidal self-injury in children and adolescents: General principles of treatment".)
- (See "Nonsuicidal self-injury in children and adolescents: Prevention and choosing treatment".)
- (See "Suicidal behavior in children and adolescents: Epidemiology and risk factors".)
- (See "Suicidal ideation and behavior in children and adolescents: Evaluation and management".)

TERMINOLOGY

Nonsuicidal self-injury is a behavior characterized by the deliberate destruction of body tissue in the absence of any intent to die and occurs for purposes that are not socially sanctioned [1-3]. By definition, nonsuicidal self-injury is distinguished from suicidal behavior; socially accepted practices such as tattoos, piercings, and religious rituals; accidental self-harm; and indirect self-injury through behaviors such as disordered eating or substance use disorders. Self-injurious behavior that is accompanied by **any** intent to die is classified as a suicide attempt, which is consistent with the practice of most clinicians and researchers [2,10,11]. This approach deliberately errs on the side of safety by categorizing ambivalent behaviors, which include any intention to die, as suicidal [2].

Additional information about the terminology of nonsuicidal self-injury is discussed separately. (See "Nonsuicidal self-injury in children and adolescents: Clinical features and proposed diagnostic criteria", section on 'Terminology'.)

EPIDEMIOLOGY

Age of onset — Nonsuicidal self-injury typically begins between ages 12 and 14 years old [9,12-19]. Onset can occur prior to age 12 [20], but rarely in children as young as 5 to 7 years old [9,20-22]. Onset prior to age 12 may be associated with greater frequency of the behavior, using more methods of self-injury, and more hospital visits due to the behavior [21].

Prevalence — The prevalence of nonsuicidal self-injury in youth varies across studies due to methodologic factors such as differences in how the behavior is defined, setting where the behavior is assessed, and assessment tools used [1,23]. As an example, prevalence rates are

greater in studies that use multiple items or checklists to assess the behavior, compared with studies that use a single-item (yes/no) to measure nonsuicidal self-injury [24].

Nonsuicidal self-injury is common in both clinical and community settings; however, prevalence rates are higher in clinical settings than community samples (general population) [25,26].

Clinical settings — Among adolescent psychiatric patients, the estimated past-year prevalence of nonsuicidal self-injury is 50 to 70 percent [25-29].

General population — Based upon pooled results from community studies in Asia, Australia, Europe, and North America, the lifetime prevalence of at least one episode of nonsuicidal self-injury in the general population of adolescents is approximately 17 to 18 percent [23,24].

Rates of nonsuicidal self-injury in adolescents are about three times greater than those reported in adult samples [24,30]. As an example, a meta-analysis of 119 community studies assessed individuals (n >230,000) in Asia, Australia, Europe, and North America and found that the estimated lifetime prevalence of nonsuicidal self-injury was as follows [23]:

- Adolescents (age 10 to 17 years) – 17 percent
- Young adults (age 18 to 24 years) – 13 percent
- Adults (age ≥25 years) – 6 percent

Gender (binary) — It is not clear if the prevalence of nonsuicidal self-injury is modestly greater in females than males or is comparable in the two groups. Studies that have examined binary (male/female) gender differences in nonsuicidal self-injury have yielded mixed findings [31]:

- One meta-analysis of 120 clinical and community studies (n >245,000) found that nonsuicidal self-injury was modestly greater in females than males [32]. Differences were most notable in clinical samples and for specific methods of nonsuicidal self-injury (eg, females reported more cutting behavior than males).

- Another meta-analysis of 119 community studies included more than 231,000 individuals and found that the prevalence of nonsuicidal self-injury was comparable for females and males [23].

Sexual and gender minority groups — Compared with adolescents who identify as heterosexual, the prevalence of nonsuicidal self-injury is elevated in adolescents who question their sexual orientation or identify as gay, lesbian, or bisexual [33-38]. As an example:

- A meta-analysis of three studies compared the prevalence of nonsuicidal self-injury in sexual orientation minority (n >600) and in heterosexual (n >7600) adolescents; nearly all

of the study participants were recruited from the community and the prevalence timeframe was primarily past year [39]. The likelihood of nonsuicidal self-injury was six times greater among sexual orientation minority adolescents than heterosexual youth (odds ratio 6, 95% CI 4-9).

- A subsequent community study found that the prevalence of repetitive (≥10 times) nonsuicidal self-injury in the past year was greater in each category of sexual minority adolescents, compared with heterosexual adolescents [40]. The estimated prevalence rates were as follows:

  - Bisexual (n >2000) – 24 percent
  - Gay or lesbian (n >600) – 16 percent
  - Questioning sexual orientation (n >2000) – 9 percent
  - Heterosexual (n >70,000) – 3 percent

Research also suggests that rates of nonsuicidal self-injury may be elevated among adolescents who identify as transgender (or gender diverse) compared with their cisgender (ie, gender matches sex-assigned-at-birth) peers [33-35,38].

Sexual minority youth may be at increased risk for engaging in nonsuicidal self-injury due to the greater prevalence of significant adversities among this group, such as victimization and family conflict/rejection [41].

Race/ethnicity — It is not known whether the prevalence of nonsuicidal self-injury differs among racial and ethnic groups. Some studies suggest greater risk among White individuals compared with other racial groups [13], some studies suggest that the behavior may be more prevalent among minority racial groups [42], and yet other studies have not found differences based upon race or ethnicity [5,13,43].

RISK FACTORS

Although multiple cross-sectional correlates for nonsuicidal self-injury have been identified, less research has focused on **risk factors** for nonsuicidal self-injury, meaning less longitudinal research has been conducted to examine whether the presence of a factor increases risk for future nonsuicidal self-injury. This section focuses on longitudinal research of risk factors for nonsuicidal self-injury.

Research indicates that most previously identified correlates for nonsuicidal self-injury are weak risk factors for the behavior. A meta-analysis included 20 clinical and community studies that

prospectively followed more than 5000 adolescents and adults for a median of 12 months, during which time 168 individuals (mostly adolescents) engaged in nonsuicidal self-injury [44]. A total of 34 risk factors were studied, and the overall combined effect of the risk factors in predicting nonsuicidal self-injury was statistically significant but clinically modest (odds ratio 1.6, 95% CI 1.5-1.7); in addition, heterogeneity across studies and publication bias were substantial. The risk factors with largest effects (odds ratio >3) in predicting nonsuicidal self-injury were:

- Prior history of nonsuicidal self-injury
- Cluster B personality disorders: Borderline, histrionic, narcissistic, or antisocial personality disorders
- Hopelessness

Based upon the meta-analysis as well as other studies, additional risk factors for nonsuicidal self-injury include:

- Psychopathology
  - Depression [44,45]
  - Disordered eating [44]
  - Emotional/internalizing problems (eg, depressed affect, social withdrawal, and negative attributional style) [44-47]
  - Behavioral/externalizing problems (eg, aggression, delinquent behaviors, and substance use) [44,46]
- Sleep problems [48,49]
- Affect dysregulation [44]
- Distress [50,51]
- Impulsivity assessed by self-report (rather than laboratory testing) [44]
- History of childhood maltreatment (see "Nonsuicidal self-injury in children and adolescents: Pathogenesis", section on 'Childhood maltreatment')
- Other negative life events or stressors [50,52], including bullying and peer victimization [53,54]

- Prior suicidal thoughts [46] and/or behaviors [44]
- Exposure to peer's nonsuicidal self-injury (see "Nonsuicidal self-injury in children and adolescents: Pathogenesis", section on 'Peer influences')
- Self-reported likelihood of engaging in future nonsuicidal self-injury [44]
- Parental psychopathology [44]
- Impaired family functioning [44,46]

However, many of these risk factors are associated with multiple types of maladaptive behavior and are not unique to nonsuicidal self-injury [2].

Other social factors that are risk factors for nonsuicidal self-injury are discussed separately. (See "Nonsuicidal self-injury in children and adolescents: Pathogenesis", section on 'Other'.)

Protective factors — Little research has focused on protective factors for nonsuicidal self-injury. Factors that may protect adolescents from nonsuicidal self-injury include self-worth or self-compassion [37,53], personality traits of agreeableness (ie, warmth and friendliness) and conscientiousness (carefulness and vigilance) [55], and satisfaction with social support [37].

Among adolescents who identify as a sexual minority (see 'Sexual and gender minority groups' above), feeling connected to others (eg, parents, nonparental adults, and friends) and feeling safe at school may protect against nonsuicidal self-injury [36,40].

INFORMATION FOR PATIENTS AND FAMILIES

Multiple resources are available for patients with nonsuicidal self-injury and their families. (See "Nonsuicidal self-injury in children and adolescents: General principles of treatment", section on 'Information for patients and families'.)

SUMMARY

- Nonsuicidal self-injury is a behavior characterized by the deliberate destruction of body tissue in the absence of any intent to die and occurs for purposes that are not socially sanctioned. (See 'Introduction' above and 'Terminology' above.)
- Onset of nonsuicidal self-injury behavior typically begins between ages 12 and 14 years old. (See 'Age of onset' above.)

- The estimated lifetime prevalence of at least one episode of nonsuicidal self-injury in the general population of adolescents is 17 to 18 percent. Among clinical samples, rates of nonsuicidal self-injury are higher; estimated rates of the behavior are 50 to 70 percent in adolescent psychiatric patients. (See 'Clinical settings' above and 'General population' above.)

- It is not clear if the prevalence of nonsuicidal self-injury is modestly greater in females than males or is comparable in the two groups. In clinical samples, females report higher rates, particularly for methods such as cutting. It is also not known whether the prevalence of nonsuicidal self-injury differs among racial and ethnic groups.

  Compared with adolescents who identify as heterosexual, the prevalence of nonsuicidal self-injury is elevated in adolescents who question their sexual orientation, or identify as gay, lesbian, or bisexual, and research indicates that transgender (or gender diverse) youth report higher rates of nonsuicidal self-injury than their cisgender peers. (See 'Gender (binary)' above and 'Race/ethnicity' above and 'Sexual and gender minority groups' above.)

- Multiple risk factors for nonsuicidal self-injury have been identified, including prior history of nonsuicidal self-injury, cluster B personality disorders (borderline, histrionic, narcissistic, or antisocial personality disorder), and hopelessness. (See 'Risk factors' above.)

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