

NONSUICIDAL SELF-INJURY

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Introduction

Nonsuicidal self-injury (NSSI) is defined as “deliberate, direct destruction or alteration of body tissue, without conscious suicidal intent but resulting in injury severe enough for tissue damage to occur” (Gratz, 2003). NSSI has many names, including self-injury, self-harm, deliberate self-harm, parasuicide, and self-mutilation or cutting. NSSI poses a dire risk for adolescents because of its link to suicide, which ranks as the second most common cause of death among persons ages 10 to 19 years (Shain, 2016). The information contained in this section addresses self-injurious behavior without suicidal intent. For additional information on self-inflicted injury with suicidal intent, see the “Youth Suicide” section of the Collection.

NSSI occurs without regard for age, gender, ethnicity, or socioeconomic status; however, much research is centered on adolescents, as this behavior tends to begin during teen years (Boesky, 2002). The rate of NSSI is reported to be between 12 and 35 percent among older adolescents and college students (Miller, Rathus, & Linehan, 2007). The rate of NSSI in a sample of adolescents from the United Kingdom is reported to be 11.2 percent for females and 3.2 percent for males (James, Taylor, Winmill, & Alfoadari, 2008). There is also evidence that these rates may be rising. One study noted that the average annual number of emergency department visits for self-inflicted injuries and attempted suicide more than doubled between 1993 and 2008, and that visits were most common among adolescents aged 15 to 19 years of age (Ting et al., as cited by Cutler et al., 2015).

It is not always clear whether an act of self-harm should be categorized as NSSI or as a suicide attempt because the intended outcome is not certain. Suicide attempts are not always lethal and NSSI may be lethal (Miller, Rathus, & Linehan, 2007). Furthermore, this distinction may not be important since NSSI is one of the strongest predictors of suicide ideation and future suicide attempts (Shain, 2016; Miller, Rathus, & Linehan). One particular study found that these young people have a very high risk for a subsequent successful suicide attempt, with the greatest risk occurring during the period immediately after

an episode of self-harm (Bridge et al., as cited by Cutler et al., 2015). As a result, many suicide researchers consider NSSI along with suicidal ideation, suicide attempts, and completed suicide to be occurring along a spectrum and group these behaviors into the category of suicidal behavior (Miller, Rathus, & Linehan). This can be misleading and problematic when it comes to treatment, since suicide attempts and NSSI are thought to serve different functions, with suicide being used as a way to escape from pain and NSSI used to regulate emotion (Miller, Rathus, & Linehan).

Recent Changes from the DSM-IV to the DSM-5

In 2013, the American Psychiatric Association released the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. NSSI was included in the *DSM-5* as a “Conditions for Further Study.” The *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)* included NSSI as a symptom of borderline personality disorder (BPD), but the *DSM-5* included it as a separate disorder (Stetka & Correll, 2013). This is based on research that suggests that NSSI can occur independent of BPD, such as in patients with depression or even in those with no other diagnosable psychopathology (Stetka & Correll).

The *DSM-5* is a manual for assessment and diagnosis of mental health disorders and does not include information for treatment of any disorder. In the future, more evidence supporting treatments of disorders with *DSM-5* classifications will be available as clinical studies utilizing *DSM-5* criteria are conducted.

Diagnostic Criteria

NSSI diagnosis requires intentional damage to the surface of the body inflicted by oneself without intent to commit suicide within the past year. Repeated shallow but painful injuries that the youth inflicts on his or her body are the critical feature of NSSI (American Psychiatric Association [APA], 2013). Youth most frequently injure the top of the forearm or thigh with knives, needles, razors, or other sharp objects, and they often create several cuts or scratches in a single session (APA). Commonly, these cuts bleed and leave scars. Injury may also be caused by stabbing, burning, or causing burns by rubbing the skin with another object (APA).

Criteria for NSSI require five or more days of intentional self-inflicted damage to the surface of the body without suicidal intent (APA). The youth engages in the self-injurious behavior with one or more of the following expectations:

- To obtain relief from negative feeling or cognitive state;
- To resolve an interpersonal difficulty; and/or
- To induce a positive feeling state (APA).

The intentional self-injury is associated with at least one of the following:

- Interpersonal issues or negative feelings and thoughts like depression or anxiety;
- Prior to engaging in the act, a period of preoccupation with the intended behavior that is difficult to control; and
- Deliberating the non-suicidal self-injury occurs frequently, even when not acted upon (APA).

Behaviors like body piercing and tattooing, which are socially sanctioned, and nail biting or scab picking are not sufficient to meet an NSSI diagnosis. In order for the youth to be diagnosed with NSSI, the behavior should not occur exclusively during psychotic episodes, delirium, intoxication, or substance withdrawal, and cannot be explained by another medical condition or mental disorder (APA). Moreover, it is important to note that youth who attempt suicide within the past 24 months fall under the “suicidal behavior” diagnosis (Stetka & Correll, 2013).

Prevalence

NSSI typically begins during the early teen years, often between ages 14 to 16, and can carry through to ages 20 to 29 (APA, 2013; Klonsky, 2011). Estimates show that about 18 percent of adolescents engage in NSSI under *DSM-IV* standards (Swannell et al., 2014; Muehlenkamp, Claes, Havertape, & Plener, 2012). The prevalence of females to males in the *DSM-5* rates is closer to 3:1 or 4:1 (APA, 2013). A study of prevalence based upon *DSM-5* criteria show 11.1 percent of females and 2.3 percent of males with NSSI (Zetterqvist, Lundh, Dahlström, & Svedin, 2013). Among community samples of adolescents who met criteria for NSSI, 20 percent reported that at least one of their self-injuries during the last year was a suicide attempt (Zetterqvist, 2015), which can make it difficult to determine the differences between these two problems.

Causes and Risk Factors

Researchers have identified many risk factors associated with NSSI. These risk factors are outlined in Figure 1.

Associated Psychopathology

The *DSM-5* notes the most common purpose of NSSI is to reduce negative emotions such as tension, anxiety, and self-reproach (APA, 2013). In certain cases, the injury is conceived as a deserved self-punishment to make up for acts that harmed or distressed others (APA). The youth may then report an immediate sensation of relief that occurs during the process (APA).

Adolescents with depressed mood and high anxiety are at higher risk for NSSI (DiFilippo, et al., 2003). Adolescents diagnosed with oppositional defiant disorder (ODD), major depressive disorder, and dysthymia are also significantly more likely to engage in NSSI than adolescents without these particular psychiatric diagnoses (DiFilippo, et al.).

Figure 1
Risk Factors Associated With NSSI

- Risk taking and reckless behavior
- Childhood sexual abuse
- Childhood physical abuse
- Neglect
- Family violence during childhood
- Family alcohol abuse
- Childhood separation and loss
- Single parent family
- Parental illness or disability
- Poor affective quality and security with childhood attachment figures
- Emotional reactivity
- Emotional intensity
- Hopelessness
- Loneliness
- Anger
- Alcohol use

Sources: Gratz, 2003; DiFilippo, Esposito, Overholser, & Spirito, 2003; Laye-Gindhu & Schonert-Reichl, 2005.

Additional studies have shown that adolescents with any comorbid condition are at increased risk of NSSI and those with greater than two comorbid conditions have nearly three times the odds (Cutler et al., 2015). The specific comorbid conditions of obesity and alcoholism were associated with increased risk of NSSI (Cutler et al.).

Research conducted on adults indicates that NSSI also occurs in 80 percent of those diagnosed with borderline personality disorder (BPD) (Miller, Rathus, & Linehan, 2007). The characteristics of individuals with BPD and those who engage in repeated acts of NSSI overlap substantially. For example, Linehan (1993) asserts that adults diagnosed with BPD are particularly prone to hopelessness and may see suicidal behavior, with or without the intent to die, as the only option for managing their chaotic and distressing lives. For some adolescents who engage in NSSI, development of BPD may carry over into adulthood (American Academy of Child & Adolescent Psychiatry [AACAP], 1999), although some youth will outgrow their self-injurious behavior. The *DSM-5* separates NSSI from BPD because BPD does not occur in all individuals with NSSI, the motivation for self-injury varies, and different neurotransmitters are involved in the two disorders. In BPD, self-injury is manifested in disturbed aggressive and hostile behaviors, whereas those with NSSI alone often injure based on variability in closeness, collaboration, and positive relationships (APA, 2013).

Suicidal behavior disorder, discussed in the Youth Suicide section of this *Collection*, is connected to NSSI because NSSI may evolve into suicidality. Individuals who self-injure may eventually attempt suicide, and a greater number of self-harm methods previously attempted suggest a greater likelihood of suicidal intent (APA, 2013). Thus, nonsuicidal self-injury can be a warning sign for potential suicide attempts in the future. Other forms of self-injury discussed in this *Collection* are trichotillomania and excoriation (skin-picking) disorder, discussed in the Obsessive-Compulsive and Related Disorders section. Stereotypic self-injury, such as head banging, self-biting, or self-hitting, may be connected to developmental delay (APA).

Familial and Biological Causes

In a review of the literature on NSSI and BPD, Crowell, Beauchaine and Lenzenseger (2008) indicate that there is a clear familial component to NSSI, but point out that it is still uncertain whether this is due to genetics, environment, or both. Relatives of individuals who have engaged in NSSI are three times more likely to engage in such behavior themselves (Crowell, Beauchaine, & Lenzenseger). Additionally, Linehan (1993) states that patients diagnosed with BPD often grow up in environments where emotional expression goes unrecognized or is punished, the outcome being that emotional regulation skills are underdeveloped. The significant overlap between those who engage in NSSI and those diagnosed with BPD suggests that invalidating childhood environments put youth at risk for NSSI.

There is consistent evidence to support a genetic component for impulsivity, affective instability, and aggression—all risk factors for NSSI (Crowell, Beauchaine, & Lenzenseger, 2008). Research conducted on the possible causes of NSSI has focused on the neurotransmitters serotonin and dopamine; however, these studies have largely focused on adult populations (Crowell, Beauchaine, & Lenzenseger). One study of self-injuring adolescents found reduced levels of peripheral serotonin and others have found decreased dopamine level in suicide attempters (Crowell, Beauchaine, & Lenzenseger). Additionally, studies have supported the role of the neurotransmitters acetylcholine and norepinephrine in emotional stability (Crowell, Beauchaine, & Lenzenseger).

Assessment

Research tools for assessing NSSI in community populations are few and are either limited in the scope of NSSI characteristics assessed or included as part of suicide assessment (Whitlock, Exner-Cortens, &

Purington, 2014). However, assessment of NSSI is a critical and important component of any psychological assessment, and assessment tools may change, as the *DSM-IV* did not include diagnostic criteria for NSSI (Lloyd-Richardson, 2008; Nock, Teper, & Hollender, 2007). Recent years have seen the development of a number of questionnaires and semi-structured and structured interviews that aid in the assessment of the prevalence, frequency, severity, and function of self-injurious behavior (e.g., Self-Injurious Thoughts and Behaviors Interview, Self-harm Behavior Questionnaire, Lifetime-Suicide Attempt Self-Injury (L-SASI) Interview) (Lloyd-Richardson). While parents are an important source of information, research has shown that parents tend to underreport their child’s suicidal ideation and NSSI, making direct assessment critical (Nock, Holmburg, Photos, & Michel, 2007). Mental health professionals should inquire about suicide ideation, suicide attempts, and NSSI with all adolescents in high-risk groups. Individuals who engage in NSSI do so for a wide variety of reasons and understanding these reasons is an important step in effective treatment, particularly since such analysis guides treatment (Lloyd-Richardson). Suggested assessment tools for NSSI are included in Table 1.

Table 1
Suggested Assessment Tools for Nonsuicidal Self-Injurious Behavior

Measure Type	Name of Measure	What is Measured
Structured Interview	Self-Injurious Thoughts and Behaviors Interview	The presence and frequency of suicidal behavior, including NSSI
Self-Report	Suicidal Behavior Questionnaire: <ul style="list-style-type: none"> • SBQ-14, a 14-item version for adolescents; and • SBQ-C, a 4-item version for children 	Suicidal ideation, behavior and NSSI
Self-Report	Functional Assessment of Self-Harm	Frequency, type, and intent of NSSI

Sources: Nock, Holmburg, Photos, & Michel, 2007; Goldston & Compton, 2007.

Treatment

NSSI represents a pattern of behavior, rather than a single isolated event, and is perpetuated through both positive and negative reinforcement (Linehan, 1993; Gratz, 2003; Miller, Rathus, & Linehan, et al., 2007). For example, NSSI is positively reinforced when the adolescent experiences a sense of control or relaxation following self-harm (Gratz). NSSI is negatively reinforced when the adolescent experiences distressing or unpleasant emotions and or thoughts—for example, sadness, loneliness, emptiness, emotional pain, and self-hatred—following self-harm (Gratz, Linehan). Therefore, Miller, Rathus, and Linehan suggest that interventions aimed at reducing NSSI should focus on strengthening emotion regulation skills. This approach varies from interventions aimed at reducing suicidal behavior, which instead help the adolescent identify reasons for living. Proper assessment is critical to effectively treating NSSI. Table 2 lists treatments for NSSI.

Historically, youth who self-harm, chronic suicide attempters, and individuals with BPD have been considered highly resistant to treatment (Muehlenkamp, 2006). In recent years, however, there have been major developments for adolescents diagnosed with these disorders. A review of the literature outlining treatment for suicidal behavior (suicide ideation, suicide attempts, and NSSI) shows that treatments that address the problem behaviors directly consistently outperform treatments that conceptualize suicidal

behavior as a symptom and treat the underlying psychopathology (Miller, Rathus, & Linehan, et al., 2007).

Psychosocial Treatment

Cognitive behavioral therapy (CBT) is one treatment for NSSI that has been tested. Two other promising treatments have been studied in greater depth: problem solving therapy and dialectical behavioral therapy (DBT) (Muehlenkamp, 2006). Research on the effectiveness of problem solving therapy in treating NSSI shows promise, but the study results are too sparse to support a strong conclusion regarding its effectiveness (Muehlenkamp). The premise of CBT for NSSI is to reduce NSSI behaviors by helping clients develop new coping skill sets, address motivational obstacles during treatment, and promote skill generalization outside the therapy setting (Muehlenkamp). DBT has been demonstrated as effective for the treatment of BPD, suicidality, and NSSI among adults and thus has received a lot of attention. When treating adolescents who engage in suicidal behavior, with and without intent to die, DBT has consistently led to significant reductions in self-injurious behavior, but has not demonstrated significantly better outcomes than those in the comparison group (Nock, Teper, & Hollender, et al., 2007; Peterson, Freedenthal, Sheldon, & Andersen, 2008). Thus, although DBT is an effective treatment for adults with NSSI and BPD, its effectiveness for children and adolescents is still being tested.

Table 2
Summary of Treatments for Nonsuicidal Self-Injurious Behavior

What Works	
There are no evidence-based practices at this time.	
What Seems to Work	
Cognitive behavioral therapy (CBT)	CBT involves providing skills designed to assist youth with affect regulation and problem solving.
Dialectical behavior therapy (DBT)	DBT emphasizes acceptance strategies and the development of coping skills.
Not Adequately Tested	
Problem solving therapy	Designed to improve an individual’s ability to cope with stressful life experiences.
Pharmacological treatment	Evidence of the effectiveness of the use of medications, such as high-dose SSRIs, atypical neuroleptics, and opiate antagonists, is limited. In addition, some medications have been shown to increase suicidal ideation in children and adolescents.
Hospitalization	Because effectiveness is not consistently demonstrated, should be reserved for youth who express intent to die.

Pharmacological Treatment

Medications such as selective serotonin reuptake inhibitors (SSRIs) and opiate antagonists have been studied, but evidence that supports their effectiveness is inconclusive (Martinson, 1998). To date, it appears that the most promising treatments are high-dose SSRIs and, in some cases, atypical neuroleptics (Martinson). Fluoxetine shows the most promise in NSSI treatment, based on its effect on serotonin, but its efficacy does not meet evidence-based standards (Smith, 2008). Because evidence is so limited,

pharmacological treatment of NSSI is not considered an evidence-based treatment at this time. Additionally, since the *DSM-5* notes that different neurotransmitters are affected by NSSI and BPD, pharmacological treatment may further change in the future (APA, 2013). A more detailed discussion of the use of antidepressants in treating children and adolescents is included in the “Antidepressants and the Risk of Suicidal Behavior” section of this *Collection*.

Hospitalization

Historically, hospitalization has been the standard treatment for NSSI, but it is the most expensive option, and evidence of its effectiveness has not been consistently demonstrated (Muehlenkamp, 2006). Research focused on suicidal ideation and suicide attempts indicates that the most dangerous time for youth following hospitalization for suicidal behavior is between six months to a year, during which 10 to 18 percent of youth will attempt suicide (Prinstein et al., 2008). As a result, outpatient mental health providers are the most likely choice for youth, with hospital admissions typically reserved for adolescents with NSSI who express intent to die (Muehlenkamp).

Recommended Elements of Treatment

Clinical researchers have identified treatment components for NSSI that recur in the research. While these treatment elements do not have the clinical trials and studies that classify them as evidence-based, they do represent an emerging clinical consensus. These treatment elements are described in this section.

An important treatment element for youth who have engaged in NSSI is the establishment of a strong therapeutic alliance between the youth and the service provider. Once the alliance is formed, an important treatment goal is to reduce and ultimately eliminate NSSI by replacing it with healthier coping skills (Muehlenkamp, 2006). Another recommended component is the establishment and maintenance of meaningful connections between adolescents and their families (Muehlenkamp). However, the treatment trials of DBT for adolescents have not consistently included a family component and, to this point, there has not been a study comparing DBT for adolescents with and without the family therapy component. Thus, data regarding the importance of family involvement in the treatment of adolescents who engage in NSSI is still being gathered.

Cultural Considerations

In a review of the literature on ethnic differences among self-harming adolescents, researchers in Great Britain found no significant difference between the rate of NSSI among Asian and Caucasian adolescents (Goddard, Subotsky, & Fombonne, 1996). A study comparing the ethnic and racial distribution of adolescents who reported NSSI and the ethnic and racial distribution in the population found no significant difference between the rates at which adolescents from various ethnic groups were referred to for psychiatric services following acts of deliberate self-harm (Goddard, Subotsky & Fombonne). In the United States, there are studies that have reported that African American and Latino adolescents have higher rates of suicide attempts than Caucasian adolescents, but it is unclear whether this holds true for NSSI (Spirito, 2003).

When comparing youth in the United States, Italy, and the Netherlands, youth in the United States are more likely to have comorbid NSSI and substance use (Giletta et al., 2012). There are no discernable differences in prevalence between youth in the United States and those in Germany (Plener et al., 2009). The U.K., Ireland, Belgium, Norway, and Australia all have similar prevalence rates, and Hungary and the Netherlands have lower rates of NSSI (Whitlock & Rodham, 2013).

This prevalence, or at least the convention of NSSI, may increase with websites like YouTube. Studies investigating the pervasiveness of NSSI videos online revealed 2,140 videos in 2009 and over 5,000 in

2012 (Purington & Whitlock, 2010; Lewis, Heath, Michal, & Duggan, 2012). A Google search in 2009 revealed more than 15 million results, and almost 87 million in 2014 (Purington & Whitlock, 2010).

Overview for Families

The terms self-injury, parasuicide, deliberate self-harm, self-abuse, self-mutilation, self-inflicted violence, or cutting is the deliberate harming of one's body, resulting in tissue damage, without the intent of suicide. It does not include culturally-sanctioned activities, including tattoos or actions within a religious or cultural ritual. Family members can look for signs of self-injury, including:

- Scratching (excoriation)
- Cutting
- Burning
- Hitting or biting oneself
- Ingesting or embedding toxic substances or foreign objects
- Hair pulling
- Interfering with wound healing

This list is not exclusive, and families may also see other types of personal harm. Children who self-harm may exhibit more than one form of self-injurious behavior (Self-Injury Foundation, n.d.).

Often, family members wonder why youth engage in self-harm. Some reasons may include the following:

- Distracting from emotional pain (this is most common)
- Punishing oneself
- Relieving tension
- Sense of being real by feeling pain or seeing evidence of injury
- Numbing feelings; to not feel anything
- Experiencing a sense of euphoria
- Communicating pain, anger, or other emotions to oneself or others
- Nurturing oneself through the caring for wounds (Self-Injury Foundation, n.d.)

Studies show that females self-injure more frequently than males. While self-injury typically begins in adolescence, it is not limited to youth or teens, and it may continue into adulthood.

Resources and Organizations

American Academy of Child & Adolescent Psychiatry (AACAP)

Self-Injury in Adolescents

http://www.aacap.org/aacap/families_and_youth/facts_for_families/fff-guide/Self-Injury-In-Adolescents-073.aspx

Cornell Research Program on Self-Injurious Behaviors (CRPSIB)

<http://www.selfinjury.bctr.cornell.edu/>

Mental Health America (MHA) (formerly National Mental Health Association)

<http://www.mentalhealthamerica.net/>

National Alliance of Mental Health

Self-Harm

<https://www.nami.org/Learn-More/Mental-Health-Conditions/Related-Conditions/Self-harm>

National Institute of Mental Health

<https://www.nimh.nih.gov>

National Suicide Prevention Lifeline

1-800-273-TALK (8255)

<https://suicidepreventionlifeline.org/>

S.A.F.E. Alternatives (Self-Abuse Finally Ends)

800-DON'T CUT (366-8288)

<https://selfinjury.com/>

Self-Injury Foundation

P.O. Box 962

South Haven, MI 49090

<http://www.selfinjuryfoundation.org/index.html>

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DISCLOSURE STATEMENT

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