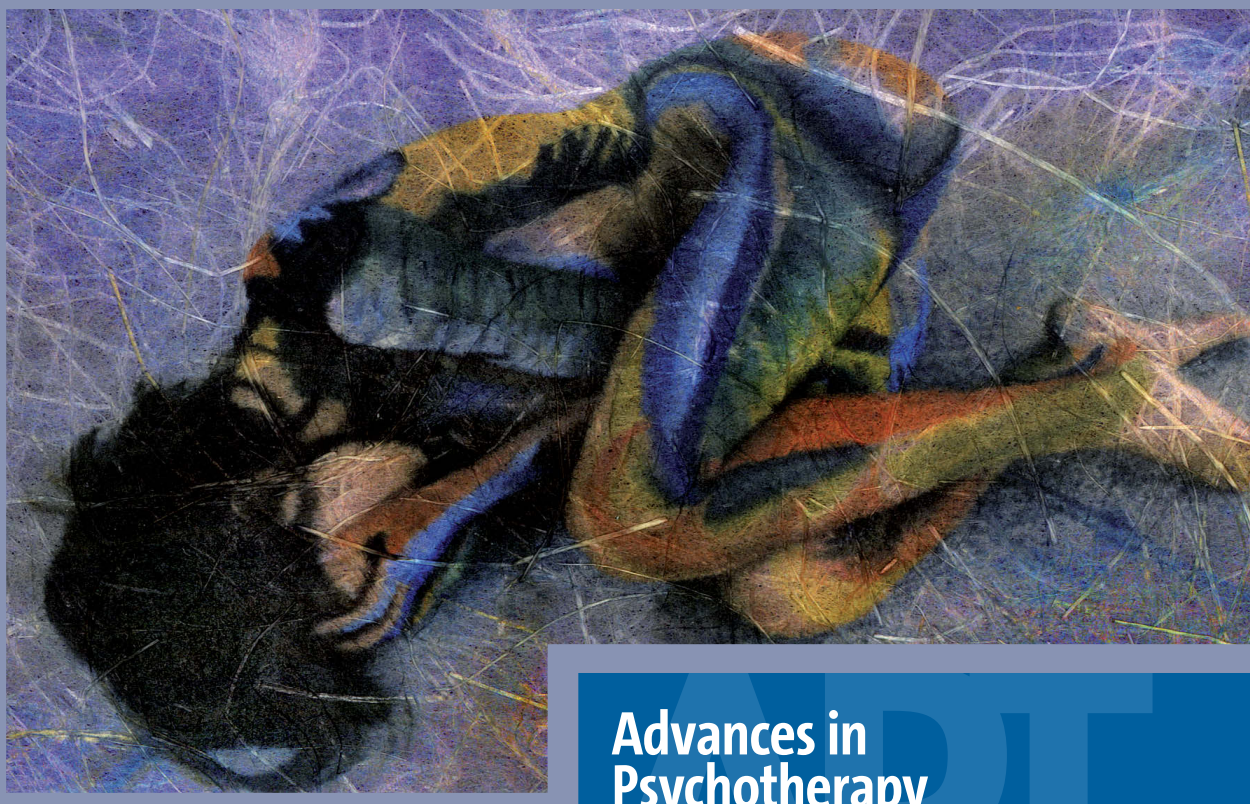
E. David Klonsky · Jennifer J. Muehlenkamp ·
Stephen P. Lewis · Barent Walsh

Nonsuicidal Self-Injury



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Nonsuicidal Self-Injury

About the Authors

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Barent Walsh, PhD, is Executive Director of The Bridge, a human service agency comprised of 40 programs headquartered in Worcester, MA. He has a faculty appointment at Harvard University and has previously taught at Boston College and Simmons College. He is the author of the book, *Treating Self-Injury: A Practical Guide*. For his contributions to the field of suicidology, he has received several awards, including a "Lifetime Achievement Award" from the Massachusetts Chapter of the National Association of Social Workers.

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The basic objective of this series is to provide therapists with practical, evidence-based treatment guidance for the most common disorders seen in clinical practice – and to do so in a "reader-friendly" manner. Each book in the series is both a compact "how-to-do" reference on a particular disorder for use by professional clinicians in their daily work, as well as an ideal educational resource for students and for practice-oriented continuing education.

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Nonsuicidal Self-Injury

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Library of Congress Cataloging information for the print version of this book is available via the Library of Congress Marc Database

Cataloging data available from Library and Archives Canada

http://www.hogrefe.com

PUBLISHING OFFICES
USA: Hogrefe Publishing, 875 Massachusetts Avenue, 7th Floor, Cambridge, MA 02139
Phone (866) 823-4726, Fax (617) 354-6875;
E-mail customerservice@hogrefe-publishing.com
EUROPE: Hogrefe Publishing, Rohnsweg 25, 37085 Göttingen, Germany
Phone +49 551 49609-0, Fax +49 551 49609-88,
E-mail publishing@hogrefe.com

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USA: Hogrefe Publishing, Customer Services Department,
30 Amberwood Parkway, Ashland, OH 44805
Phone (800) 228-3749, Fax (419) 281-6883,
E-mail customerservice@hogrefe.com
UK : Hogrefe Publishing c/o Marston Book Services Ltd, PO Box 269,
Abingdon, OX14 4YN, UK
Phone +44 1235 465577, Fax +44 1235 465556,
E-mail direct.orders@marston.co.uk
EUROPE: Hogrefe Publishing, Rohnsweg 25, 37085 Göttingen, Germany
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E-mail publishing@hogrefe.com

Format: PDF

ISBN 978-1-61676-337-4

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Description

Nonsuicidal self-injury (NSSI) is a baffling and troubling phenomenon because it involves people recurrently hurting their bodies for reasons that are complex and hard to treat. Rates of NSSI have markedly increased over the past decade, especially among adolescents and young adults (Muehlenkamp, Williams, Gutierrez, & Claes, 2009). Once thought to occur primarily in mental hospitals and group homes, NSSI is now frequently encountered in the general population such as among middle and high school and university students. Research has documented NSSI in secondary schools (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007), elite universities (Whitlock et al., 2006), and high-functioning military recruits (Klonsky, Oltmanns, & Turkheimer, 2003). In a 1995 study, almost 50% of therapists reported treating a client with NSSI, and in light of increasing rates of NSSI, this figure is likely to be considerably higher today (Suyemoto & MacDonald, 1995).

Once thought to occur primarily in mental hospitals and group homes, NSSI frequently occurs in the general population, especially adolescents

In recent years there has been an explosion of interest in NSSI in both the public and mental health arenas. NSSI has been covered in media outlets such as the *New York Times,* Reuters, Associated Press, the *Los Angeles Times, Boston Globe, Good Morning America,* and MSNBC, to name just a few, and talk shows including *Oprah* have devoted episodes or segments to NSSI. Popular singers and bands, such as Indigo Girls, Foo Fighters, Pearl Jam, Plumb, Garbage, Muse, and Nirvana have written songs about NSSI, and NSSI has been featured prominently in popular movies such as *Girl Interrupted*, *28 Days*, and *Kids* (for a review of NSSI in media outlets, see Trewavas, Hasking, & McAllister, 2010).

In response to the increased prevalence of, and public interest in, NSSI, several professional entities have been established to better understand, prevent, and treat the behavior. For example, the International Society for the Study of Self-injury (ISSS; www.ISSSweb.org) was established in 2006 during a meeting of approximately 20 mental health professionals on the campus of Cornell University. Since then, ISSS has held annual meetings at which researchers, clinicians, and consumers present the latest perspectives and findings on the nature and treatment NSSI. Membership in ISSS has swelled to more than 80 and includes members from numerous countries and continents. A similar organization has also been established in Canada. Interdisciplinary National Self-injury in Youth Network Canada (INSYNC) has been active since 2006, and comprises self-injury researchers from universities across Canada. One of the oldest organizations, Self-Abuse Finally Ends Alternatives (SAFE) was started more than 20 years ago by Drs. Wendy Lader and Karen Conterio, and has run treatment programs in Illinois, Texas, and Missouri. New organizations devoted to NSSI continue to develop. For example, in 2009, a special-interest

group (SIG) devoted to self-injury and suicide was established by members of the Association for Behavioral and Cognitive Therapies.

What these organizations have in common is: (1) a recognition that NSSI is a complex and sometimes misunderstood behavior, (2) a desire to increase and disseminate accurate knowledge about NSSI, and (3) a motivation to develop and enhance effective treatments. Consistent with the aims of these organizations, this book is meant to improve understanding and treatment of NSSI. Worth noting at the outset is that there are a number of key issues when it comes to understanding and treating NSSI. First and foremost is the relationship between NSSI and suicide. Because NSSI involves self-inflicted injury such as the cutting of one's wrists, NSSI can be and often has been mistaken for suicide. This has very important implications for both practice and research. Attempted suicide can involve aggressive and unpleasant treatment options, such as involuntary hospitalization. Thus, it is crucial that mental health professionals understand how to distinguish NSSI from attempted suicide to avoid inaccurate diagnosis and treatment selection. In addition, accurate differentiation of NSSI and attempted suicide is essential for research on basic aspects such as prevalence, epidemiology, biopsychosocial correlates, and treatment. Although the field has made great strides in understanding the overlap and differences between NSSI and suicide, the relation between NSSI and suicide is complex, and requires continued clinical and empirical attention.

NSSI is often mistaken for attempted suicide

A second key issue is the relation between NSSI and mental illness. Early research examined NSSI as a feature found in populations with serious mental disorders requiring inpatient psychiatric hospitalization (e.g., Graff & Mallin, 1967; Green, 1967). In the most recent iterations of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association [APA], 1994, 2000), NSSI appears only once, as a symptom of Borderline Personality Disorder (BPD). However, recent research has found that NSSI can occur across a variety of diagnoses, as well as in individuals who do not meet the criteria for a psychiatric diagnosis at all (Nock et al., 2006). Moreover, there is considerable variation in the expression of NSSI and in the psychological characteristics of those who engage in NSSI (Klonsky & Olino, 2008; Whitlock, Muehlenkamp, & Eckenrode, 2008). Therefore, important questions are now being asked about the diagnostic classification of NSSI. Is it appropriate to consider NSSI a symptom of BPD when it can also be found in those without BPD? Is NSSI secondary to other psychiatric disorders, or does NSSI represent a syndrome in its own right? Since 1983 there have been periodic calls to recognize NSSI as a distinct disorder (Favazza & Rosenthal, 1993; Muehlenkamp, 2005, Pattison & Kahan, 1983). Important changes to the classification of NSSI may be on the horizon. The DSM, 5th edition, (DSM-5) task force is currently considering a formal proposal that NSSI be defined as its own diagnostic entity. The proposal has support from both the Child and Adolescent Disorders and Mood Disorders workgroups, and may very well take effect when the next edition of the DSM is published in 2013 (APA, 2010).

NSSI can occur across a variety of mental disorders, including in people who do not meet criteria for any disorder

NSSI may be classified as its own diagnostic entity in DSM-5

A third key issue regards understanding motivations for NSSI. As evidenced by thriving markets for pain killers, helmets, "Caution" signs, and oven mitts (among countless other products), people go to great lengths to avoid pain and injury. In contrast, NSSI involves the purposeful self-infliction of

pain and injury. For many, NSSI is a counterintuitive behavior. Unfortunately, phenomena that people find hard to understand are often shrouded in misconceptions and stigma. NSSI is no exception. People who engage in NSSI are often stigmatized as crazy, attention-seeking, or manipulative. NSSI is often misunderstood as attempted suicide, a sign of childhood abuse or trauma, or a symptom of severe mental illness. Understanding why people self-injure is essential for de-mystifying the behavior, and ensuring accurate diagnosis and treatment. Like the vast majority of behaviors performed by people, NSSI serves practical functions, and occurs in contexts that make sense in light of these functions. Most often, NSSI is performed to alleviate intense and overwhelming negative emotions, and accomplishes this aim more efficiently than alternative behaviors – at least in the short-term. Much more detail about affect regulation and other functions are included in this volume, since this information is essential for understanding, preventing, and treating NSSI.

Understanding why people self-injure is essential for demystifying the behavior, and ensuring accurate diagnosis and treatment

A fourth key issue involves the complex social context in which NSSI occurs. There is evidence that NSSI "spreads" in part through social forces (Prinstein, Guerry, Browne, & Rancourt, 2009). Therefore, it is important to take into account the multiple social contexts that facilitate the initiation and continuation of NSSI. For example, NSSI is particularly prevalent on high school and university campuses, and is featured in media outlets, such as movies and music, that play important roles in the social lives of adolescents and young adults. There is also a significant presence of NSSI on the Internet, including social networking websites such as MySpace, and other popular sites such as YouTube (Lewis et al., 2011; Whitlock, Powers, & Eckenrode, 2006). As a consequence, understanding the origins, course, and treatment of NSSI requires understanding its interpersonal context, a topic that is addressed in this volume.

NSSI is featured in popular movies and music, and also has a significant presence on the Internet

While there is still much to learn, the field has come a long way in clarifying the nature and treatment of NSSI. As with other areas in mental health, increasing knowledge is not enough; it is important that this knowledge be disseminated and applied to help those in need of effective care. This book was written with this aim in mind. We hope you find the information contained herein to be accessible, practical, and useful to your treatment of clients who self-injure.

1.1 Terminology

Clear and consistent terminology and definitions are important both for research and treatment

Adopting a clear and reliable classification system for NSSI is important for both research and clinical domains. From a scholarship perspective, consistency in the terms used plays a significant role in the development and advancement of theory; moreover, it ensures that researchers adopt consistent terminology in their empirical work. Conversely, vague or inconsistent use of terms may thwart empirical progress, due to limitations in reliability and validity. From a clinical perspective, consistency in terms used is an integral part of a comprehensive and accurate assessment and informs the case formulation. In turn, case formulation represents the medium through which interventions are selected and implemented. The use of vague or inconsistent terms in clini-

cal settings may render the type of behavior engaged in by the client unclear, which may compromise not only case formulation but the quality of risk assessment as well.

A literature review indicates that several definitions and taxonomies have been offered to conceptualize NSSI and variant behaviors (Favazza & Rosenthal, 1993; Nock & Favazza, 2009; Nock, Holmberg, Photos, & Michel, 2007; Silverman, Berman, Sanddal, O'Carroll & Joiner, 2007). These efforts have been helpful in delineating key terms, such as *suicide attempt* and *NSSI.* Moreover, research findings have supported several unique aspects of NSSI. For instance, compared with attempted suicide, NSSI has distinct rates and correlates as well as its own trajectory; NSSI also requires, and may respond to, unique intervention (Brown, Ten Have, Henriques et al., 2005; Kessler, Berglund Borges, Nock & Wang, 2005; Linehan, Armstrong, Suarez, Allmon & Heard, 1991; Miller, Rathus & Linehan, 2007; Nock & Kazdin, 2002; Nock & Kessler, 2006; Walsh, 2006).

While it is the case that NSSI represents a distinct behavior with its own epidemiology, concomitants, and clinical approach, it is also the case that several terms have been used inconsistently and interchangeably to refer to NSSI or a broader class of self-injurious behaviors (Nock & Favazza, 2009;

Table 1
Definitions of Alternative Terms to NSSI

Term	Similarities to NSSI	Differences from NSSI
Self-mutilation	Often used to refer to same behaviors and definition as NSSI	Sometimes used to include major self-injury associate with psychosis such as limb amputation; has a more pejorative connotation
Deliberate self-harm	Sometimes used to refer to same behaviors and definition as NSSI	Sometimes used to include suicidal behaviors
Parasuicide	Sometimes used to refer to same behaviors and definition as NSSI	Most often used to include suicidal behaviors
Wrist cutting	Includes cutting that meets definition of NSSI	Sometimes used to include suicide attempts made by wrist cutting; only one of many potential NSSI behaviors
Self-abuse	Sometimes used to refer to same behaviors and definition as NSSI	Equate NSSI with "abuse" of oneself, which may not be an accurate or useful connotation
Self-inflicted violence	Sometimes used to refer to same behaviors and definition as NSSI	Sometimes used to include suicidal behaviors or other forms of self-directed violence

Note. NSSI = nonsuicidal self-injury.

Prinstein, 2008; Skegg, 2005). As described above, this can lead to confusion and miscommunication. In Table 1, we describe the use of alternative terms and outline a rationale for the use of NSSI over these different terms.

Until recently, *self-mutilation* was commonly used for acts now considered NSSI, and it has been used by several prominent figures in the field (e.g., Favazza & Rosenthal, 1993; Nock & Prinstein, 2004, 2005). Notwithstanding the use of *self-mutilation*, these and other researchers agree that NSSI is a preferred term as it is considered more appropriate and accurate (Nock & Favazza, 2009). Indeed, definitions of *mutilate* include "to cut up or alter radically so as to make imperfect" and "to cut off or permanently destroy a limb or essential part of; cripple" (*Merriam-Webster's Collegiate Dictionary*, 2005, p. 820). This definition connotes severe and possibly permanent behavior, which may or may not reflect all instances of NSSI (e.g., varying degrees of cutting) or all methods of NSSI (e.g., skin abrading, burning, or hitting). Furthermore, individuals who engage in NSSI have advocated for the use of *self-injury* in place of *self-mutilation,* as the latter is deemed pejorative and possibly stigmatizing – a sentiment echoed by several clinicians and researchers (Connors, 2000; Nock & Favazza, 2009; Walsh, 2006).

Unlike *self-mutilation*, the term *deliberate self-harm* does not connote a severe or possibly permanent behavior. However, while the definition of *deliberate self-harm* (see Rodham & Hawton, 2009) includes NSSI (e.g., cutting, burning), it is much broader, and encompasses behaviors that do not necessarily involve tissue damage or that are ambiguous in terms of the degree of resulting injury (e.g., overdosing). Deliberate self-harm also includes acts that carry lethal intent (i.e., suicide attempts). There is substantial evidence to demonstrate key differences between acts that carry nonlethal intent and those that carry lethal intent (Nock & Favazza, 2009). For example, individuals who attempt suicide tend to engage in acts with a higher degree of lethality and are at elevated risk to die by suicide over time when compared with those engaging in NSSI (Brown, Henriques, Sosdjan, & Beck, 2004; Harriss & Hawton, 2005; Nock & Kessler, 2006); additionally, individuals who engage in NSSI, when compared with those who attempt suicide, tend to use more methods (e.g., cutting and burning) and engage in more frequent episodes of the behavior (Nock et al., 2006). In this way, using *deliberate self-harm* synonymously with NSSI is problematic not only conceptually but also empirically, as it impedes meaningful comparisons across studies.

Terms such as *self-mutilation, parasuicide,* and *deliberate self-harm* may or may not be used in the same manner as *NSSI*

A less commonly used term is *parasuicide*, which has been used in a similar vein to *deliberate self-harm* by virtue of encompassing a general set of self-actuated behaviors in which there was a goal to cause bodily harm or death (Kreitman, 1979). Thus, *parasuicide* (like *deliberate self-harm*) refers to behaviors that would be considered NSSI (e.g., cutting) but also acts that would not, such as overdosing and suicide attempts. Unfortunately, as others have indicated, *parasuicide* has been used interchangeably with *self-injury* (e.g., Nock & Favazza, 2009; Prinstein, 2008; Skegg, 2005), which has confounded its meaning in empirical and clinical contexts.

Other terms are also noteworthy, including *wrist cutting, self-abuse,* and *self-inflicted violence*. Terms which circumscribe the method and location of injury (e.g., wrist cutting) may be problematic, as it is widely accepted that individuals self-injure in different ways (e.g., cutting, or burning), on differ-

ent body parts (e.g., wrist, upper arm, or thigh), and by varying degrees of the same method (e.g., scraping, scratching, or cutting). Terms such as *self-abuse* and *self-inflicted violence* may also yield semantic obfuscation. *Abuse* and *violence* both have several definitions, and when applied to the self, may or may not accurately capture the nature of injury resulting from the behavior; they also fail to capture the essence of the act being nonsuicidal in nature.

1.2 Definition

Nonsuicidal self-injury (NSSI) is defined as intentional destruction of one's body tissue without suicidal intent, for purposes not socially sanctioned

Nonsuicidal self-injury (NSSI) refers to the intentional destruction of one's body tissue without suicidal intent and for purposes not socially sanctioned (for a review, see Nock & Favazza, 2009). The most commonly cited methods involves skin cutting, scraping, or carving, which is thought to be engaged in by between 70% and 90% of persons who self-injure. This is followed by banging, bruising, and self-hitting which comprise 21–44% of NSSI episodes, and then burning, which occurs at a rate of about 15–35% (Briere & Gil, 1998; Nijman et al., 1999). Other methods are also reported and may include: biting, skin picking, wound excoriation, and less commonly bone breaking. While many individuals use just a single method, it is not uncommon for individuals to use multiple methods of NSSI (Gratz, 2001; Herpetz, 1995; Whitlock et al., 2006). Some research indicates that individuals report as many as 16 methods of NSSI (Whitlock et al., 2006). As discussed later, understanding the number and types of NSSI methods used, in tandem with other factors, is important for assessment purposes and when determining suicide risk.

Common methods of NSSI including cutting, skin abrading, burning, and hitting/banging

It is not uncommon for individuals to use multiple methods

Following the above definition, a formal taxonomy of NSSI has been offered in which NSSI is further divided into subtypes: major NSSI, stereotypic NSSI, and superficial-to-moderate NSSI (Favazza & Rosenthal, 1993). While this taxonomy may have descriptive utility and was one of the first elaborated accounts of NSSI, we also want to be clear that it has not been shown to be clinically or empirically superior to other approaches. Major NSSI includes extreme but rare acts typically observed in severe psychoses. These acts (e.g., self-amputation, eye enucleation, and self-castration) also tend to occur (though not always) just once, and involve the use of an implement. Unlike major NSSI, stereotypic NSSI tends to occur quite frequently, tends to not involve the use of an implement, and results in superficial and minor tissue damage. Stereotypic NSSI also tends to occur in the context of a developmental disability or neuropsychiatric disorder (e.g., Tourette's syndrome or Lesch-Nyhan syndrome). Examples of stereotypic NSSI include repeated head banging and biting of one's tongue or extremities. Finally, superficial-to-moderate NSSI refers to the types of behaviors addressed in the definition provided above and the behaviors discussed throughout this volume. Favazza and Rosenthal (1993) further delineated superficial-to-moderate NSSI by suggesting that these behaviors can be compulsive, episodic, or repetitive. Compulsive NSSI refers to acts that are nonsevere and more ritualistic in nature, including hair-pulling – as observed in trichotillomania. Episodic and repetitive NSSI are similar in the method used (e.g., cutting, burning, or hitting) but differ in terms of the act's frequency, with the former occurring ephemerally (e.g., a few times in a year) and the latter more regularly

(e.g., weekly). Additionally, individuals tend to not identify as a *self-injurer* in the context of episodic NSSI, whereas there is a greater likelihood of their doing so in the context of repetitive NSSI. These last forms of NSSI – namely episodic and repetitive – comprise the behaviors discussed throughout this volume.

1.2.1 Conceptually Distinct Behaviors

Many researchers and clinicians agree with the above definition of NSSI and equivalent or similar definitions have been offered by others (Claes & Vandereycken, 2007; Klonsky & Muehlenkamp, 2007; Nock, 2009b; Walsh, 2006); nevertheless, some behaviors may be conceptually confused with NSSI and merit discussion. The first group of behaviors pertain to aspects of disordered eating, including restricting food intake, binging, and compensatory behaviors such as purging. Although disordered eating behaviors can be harmful and tend to not carry suicidal intent, they seldom result in destruction of body tissue, and the harm incurred tends to transpire over time rather than immediately; in other words, the harm is often indirect and nonimmediate. Moreover, these acts are typically driven by a desire to improve weight and body image rather than *cause injury* to one's body. Similarly, alcohol and substance, smoking, and overdosing also do not fall under the definition of NSSI. While these behaviors can be harmful, the nature of harm incurred is rarely immediate; furthermore, these acts involve chemical processes, which go beyond direct and immediate tissue damage.

Substance abuse and disordered eating behaviors are typically NOT considered forms of NSSI

Masochistic acts may also be confused with NSSI; however, the two can be distinguished, as masochism refers to painful acts typically inflicted by others, in contrast to NSSI in which the injury is self-inflicted. In addition, the pain in masochism is a means of achieving exhilaration or pleasure, including sexual pleasure, whereas NSSI is most often performed in response to intense negative emotions (see section 1.7.2 on Assessment for more information about Context and Functions). Finally, acts such as tattooing or piercing are generally excluded from NSSI by virtue of not always being self-effected and of being culturally or socially sanctioned and acceptable.

1.2.2 A Behavior or a Diagnosis?

Many of the behaviors described in the previous section are clinically relevant acts (e.g., binging and purging, and substance use) that fall within in larger diagnostic classifications (e.g., bulimia nervosa or substance abuse). Presently, NSSI does not represent its own diagnosis, whereas some other maladaptive behaviors do (e.g., substance abuse and eating disorders). Indeed, several arguments have been made for NSSI's inclusion in the next edition of the DSM. For instance, the absence of NSSI as a formal diagnostic entity may contribute to the confusion regarding terminology and classification described in Section 1.1 (also see Nock & Favazza, 2009). Thus, its exclusion from current diagnostic nomenclature precludes widespread recognition and agreement regarding what comprises NSSI, and, in turn, hampers research and progress in developing effective treatments.

NSSI may warrant its own diagnosis, a possibility being considered for DSM-5

NSSI can occur independently of other diagnoses and is linked to significant clinical impairment

Recently, several researchers, including co-authors of this volume (E.D.K. and J.J.M.) have advocated for the inclusion of NSSI in the next DSM. These arguments have been a part of discussions within DSM-5 committees, as have discussions about where NSSI should be classified. Arguments in favor of including NSSI in DSM-5 include the following two points: (a) NSSI can occur independently of other diagnoses and (b) NSSI is linked to significant clinical impairment. This argument alone may be enough to justify its treatment as a distinct diagnostic entity.

While formal criteria are not yet established, some diagnostic components under consideration include (but are not limited to): a minimum frequency of five NSSI episodes within the past 12 months, in which the act is preceded by negative affect (e.g., anxiety, distress, sadness, and/or anger) or thoughts (e.g., self-criticism), and causes significant distress or impairment in level of functioning. As the next revision of the DSM is presently in progress, these and other criteria for a NSSI diagnosis are subject to formal revision. Draft criteria for an NSSI diagnosis in DSM-V can be found at www.dsm5.org. Beyond some of the conceptual arguments made for NSSI representing its own diagnosis, there are also empirical considerations and arguments for this. In the next sections of the chapter, we discuss key empirical findings regarding NSSI and where appropriate, highlight how this knowledge relates to the issue of diagnosis.

1.3 Epidemiology

Currently, NSSI represents a critical health service issue and is common among youth and young adults (for reviews see Jacobson & Gould, 2007; Rodham & Hawton, 2009). However, arriving at precise rates across different ages and in different populations (e.g., nonclinical versus clinical) has been difficult. One reason for this is a lack of NSSI assessments in large, population-based studies. Ascertaining precise NSSI rates is further impeded by lack of consensus regarding NSSI's conceptualization. The lack of agreement in terminology has led to difficulties when comparing rates across studies and determining how to best interpret these rates. Another, but related, challenge is that not all studies provide an operational definition of the behavior being examined; this makes it difficult for other researchers to understand the precise acts examined in those studies. Finally, a definition for the behavior of interest is not always conveyed to research participants. As such, respondents are left to decipher what the researchers are assessing. This may confound the nature of prevalence estimates (and other results), as researchers and participants may have different views regarding what is being measured (Rodham & Hawton, 2009). These taxonomical and methodological issues, aside, significant efforts have been made to measure rates of NSSI. Most studies report lifetime prevalence rates for NSSI and prevalence rates within a given sample; a few report rates within the past year. Unless otherwise stated, the rates presented below refer to lifetime prevalence rates.

1.3.1 Rates

Historically, NSSI was examined as a relatively rare phenomenon occurring only in populations with severe mental illness (e.g., Graff & Mallin, 1967; Green, 1967). As the attention NSSI received from clinicians, researchers, and even the media increased, so did the reported rates of the behavior. In this way, NSSI is no longer considered a rare behavior (for a review, see Rodham & Hawton, 2009), nor is it one that occurs only in populations with severe mental illness (e.g., Klonsky & Olino, 2008; Muehlenkamp & Gutierrez, 2004; Nixon, Cloutier, & Jansson, 2008; Ross & Heath, 2002; Whitlock et al., 2006). Many researchers have since surmised that NSSI rates have increased, as evidenced by higher rates of NSSI among younger cohorts (Muehlenkamp et al., 2009).

Rates of NSSI are higher among younger cohorts

Before continuing, it is important to note that, while it has been suggested and there is good evidence to show that NSSI rates have increased, it is difficult to determine the degree to which this has happened. Specifically, not all acts of NSSI receive clinical attention, and as a result, prevalence rates reported from clinical sites (e.g., a hospital or mental health clinic) may not include those acts in which the individual cared for him or herself and did not seek professional help (Muehlenkamp, 2005). Related to this, stigma may hinder some individuals from taking part in studies or from seeking help. There is also no base rate with which to compare recently reported rates, as only a paucity of studies offered rates in the 1990s and earlier (Muehlenkamp, 2005; Whitlock et al., 2006). Finally, one part of the increase in NSSI rates may be attributable to an increased understanding of the behavior via empirical study (Muehlenkamp, 2005; Walsh, 2006).

Early estimates of NSSI

In the early 1980s, NSSI had a reported prevalence rate of about 400 per 100,000 individuals (e.g., Pattison & Kahan, 1983); by the late 1980s, the reported rate had increased to approximately 750 per 100,000 individuals (e.g., Favazza & Conterio, 1988). In his seminal work, in which a formal taxonomy for NSSI was offered, Favazza reported that over 1% of the population engaged in NSSI (Favazza & Rosenthal, 1993). The advent of this work resulted in increased empirical attention concerning NSSI, and has led researchers to examine the behavior in more depth and investigate NSSI rates across different age groups.

Children

Although it is generally agreed that NSSI is not as common in children when compared with other age groups (e.g., adolescents and young adults), it should not be assumed that children do not self-injure. Some researchers have shown that NSSI may begin in early to middle childhood and possibly as young as 4 years old in some cases (Yates, Carlson, & Egeland, 2008). In a study examining NSSI in college students, about 5% of students sampled indicated that their self-injury started before they were 10 years old (Whitlock et al., 2006). Our research has also demonstrated that some adolescents and young adults report having started to self-injure during middle to late childhood (Lewis & Santor, 2008; Muehlenkamp & Gutierrez, 2004). Research examining NSSI

NSSI can begin in childhood

exclusively in children is scant, and early ages of onset are based primarily on reports from adolescents and adults providing retrospective self-reports. Future research is needed to examine NSSI in children and to understand the developmental trajectory of NSSI when this transpires.

Nonclinical Adolescent Populations

Most individuals who self-injure begin to do so during early to mid adolescence (for a review, see Rodham & Hawton, 2009) with the average age of onset for NSSI ranging consistently between 12 and 16 years of age (Muehlenkamp & Gutierrez, 2004; Nock & Prinstein, 2004; Ross & Heath, 2002; Skegg, 2005; Whitlock et al., 2006). Given NSSI's emergence in youth, increasing efforts have sought to understand its prevalence in this age group. To this end, prevalence rates of NSSI in community samples of young people have ranged typically range anywhere from 10% to 15% (Laye-Gindhu & Schonert-Reichl, 2005; Muehlenkamp & Gutierrez, 2004; Ross & Heath, 2002). Others have cited even higher rates. For example, in a recent study examining community adolescents, almost 47% of young people reported self-injuring at least once in the past year (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007), although when only more severe forms of NSSI were considered, the rate was more in line with the lower estimates reported in other studies. Taken together, NSSI is a widespread concern in young people.

NSSI typically begins between the ages of 12 and 16 years

Approximately 10–15% of adolescents have self-injured at least one time

Following an initial episode of NSSI, there is an elevated risk for NSSI repetition (Jacobson & Gould, 2007). While it is not yet clear why the onset of NSSI tends to occur during the early to mid adolescent years, there is some evidence to suggest that several factors may elevate risk for NSSI in this age group, including stage of puberty (most commonly late or completed), depression, alcohol abuse, and sexual activity (Patton et al., 2007). The mechanisms by which these variables may result in NSSI remain elusive, however. Future research is needed to prospectively examine the development and course of NSSI.

Clinical Adolescent Populations

In addition to understanding NSSI in nonclinical samples of young people, it is equally important to understand NSSI in clinical samples of youth. Research examining rates of NSSI in inpatient and clinical samples of adolescents have consistently shown that NSSI rates are significantly higher when compared with nonclinical samples. Specifically, NSSI rates have ranged from 40% (Darche, 1990) to 61% (DiClemente, Ponton, & Hartley, 1991). Similar reports have been made in other institutionalized settings (Pattison & Kahan, 1983; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003). The simplest explanation for higher NSSI rates in clinical populations of youth is that these individuals experience a significantly greater number of, and more severe, psychiatric difficulties as well as more severe NSSI which may result in hospitalization. Another possibility, however, pertains to the aspect of a NSSI contagion among young people in clinical settings. Specifically, it has been documented that by virtue of one youth engaging in NSSI in an inpatient setting, there is a risk that others will also engage in NSSI (e.g., Ghaziuddin, Tsai, Naylor, & Ghaziuddin, 1992; Rosen & Walsh, 1989; Taiminen, Kallio-Soukainen, Nokso-Koivisto, Kaljonen, & Helenius, 1998; Walsh & Rosen, 1985). The aspect of social

Rates of NSSI are significantly higher among adolescents in psychiatric treatment

contagion as it pertains to NSSI, as well as the role of other interpersonal variables in the context of NSSI, have been reviewed by Prinstein and colleagues (Prinstein, Guerry, Browne, & Rancourt, 2009).

Young Adults

Although NSSI often begins during adolescence, it can persist well into young adulthood; at the same time, NSSI may begin when individuals are young adults. A recent study examining NSSI in college students found that of those reporting NSSI, nearly 40% reported an onset during their late teenage years or early adulthood (Whitlock et al., 2006). In this way, young adults represent another important group to consider, with some researchers suggesting that they represent the highest risk group for NSSI (Rodham & Hawton, 2009; White, Trepal-Wollenzier, & Nolan, 2002). One of the first studies examining NSSI in young adults found that 12% of college students had engaged in NSSI on at least one occasion (Favazza, DeRosear, & Conterio, 1989). The prevalence rates of NSSI in young adults since this time have centered around 17%, with individual studies reporting rates ranging between 5% and 35% (Gratz, 2001; Nada-Raja, Skegg, Langley, Morrisson, & Sowerby, 2004; Whitlock et al., 2006).

It has been suggested that studies examining NSSI rates in young adults have been limited by small sample sizes and/or convenience sampling approaches (for a review, see Rodham & Hawton, 2009). In a large, randomized survey of NSSI among American college students, Whitlock and colleagues (Whitlock et al., 2006) found that 17% of young adults had engaged in NSSI at least once. Of these, approximately 75% reported repeated episodes of NSSI, and about 38.6% indicated they first self-injured in late adolescence or early adulthood; this suggests that NSSI emergence is important to examine beyond early to mid adolescence. In sum, these findings suggest that NSSI is widespread among young adults and support the view that NSSI rates may be increasing; however, as noted earlier, there is insufficient data from earlier cohorts with which to make comparisons. Nevertheless, NSSI represents a serious health service issue in this age group.

Approximately 17% of university students report self-injury at least once; NSSI began after age 17 in one third of these cases

Adults

NSSI can often persist for many years, and in some cases, last well into adulthood. While this is the case, rates of NSSI in community samples of adults are not as commonly studied when compared with other age groups (e.g., youth and young adults). Results from studies conducted in this age group have suggested that approximately 4% of community adults have self-injured (Briere & Gil, 1998; Klonsky, Oltmanns, & Turkheimer, 2003).

Lifetime rates of NSSI in adults are only about 4%

Similar to rates in adolescence, rates of NSSI in clinical samples of adults are higher than those in nonclinical samples. Thus, while nonclinical samples of adults suggest a rate of 4%, rates in adults in inpatient settings range from 4% to 21% (Briere & Gil, 1998). Unfortunately, rates of NSSI in adults and older adults (i.e., persons over the age of 60) are not as well studied, or the studies have examined NSSI in tandem with other self-harm behavior (e.g., overdosing and suicide attempts), which makes it difficult to identify precise rates. However, NSSI rates in these older adults seem to be consistently lower than rates found in youth and young adult populations.

1.3.2 Sex Differences

NSSI rates are similar for females and males, although females more often cut, and males more often hit or bang

Early research on NSSI suggested that the behavior was predominantly engaged in by females – a prevailing view supported by reports from a number of studies examining youth and adult populations (Darche, 1990; Suyemoto & MacDonald, 1995; Zlotnick, Mattia, & Zimmerman, 1999). More recent research has shown that males and females may differ to a much lesser degree than previously assumed, with some work showing no significant sex difference in lifetime NSSI rate (Briere & Gil, 1998; Gratz, 2001; Klonsky et al., 2003; Muehlenkamp & Gutierrez, 2004; Stanley, Gameroff, Michalsen, & Mann, 2001). It may be that sex differences for NSSI only emerge when the frequency of the behavior is considered. In a recent study examining NSSI in young adults, no significant sex differences were found for lifetime history of NSSI; however, when considering how often the behavior occurred, females engaged in more frequent NSSI (Whitlock et al., 2006).

In keeping with recent findings that NSSI may differ in its frequency between sexes, rates have been shown to vary across different features of NSSI. For instance, there is some evidence to suggest that adolescent and young adult females engage in cutting more than males (Rodham, Hawton & Evans, 2004; Whitlock et al., 2006); young adult females may also be more apt to engage in skin abrading as a form of NSSI when compared with males (Whitlock et al., 2006). With regard to males, there is evidence to suggest that among young adults, males injure themselves more by punching objects. Others have found similar patterns, with males engaging in more self-battery than females (Whitlock et al., 2008). Sex differences may also exist when considering where on the body the injury takes place. Among young adult males and females, males may injure their hands more than females, while females injure their wrists and thighs more than males (Whitlock et al. 2006). Future research will be needed to understand how NSSI varies as a function of its features (e.g., method, location of injury, and degree of injury) and its frequency between sexes.

1.3.3 Ethnicity

Rates of NSSI appear higher in Whites than non-Whites

Examination of NSSI across different ethnic groups represents an important but understudied area. There is some evidence to suggest that, in the United States, nonsuicidal and suicidal self-injurious thoughts and acts are more prevalent in Native American and Hispanic youth when compared with White and Black adolescents (Evans, Evans, Morgan, Hayward, & Gunnell, 2005). In the United Kingdom, rates of self-harm, which includes, but is not limited to NSSI, are highest in South Asian women (e.g., Bhugra, Desai, & Baldwin, 1999; Cooper et al., 2006). Other research examining NSSI exclusively has been mixed. Findings from these studies have indicated that NSSI occurs more in White individuals (Gratz, 2006; Guertin, Lloyd-Richardson, & Spirito, 2001; Jones, 1986; Maden, Chamberlain, & Gunn, 2000), with other research suggesting that rates are similar when comparing different minority groups (Whitlock et al., 2006).

Several issues merit consideration when examining NSSI in different ethnic groups. First, consistency in the terms used may cloud the estimate of NSSI rates between groups; as noted above, many studies do not distinguish NSSI