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Non-suicidal Self-Injury as Self-Directed Aggression in Community, Clinical, and Forensic Populations

18

Tinne Buelens, Noelani Luckas, and Bruno Verschuere

Contents

Introduction	358
Definition and Prevalence	358
Impact	359
Functions	360
Etiology and Risk Factors	361
Gender Differences	362
Methods of Engaging in NSSI	362
NSSI as Self-Directed Aggression in Specific Populations	363
NSSI and Borderline Personality Disorder	363
NSSI and Forensic Populations	364
Application of the Material	367
Mini-Dictionary of Terms	367
Key Facts	368
Summary Points	368
References	369

Abstract

Although violence and aggression are typically thought of as being directed towards others, behaviors such as cutting or hitting oneself can be considered examples of self-directed aggression. Referred to as non-suicidal self-injury (NSSI), these aggressive behaviors occur without suicidal intent, but rather serve the function of relieving distressing thoughts or feelings. In this chapter, we discuss NSSI as self-directed aggression (i.e., functionality, etiology, gender differences) in community samples and in two specifically relevant populations (i.e., clinical patients with borderline personality disorder, and forensic patients in closed correctional settings).

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Keywords

Non-suicidal self-injury · Self-harm · Aggression · Violence · Borderline personality disorder · Adolescents · Inpatients · Outpatients · Forensic psychiatry

Abbreviations

APD	Antisocial personality disorder
BPD	Borderline personality disorder
DSM	<i>Diagnostic and Statistical Manual of Mental Disorders</i>
ECM	Emotional cascade model
ED	Eating disorder
FFM	Four-function model
ISSS	International Society for the Study of Self-Injury
MDD	Major depressive disorder
NSSI	Non-suicidal self-injury
NSSI-D	Non-suicidal self-injury disorder
ORs	Odds Ratios
PFC	Prefrontal cortex

Introduction

Aggression directed towards the self, for instance, by cutting one's own skin or hitting oneself, has received considerable empirical attention over the past decades (Klonsky et al. 2014). In this chapter, we will define and describe this phenomenon otherwise known as non-suicidal self-injury (NSSI) as follows. First, we will briefly provide onset and prevalence rates and summarize the literature on short-, mid-, and long-term impact of NSSI on the individual, with specific attention towards the role of feelings of anger in these processes. Second, the functionality of NSSI will be discussed and framed within a broader etiological model. Third, gender and method (i.e., the specific behavior used to self-injure) differences relevant to aggression and violence will be discussed. Finally, NSSI will be discussed in two particularly interesting patient groups: patients with borderline personality disorder, the population with the highest NSSI prevalence rates, and forensic patients, a population where (threat of) NSSI is an important reason for admission to mental healthcare during imprisonment.

Definition and Prevalence

The International Society for the Study of Self-Injury (2018) defines non-suicidal self-injury (NSSI) as the deliberate, self-directed damage of body tissue without suicidal intent and for purposes not socially sanctioned. NSSI begins most commonly between the ages of 12 and 15 (Plener et al. 2015), with a second peak onset in early adulthood (Gandhi et al. 2018). It is highly prevalent in non-clinical samples,

with an estimated 17% of adolescents, 13% of young adults, and 5% of adults engaging in it (Swannell et al. 2014). Within clinical samples, mean prevalence rises to around 26% of men and 33% of women engaging in NSSI (Bresin and Schoenleber 2015), with high comorbidity (up to 61%) typically being found among patients with borderline personality disorder, mood disorders, or eating disorders (You et al. 2012; Cipriano et al. 2017). The high community and clinical prevalence rates of NSSI are alarming, given that engagement in NSSI is the most reliable predictor of future suicidal behavior, with those engaging in it being three to five times more likely to report suicidal ideation or suicide attempts (ISSS 2018). Urging further research, the latest DSM revision (American Psychiatric Association 2013) included non-suicidal self-injury disorder (NSSI-D) as a condition requiring further study (Zetterqvist 2015; Buelens et al. 2020b).

Impact

NSSI is widely considered a major public health issue with an impact on the individual that goes beyond the mere physical harm or scars. For instance, engagement in NSSI is linked to diagnoses like Borderline Personality Disorder (BPD), eating disorders (EDs), major depressive disorder (MDD), but also persistent feelings of stigma, shame, guilt, and broader outcomes like rejection by peers, impaired academic functioning, and low levels of help-seeking (Crouch and Wright 2004; Wilkinson and Goodyer 2011; In-Albon et al. 2013; Cipriano et al. 2017; Burke et al. 2019). The impact of NSSI differs depending on its short-term or long-term effects (Buelens et al. 2019).

Short-Term Disruption of Emotion-Cognition Cascades

In the short term, NSSI is considered as an effective disrupter of “emotion-cognition cascades” (see Emotional Cascade Model, ECM; Selby et al. 2014). A cascade builds as a cognitive process (e.g., rumination) fuels emotional distress and, in its turn, emotional distress fuels ruminative thoughts. Thus, cognitive and emotional processes are intensifying each other, resulting in a self-amplifying cycle or cascade (Selby et al. 2008). The physical sensation of NSSI effectively interrupts the cascade, immediately decreases negative cognition and emotion (Franklin et al. 2010), and replaces the build-up distress by feelings of relief, control, or for some even euphoria (Chapman et al. 2006; Victor and Klonsky 2014).

Mid-Term Impact

However, within hours, feelings of guilt, self-blame, self-loathing, worry, and shame about potential wounds and the idea of having engaged in NSSI start to emerge (Møhl 2019). Additionally, the thoughts and feelings that were temporarily suppressed by NSSI often quickly resurface, resulting in a renewed and potentially stronger emotion-cognition cascade (Selby and Joiner 2009; Selby et al. 2016; Buelens et al. 2019).

Long-Term Bidirectionality

Remarkably, these detrimental effects related to NSSI remain significantly measurable in the long-term, up to 1 year after the act of NSSI (Buelens et al. 2019). Namely, over time, a bidirectional model takes shape, as NSSI increases the risk for emotional/cognitive distress *and* emotional/cognitive distress increases the risk for NSSI (Selby et al. 2016; Buelens et al. 2019). This finding is both theoretically and clinically important, as it cautions about NSSI becoming an intractable self-amplifying issue that is hard to break by the individual themselves.

The Role of Anger in Emotional Cascades

A systematic review indicated that anger may take center stage in the onset of NSSI. Namely, whereas anxious and depressive symptoms (specifically sadness) seem closely related to NSSI thoughts, the transition from thought to behavior tended to occur in response to anger (Rodríguez-Blanco et al. 2018). Mainly anger towards oneself (39.9%) and to a lesser extent also anger towards others (22.4%) precedes the act of NSSI (Muehlenkamp et al. 2013). Indeed, while anxiety and depression are cognitively and emotionally distressing, they are not the activating and approach-oriented emotion that anger is (Carver and Harmon-Jones 2009).

Functions

The impact described above focuses on the emotion regulation function of NSSI, or simply put: NSSI “*to stop bad feelings*” (Nock and Prinstein 2004, p. 885). However, NSSI can carry a wide variety of functions, which have been structured into the so-called four-function model (FFM) by Nock and Prinstein (2004; Bentley et al. 2014). The basic tenet of the FFM (see Table 1) are the four quadrants created by four reinforcement processes: negative versus positive reinforcement and automatic (i.e., individual) versus social reinforcement (Nock and Prinstein 2004). The first quadrant contains functionality as described in the emotional cascade model: NSSI to reduce individual emotional or cognitive distress. That distress can manifest itself as anger, self-criticism, sadness, anxiety, and rejection (Nock and Cha 2009). Across heterogenous samples, this automatic negative reinforcement has consistently been found the most common function of NSSI by a large margin (Bentley et al. 2014). Other functions include positive automatic reinforcement (e.g., NSSI as sensation seeking or to elicit affect, such as euphoria) and social functions, which are rarely reported by those who self-injure (Klonsky et al. 2014).

Table 1 Examples of NSSI functions

Type of reinforcement	Automatic (Individual)	Social
Negative	e.g., <i>to reduce distress</i>	e.g., <i>to avoid social responsibilities</i>
Positive	e.g., <i>to induce desired affect</i>	e.g., <i>to increase attention from others</i>

Functions of NSSI are divided along the two dimensions of the four-function model by Nock and Prinstein (2004)

Etiology and Risk Factors

Etiology of Non-suicidal Self-Injury

The heterogeneity in NSSI functions already hints that NSSI's etiology is complex and dynamic, as it involves among others genetic, psychobiological, and sociocultural factors (Hawton et al. 2012). A recent meta-analysis identified mental disorders (i.e., depression, anxiety, personality disorders, eating disorders), adverse childhood experiences (ACEs, e.g., emotional or physical abuse and neglect, bullying), female gender, and physical symptoms (e.g., sleep problems, disabilities) as main risk factors (ORs between 1.89 (small) and 2.89 (moderate) for NSSI, specifically in adolescents (Wang et al. 2022). In both adolescents and adults, previous acts of NSSI and feelings of hopelessness stood out as the strongest long-term (i.e., approximately 12-month) predictors of NSSI (Fox et al. 2015).

Shared Risk Factors of Aggression and Suicidality

Despite the growing number of studies on risk factors of NSSI, the role of aggression in NSSI etiology has not received as much empirical attention. However, several theoretical accounts long suggested a strong linkage between suicidality and aggression (O'Donnell et al. 2015). For instance, Plutchik and colleagues' (1995) terminology of "inward- and outward-turned aggressiveness" and Freud's psychodynamic perspective of suicide being "aggression turned inward" both explicitly propose aggression as a prominent underlying mechanism. Several studies focusing on suicidality (i.e., suicidal thoughts and behaviors) corroborated these theoretical viewpoints, among others by identifying no less than 23 psychosocial risk factors that were shared by suicidality and violence/aggression (Plutchik 1995; O'Donnell et al. 2015). Most notably, these risk factors included feelings of hopelessness, impulsivity, and specific ACEs (i.e., childhood neglect and physical or sexual abuse; Plutchik 1995; O'Donnell et al. 2015). In itself, physical aggression and trait anger have also been significantly associated with suicidal behavior (Zhang et al. 2012).

Further evidence has been provided by neurobiological perspectives, which found the prefrontal cortex (PFC) dysfunction to be associated to impulse control and decision-making in both suicidality and aggression/violence etiology (e.g., Henry and Demotes-Mainard 2008). The PFC is reasoned to be involved in the tendency to act impulsively on aggressive or violent cognition and emotion, such as suicidal thoughts and urges (Mann and Currier 2009). This phenomenon becomes particularly clear with "violent types" of suicidality, such as using a firearm or laceration, which are significant behavioral markers of lifetime impulsive-aggressive behavior (Dumais et al. 2005).

Shared Risk Factors of Aggression and Non-suicidal Self-Injury

NSSI and suicidality are strongly correlated and can be difficult to distinguish in clinical practice (Nock et al. 2006), but are most clearly offset by their functionality. Suicide attempts, by definition committed with the intention of ending one's life, are distinguished from NSSI, often committed with the intention of *coping* with one's

life, resisting suicidal thoughts and behaviors, and regulating severe distress (Hamza et al. 2012). Therefore, the findings above on aggression and suicidality cannot be generalized to aggression and NSSI. Exemplary, as noted above, physical aggression and trait anger significantly predict suicidality (Zhang et al. 2012), but preliminary research suggests that these specific forms of aggression *do not* uniquely predict NSSI (Tang et al. 2013). Rather, verbal or indirect aggression and hostility were identified as being unique significant predictors of NSSI, after controlling for emotion regulation and demographic characteristics (Tang et al. 2013). Further research will be needed to replicate and clarify these findings (Fox et al. 2015).

Gender Differences

Perhaps suprisingly given stereotypes associating NSSI as a ‘female behaviour’, research findings have been inconsistent with regard to gender differences in NSSI prevalence (Bresin and Schoenleber 2015; Møhl 2019) and several studies did not find significant gender differences (e.g., Gratz et al. 2002; Hilt et al. 2008). However, a recent meta-analysis did show that across 120 studies ($N = 245606$) women were 1.5 times more likely to report lifetime history of NSSI compared to men (Bresin and Schoenleber 2015), with stronger gender differences in clinical populations compared to community or college populations (Bresin and Schoenleber 2015). A lack of power could explain why some of the individual studies failed to pick up on this gender difference with its small effect size, however, sampling bias and measurement methods focusing on female- rather than male-oriented methods of NSSI (see below) have also been suggested as potentially clouding gender difference results (Bresin and Schoenleber 2015).

Gender differences in NSSI go beyond mere prevalence, and that is when the several links with aggression and violence have been observed: men are more likely to engage in violent methods of NSSI (e.g., punching themselves, hitting themselves, intentionally breaking bones, hitting knuckles into the wall), whereas methods that involve blood (e.g., cutting and carving the skin) are most commonly used by women (Taylor 2003; Møhl 2019). Moreover, men tend to cause more severe injuries (e.g., requiring more medical care) and report “less concern about bodily disfigurement” (Hawton 2000, p. 484; Claes et al. 2007). Women on the other hand experience more profound feelings of shame and put more effort into hiding their NSSI from peers (Hodgson 2004; Whitlock et al. 2011). Adolescent girls might, for instance, more carefully select clothes specifically to cover NSSI scars and are more likely to avoid social situations where they have to expose their body (e.g., school swimming classes; Whitlock et al. 2011).

Methods of Engaging in NSSI

Most research referenced above conceptualizes and assesses NSSI as a unitary construct, neglecting the differentiation between forms or methods of NSSI

(i.e., the ways in which one self-injures). Yet, the variance in NSSI methods is vast and well-documented, ranging from more common and well-known methods (e.g., cutting, carving, scratching, burning, self-hitting/punching, biting) to more niche and lesser-known methods (e.g., bruising, head banging, deliberate wound interference, inserting sharp objects under the skin; Swannell et al. 2014). Individuals tend to have a preference for specific NSSI method(s) over others, which does not seem arbitrary. For instance, Klonsky and Olino (2008) found that those with a preference for self-hitting reported significantly fewer depressive symptoms compared to those who engaged in other behaviors. Importantly, trait aggression seems to have a unique relationship with the more physically aggressive methods of NSSI: self-hitting, self-punching, and banging one's head (e.g., into the wall, against a hard object, against one's own hand or fist; Kleiman et al. 2015). Namely, greater trait aggression has been associated with more frequent use of aggressive NSSI methods, while showing non-significant associations with any of the other NSSI methods.

NSSI as Self-Directed Aggression in Specific Populations

NSSI and Borderline Personality Disorder

It is important to first note that the majority of individuals engaging in NSSI do not meet the diagnostic criteria of BPD (Glenn and Klonsky 2015), and recent research showed that NSSI-D might best be operationalized as a significantly distinct diagnosis from BPD (Buelens et al. 2020a). Equalizing engagement in NSSI to being diagnosed with BPD seems inappropriate. However, *within* the population of individuals diagnosed with BPD, NSSI is a prototypical symptom as around 60–80% engage in some form of non-suicidal self-harm (Andover et al. 2005). In adolescents with BPD, “recurrent self-harm” is the most commonly met DSM diagnostic criterion of their personality disorder (Kaess et al. 2014), and engaging in NSSI seems to signal a more severe clinical profile and negative prognosis (Guénolé et al. 2021).

Studying aggression and violence in this population is relevant to two of the BPD criteria that are most closely intertwined with NSSI: unstable and tumultuous interpersonal relationships and disturbed identity development.

Self-Directed Aggression and Interpersonal Conflicts

BPD patients who engage in NSSI report more violent thoughts towards others (e.g., “Have you ever felt so angry that you could be able to kill someone?”) compared to those who do not engage in NSSI at all or to those who committed suicide attempts (Pérez et al. 2014). This association between other-directed violence (aggressive thoughts, feelings, conflicts) and self-directed violence (NSSI) in BPD has been corroborated by several studies (e.g., Stanley et al. 2001). Recent research investigated underlying mechanisms and found that both trait impulsivity and emotion dysregulation uniquely predicted proneness to both aggression and NSSI in BPD patients (Terzi et al. 2017).

Besides violent thoughts and feelings, aggressive and tumultuous interpersonal relationships have been associated numerous times with NSSI in BPD patients (Turner et al. 2016; Haliczzer et al. 2021). Guénolé et al. (2021) recently corroborated that NSSI in adolescent BPD patients was related to disturbance along the full interpersonal relatedness spectrum (i.e., including neediness and connectedness; see the two-polarities model by Blatt 2008). Their results implicated that interpersonal conflict evoked the greatest emotional reactivity in the patients, which in its turn was associated with heightened reliance on NSSI (Guénolé et al. 2021). Namely, first, interpersonal conflict may arise due to the fear and hypervigilance for signs of rejection and abandonment in BPD patients (see Interpersonal Sensitivity Model by Gunderson et al. 2018). Interactions and other's intentions are often misread and misinterpreted (Haliczzer et al. 2021) which can lead to the BPD patient feeling intense anger, rage, and urge to violently lash out towards the other for supposedly rejecting or abandoning them (Brickman et al. 2014; Mancke et al. 2015). Finally, alexithymia, impulsivity, and lack of adaptive emotion regulation strategies can result in the patient needing NSSI to cope with the overwhelming anger originating from this interpersonal conflict (Loas et al. 2012; Gatta et al. 2016). In conclusion, anger and aggression seem to be closely intertwined with NSSI and unstable relationships in BPD patients.

Self-Directed Aggression and Identity Disturbance

Specifically for individuals with BPD, NSSI has been theorized as self-directed aggression in case of inadequate delineation between self and other or self and the outside world (De Rijdt 2007; Neustadter et al. 2021). Patients with BPD are more likely to experience severe forms of identity disturbance (Wilkinson-Ryan and Westen 2000), to the point of not knowing which thoughts and feelings belong to themselves or to others (Beeney et al. 2016) or where one's own body ends and the outside world begins (Kaufman et al. 2015). In this context, directing aggression towards one's own skin – the literal physical boundary demarcating the body – has been theorized impactful in two ways (De Rijdt 2007). On the one hand, in case the BPD patient feels others are too close or intrusive and experiences no more distinguishment between self and others (Jorgensen 2006), engaging in NSSI can be a way of marking the self. On the other hand, in case the patient experiences a disturbing sense of emptiness (Kaufman et al. 2015) or a dissociative state of being cut off from the outside world (Korzekwa et al. 2009), NSSI has been evidenced as a quick-acting and temporarily effective way of reconnecting with reality, for instance, by seeing one's own blood flow (Klonsky et al. 2014; Schmahl et al. 2016).

NSSI and Forensic Populations

Prevalence

With approximately one-third of adult offenders reporting lifetime NSSI, the forensic context can be considered as one of the more vulnerable populations for self-injury in adulthood (for a systematic review, see Dixon-Gordon et al. 2012).

Prevalence rates vary strongly within offender populations (i.e., ranging from 7% to 48%; Lader et al. 2003; Chapman et al. 2005), and are consistently high among mentally disordered offenders (i.e., ranging from 48% to 61%; Gray et al. 2003; Loughran and Seewoonarain 2005). In fact, for roughly 1 in 5 offenders who received mental healthcare while imprisoned, (threat of) NSSI was the main reason for admission (Loughran and Seewoonarain 2005; Dixon-Gordon et al. 2012).

Gender Differences

Gender differences in the forensic population are noteworthy: although women make up merely about 6% of the forensic population, research has shown that about half of the registered acts of NSSI in forensics were reported by female offenders (Borrill et al. 2005). This overrepresentation of women aligns with previous research in clinical samples, with the effect seeming more outspoken in these forensic populations (Bresin and Schoenleber 2015). Also corresponding with clinical literature is the preference of female offenders for cutting or carving, compared to the male preference for self-hitting or punching (de Vogel and Verstegen 2021).

Several hypotheses have been raised to explain the gender differences in prevalence of NSSI. For instance, rates of BPD and major depression disorder (MDD) diagnoses are higher in female than male offenders, which might fuel the NSSI prevalence (Völlm and Dolan 2009; de Vogel and Verstegen 2021). However, this hypothesis glances over the fact that levels of impulsivity, substance abuse, and psychopathy diagnoses are higher in male offenders, and all of these variables have been linked with increased NSSI risk as well (Brooke et al. 2000; Carli et al. 2010; Dixon-Gordon et al. 2012, but see Campbell and Beech 2018).

Yet, research in forensic populations did not consistently differentiate NSSI from suicidality, blurring unique associations with NSSI (Dixon-Gordon et al. 2012). Moreover, further research will have to address the potential underreporting of NSSI for male offenders (Lutz et al. 2022). Namely, prison staff often lacks specialist training in NSSI assessment (Ivanoff and Hayes 2001) and might be more likely to notice and classify female-oriented methods (cutting, carving) as acts of NSSI compared to male-oriented methods (hitting, punching; Short et al. 2009). Male offenders themselves might also be less likely to self-disclose acts of NSSI due to conformity to gender roles (Nolen-Hoeksema 2012) or prison “macho” culture (Marzano and Adler 2007) or because they simply do not recognize or recall their self-inflicted harm as NSSI (Lutz et al. 2022). The latter is more likely to take place when a single-item open question is used to assess NSSI (i.e., “*Have you ever engaged in self-injury without the intent to die?*”), which is why the NSSI field’s assessment standard has shifted to using checklists which include male-oriented methods (i.e., “*Have you ever engaged in any of the following forms of self-injury without the intent to die?*” followed up by dichotomous items such as “*intentionally hitting/bruising yourself, banging your head into the wall, . . .*” (Fox et al. 2015)).

Impact

NSSI in forensic settings comes with staggering impact for all parties involved. First, NSSI is one of the strongest risk factors for a later suicide attempt for the

self-injuring offender themselves (Dixon-Gordon et al. 2012), both during imprisonment (Borrill 2002) and after release (Pratt et al. 2010). Second, witnessing NSSI might cause emotional distress in other patients and staff (Gratz 2003), and social contagion could trigger other inmates in the setting to initiate NSSI as well, with all the consequences this entails for those new-onset individuals (Power et al. 2016; but see also Favril et al. 2020 for a notable exception). Third, NSSI in forensic settings is a strong and unique predictor of violence towards other inmates and prison staff (Selenius and Strand 2017), even while controlling for impulsivity, BPD, or APD (de Vogel and Versteegen 2021). A recent large-scale study in forensic psychiatric inpatients found that patients who engaged in NSSI were nine times more likely to be physically violent to others compared to those who had not engaged in NSSI (Versteegen et al. 2020). The more chronic the NSSI, the stronger these associations seem to become: more acts of NSSI are associated with more staff-reported aggression and longer hospitalization (Hillbrand et al. 1996).

Functions

Despite the persistent misconception of NSSI being a manipulative act against others (Short et al. 2009), ample research demonstrated virtually identical functions of NSSI in forensic and non-forensic populations (Klonsky 2007; but see also Holmqvist et al. 2008). Namely, in forensic populations, emotion regulation firmly secures its well-established position as most important NSSI function across gender, age, and type of correctional setting (Dixon-Gordon et al. 2012). Reducing anxiety, regulating overwhelming distress, suppressing suicidal thoughts and ideations, and coping with depressed feelings are most frequently mentioned by forensic patients (Silverman et al. 2018; Laporte et al. 2021a, b). Moreover, even though interpersonal conflict commonly precedes acts of NSSI in forensic populations (Mannion 2009), previous research has shown that even then NSSI is used to downregulate the accompanying emotional distress (e.g., anger, anxiety, shame), rather than as a way to resolve the conflict or manipulate others involved in the conflict (Buelens et al. 2020b).

Closed Correctional Facilities and NSSI

When it comes to NSSI, a stark discordance seems to exist between prison staff perception and prisoner experience. First, prison staff vastly underestimates NSSI prevalence in their facility (e.g., staff estimates 2.4% NSSI prevalence while prisoners self-report up to 32.3% NSSI prevalence; Dixon-Gordon et al. 2012). Second, some studies have shown how prison staff views self-injuring prisoners as devious or manipulative, rather than in need of (mental) care and support (Short et al. 2009). This view contradicts the findings on functionality of NSSI in correctional facilities, since NSSI does mainly signal emotional dysregulation and distress, rather than manipulative intent (Gallagher and Sheldon 2010).

Third and relatedly, qualitative research described that self-injuring prisoners indicated simply wanting “a sympathetic and patient listener” in the moment they felt the urge to self-injure (Douglas and Plugge 2008, p. 71); prison staff believed specialized psychotherapeutic interventions for underlying mechanisms (e.g., sexual

abuse) were needed (Douglas and Plugge 2008) or responded with solitary confinement and restraint (Marzano and Adler 2007; Kaba et al. 2014). Importantly however, systematic review led to the conclusion that the use of solitary confinement (including therapeutic seclusion or the use of restraints) is not evidence-based (Dixon-Gordon et al. 2012). Some studies even report devastating iatrogenic effects of seclusion practices, such as increased self-directed aggression and NSSI (Kaba et al. 2014), increased suicidal thoughts and behaviors (Heney 2007), and increased demand and emotional burden on prison staff (Ivanoff and Hayes 2001).

Application of the Material

This chapter focuses on non-suicidal self-injury (NSSI) as self-directed aggression, investigating the relationship between aggression and NSSI in both clinical and community samples as well as in two specific populations:

1. Clinical patients with borderline personality disorder (BPD)
2. Forensic patients in closed correctional settings.

Caution is warranted when applying our findings outside of forensic populations or clinical samples other than BPD. Nonetheless, there is considerable support for the idea that anger – toward oneself or others – precedes the acts of NSSI also in community samples (Muehlenkamp et al. 2013). This inspires us to make the following suggestions for treatment. Firstly, anger regulation techniques seem a fruitful starting point for reducing and preventing NSSI in individuals reporting anger-induced NSSI. The early application of such techniques could prevent the onset of NSSI and, therefore potentially its short- to long-term effects, such as emotional distress, suicidal behavior, and self-blame. Moreover, our chapter may be used for educating patients and staff and ultimately lead to a more accurate understanding of NSSI. For example, it may correct prison staff's view of NSSI as manipulative and devious (Short et al. 2009) to it signaling emotional distress (Gallagher and Sheldon 2010). It may also raise awareness and use of emotion-regulation techniques that target anger. Finally, it may generally highlight the importance of anger in NSSI and increase the focus of researchers on how understanding anger may prevent NSSI.

Mini-Dictionary of Terms

Non-suicidal Self-Injury

Socially unacceptable, intentional, and direct self-inflicted damage of own body tissue without suicidal intent (International Society for the Study of Self-Injury 2018). Exemplary forms of non-suicidal self-injury are cutting, scratching, or burning one's own skin. Socially acceptable behaviors (e.g., nail biting, piercing, tattooing, religious rituals) and *indirect* harm (e.g., substance abuse, disordered

eating, compulsive exercising) are excluded. All behaviors with suicidal intent are excluded.

Self-Harm

Broader concept than non-suicidal self-injury (NSSI). Differs from NSSI by *including* indirect harm and *including* behaviors with suicidal intent.

Auto/self-mutilation

More specific concept than non-suicidal self-injury.

Includes *only* literal mutilation of one's own body, for instance, eye-enucleation or self-inflicted and intentional amputation of limbs or body parts (e.g., mutilation of genitals, amputation of finger or fingertip).

Emotional Cascade

Described in the emotional cascade model (ECM; Selby et al. 2010). A cascade builds as rumination fuels emotional distress and, in its turn, emotional distress fuels ruminative thoughts. Thus, cognitive and emotional processes are intensifying each other, resulting in a self-amplifying cycle or cascade.

Key Facts

Key Facts of Non-Suicidal Self-Injury

Non-suicidal self-injury (NSSI) refers to intentional, self-directed damage of bodily tissue.

NSSI behaviors include, among others, cutting, carving, hitting, and bruising one's own skin.

NSSI occurs in about one-fifth of community adolescents and in up to 60% of clinical and forensic patients.

Contrary to popular belief, NSSI seems to mainly serve an emotion regulation function, rather than a social (e.g., manipulative) function.

Summary Points

- Prevalence rates of non-suicidal self-injury (NSSI) in community (\cong 17%), and clinical and forensic populations (up to 61%) are high.
- Those engaging in NSSI are three to five times more likely to report suicidal ideation or suicide attempts.
- NSSI *decreases* emotional distress in the short term, but becomes part of a vicious cycle of *increasing* emotional and cognitive distress in the long term.
- The most important function of NSSI for the individual is to regulate emotions (e.g., sadness, anger, tension).

- Verbal (but not physical) aggression and hostility are significant predictors of NSSI, even after controlling for emotion regulation and demographic characteristics.
- Men are more likely to engage in violent methods of NSSI (e.g., punching themselves), whereas methods that involve blood (e.g., cutting the skin) are most commonly used by women.
- Frequent interpersonal conflicts and severe identity disturbance both partially explain why self-directed aggression occurs so frequently in patients with borderline personality disorder.
- In closed correctional settings, rates of NSSI are particularly high among offenders with a comorbid mental disorder. Despite the persistent misconception of NSSI in offenders being a manipulative act, ample research has demonstrated that emotion regulation remains the most important function in this population as well.

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