

Non suicidal self-injury: a short review

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### Abstract

Non suicidal self-injury (NSSI) is one of two basic types of self-destructive behavior together with suicidal self-harm (SSI). There is no consensus if they should be considered as two different entities since they usually coincide in time. But what does seem clear is that both types of self-injurious behavior differ in some respects. In this brief review we will try to analyze the most important aspects of this behavior.

*Key words:* Non suicidal self-injury, Suicidal self-injury, Suicide, Continuum Theory, Interpersonal Theory of Suicide

Non suicidal self-injury (NSSI) is one of two basic types of self-destructive behavior<sup>3</sup>. It could be defined as any intentional act of self-harm in which individual does not have intention of committing suicide<sup>1,2</sup>. NSSI has been proposed as a new diagnostic entity in the APA Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)<sup>3,6,7</sup>. Among criteria included is having practiced self-inflicted injury with the aim of physical harm for 5 days or more in the year<sup>3</sup>. The manual also points out behavior must be more significant than scratching a scab or biting nails<sup>3</sup>. As early as 1960 in the US, therapists encountered young people who cut themselves without the purpose of causing death<sup>5</sup>. These young people did not fit into borderline personality disorder or other psychiatric illnesses<sup>5</sup>. There is no consensus on whether NSSI and suicidal self-harm (SSI) should be considered as two different entities since they usually coincide in time<sup>6</sup>. However, there are studies show SSI is associated with higher levels of psychological deterioration, which is why other authors propose they be considered opposite extremes in the continuum of self-injurious behavior<sup>6</sup>. On the other hand, the Interpersonal Theory of Suicide suggests suicidal behavior arises from habituation produced by repeated exposure to physical pain or experiences induced by fear<sup>6,9</sup>, so the NSSI would be a kind of previous training that would allow to arrive at the SSI. In a recent study carried out by Lim et al. (2021), the authors found that NSSI and SSI are strongly correlated<sup>6</sup>. They would have a similar etiological architecture, with non-shared environmental or genetic influences. They would be influenced by similar biological mechanisms and unique environmental factors, with very little genetic and environmental influence specific to each type of self-injurious behavior. Therefore, they conclude the NSSI/SSI dichotomy would be false, fitting both within the Continuum Theory and the Interpersonal Theory of Suicide. NSSI and SSI would be ends of the continuum, being NSSI a form of training to reach SSI, which is less prevalent as it is the most harmful

behavior.

What does seem clear is both types of self-injurious behavior differ in prevalence, frequency, lethality of methods and attitudes towards life and death<sup>6</sup>. For Kapur et al. (2013), the fact that young people receive the diagnosis of NSSI would perhaps allow them to avoid being included in a category of “potentially inappropriate” personality disorder<sup>5</sup>.

NSSI emerges in adolescence<sup>7</sup> and is quite common in young adults<sup>8</sup>. After puberty, the risk of NSSI decreases with age<sup>1</sup>. Adolescents report as the most frequent form of NSSI cutting<sup>5</sup>, followed by hitting and poisoning (including the consumption of pills)<sup>1</sup>. Girls tend to use cutting more, while boys use other methods, such as hitting themselves or performing risky behaviors<sup>1</sup>. Curiously, there is also no consensus to consider poisoning as an NSSI, despite the fact there are studies that show between 25 and 50% of those patients who poisoned themselves had no intention of committing suicide<sup>5</sup>.

Regarding the biology of the NSSI, Kaess et al. (2021) propose a model of distal and proximal traits and biological states precede or follow the NSSI<sup>4</sup>. The first component of this model would be distal biological traits or predictors. We would be talking about genes involved, epigenetics and the biological manifestations associated with child abuse. Of the former, some candidates are being considered, such as gene that codes for the promoter region linked to the serotonin transporter or 5HTTLPR or gene codes for catechol-o-methyltransferase (COMT), but existing studies not confirm. Regarding epigenetics, the authors believe adversity in childhood could give rise to epigenetic alterations, but there is no evidence that this is the case. That child abuse and neglect in childcare leads to alterations in the hypothalamic-pituitary-adrenal axis and in brain structure and function appears to be supported by several studies reviewed by the authors. The second component would be proximal biological traits or correlates. We would be talking, on the one hand, about the brain circuitry correlates with the NSSI, such as the reward circuit, emotional expression and

regulation circuits or those of cognitive control; on the other hand, we would have the peripheral stress response systems, such as the hypothalamic-pituitary-adrenal axis again, or the autonomic nervous system. Finally, systems related to pain would appear. The last component of the model would be biological states precede or follow the NNSI. Changes have been seen in brain circuitry of people who reenact an NNSI episode under laboratory conditions. In an experiment carried out by Kraus et al. (2010) described by Kaess et al. (2021), during description of an episode of NNSI, it was seen that people with bipolar disorder showed low levels of activation in the orbitofrontal cortex but higher activation in the dorsolateral prefrontal cortex<sup>4</sup>. In an experiment by Koenig et al (2017) also described by Kaess et al. (2021), in which adolescent girls with cold pain were stimulated, found that girls with a history of NNSI had higher cortisol levels than controls<sup>4</sup>.

Among the risk factors, we can consider the following:

- Affective instability. Problems in regulating emotional response and in tolerating intense emotions increase the possibility of experiencing extreme affects, which are more unpleasant for people with these regulation problems than for others<sup>1</sup>. It has also been seen that many of those involved in NSSI episodes are alexithymic, that is, they have problems identifying and expressing their emotions<sup>1</sup>.
- Impulsiveness. Some researchers believe NSSI is a symptom of an impulse control disorder or even an impulse control disorder itself<sup>1</sup>. On the other hand, there are data that suggest impulsivity is associated with severity and not with presence or absence of injury<sup>1</sup>. Be that as it may, many disorders related to impulse control are comorbid to NSSI, such as substance abuse, eating disorders or engaging in risk behaviors<sup>1,3</sup>.
- Trauma. Child abuse and neglect in child care could disrupt development of the stress response system<sup>1,4</sup>. Exposure to stressful events in childhood could lead to problems

of regulation and processing of emotions<sup>1</sup>. In fact, sexual and physical abuse is associated with NSSI in adolescence<sup>1</sup>. Attachment disorder can be considered a source of childhood trauma that leads to behaviors in young adulthood could be considered NSSI, such as substance abuse or eating disorders<sup>1</sup>.

NSSI would be associated with destructive mental disorders, such as eating disorders, certain personality disorders or post-traumatic stress; while problems such as depression or schizophrenia would be more related to SSI<sup>3</sup>.

On the contrary, having adequate self-esteem, having social support, being able to make a correct cognitive reappraisal and having had adequate parental care could be considered protective factors<sup>7</sup>.

Behind NSSI, there seems to be no desire to end one's own life, but rather, it is a form of maladaptive emotional self-regulation, among other things. More specifically, studying reasons why people resort to NSSI, we can say it fulfills the following functions:

- Affect regulation. It would be a method to discard unwanted emotional states. It would be related to the control of fear, anger, guilt, anxiety, frustration or contempt<sup>3</sup>. With NSSI, emotional pain becomes physical<sup>2</sup>.
- Sense of control. NSSI would be used to interrupt dissociative states and intensify sense of reality<sup>3</sup>.
- Punishment. It would be related to having a negative image of oneself created during a traumatic experience, especially in childhood<sup>3</sup>.
- Interpersonal influence. It would be a way to change the way others think and feel, and/or to seek help<sup>2</sup>.

- Positive reinforcement. It seeks gratification or to have a sense of personal control<sup>2</sup> and to make feeling of “emptiness” that some individuals experience disappear<sup>3</sup>.

NSSI is addictive, socially contagious, and scales over time<sup>1</sup>. Unfortunately, it is often overlooked and untreated. There is no evidence there are particularly effective psychological therapies for this problem, nor is there pharmacological treatment<sup>1</sup>. The most practical approach, according to Cassels and Wilkinson (2016), is to treat any underlying psychiatric illness, address environmental stressors, and provide a positive therapeutic environment<sup>1</sup>.

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