

Function and progression of non-suicidal self-injury and relationship with suicide attempts: A qualitative investigation with an adolescent clinical sample

*Clinical Child Psychology
and Psychiatry*
2019, Vol. 24(4) 821–830
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DOI: 10.1177/1359104519862340
journals.sagepub.com/home/ccp



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Abstract

Aim: To investigate the function and progression of non-suicidal self-injury (NSSI) and its relationship with suicide attempts.

Method: Qualitative in-depth interviews were conducted with 15 adolescents psychiatrically hospitalized following a suicide attempt who reported NSSI. Applied thematic analysis was used to identify and examine themes from the interview data.

Results: Thematic analysis revealed that the primary function of NSSI was relief from emotional pain, though the function often changed over time. NSSI was often not directly related to patients' suicide attempts, yet risk of suicidal behavior seemed to increase once NSSI lost its effectiveness, and suicide became the only option.

Conclusion: Clinicians need to understand and monitor the functions of NSSI, and its relationship with suicidality, to prevent suicide attempts among adolescents.

Keywords

NSSI, interviews, psychiatric inpatient, adolescent, suicide attempt

Introduction

Suicide is the second leading cause of death among adolescents (Centers for Disease Control and Prevention & National Center for Injury Prevention and Control, 2017). Identifying the factors that

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contribute to suicidal behavior among youth is a public health priority (Klonsky & May, 2014). Researchers have identified positive relationships between non-suicidal self-injury (NSSI) and suicidal behavior in quantitative, epidemiological research that examined correlates of suicide attempts among self-injurers of various ages (Stewart et al., 2017; Victor & Klonsky, 2014). Repetitive NSSI may increase risk of suicide by habituating a person to pain and reducing fear of suicide/death (Joiner, Ribeiro, & Silva, 2012).

Researchers found that a history of NSSI was more strongly related to attempting suicide than depressive symptoms, hopelessness, and symptoms of borderline personality disorder, and as strongly related to a suicide attempt as current suicide ideation among psychiatric inpatients (Andover & Gibb, 2010). Findings from a meta-analysis of studies that examined suicide attempts among self-injurers suggest that, after suicide ideation, the strongest predictors of a suicide attempt are NSSI frequency, number of NSSI methods used, and hopelessness (Victor & Klonsky, 2014). Among adult inpatients, those with a history of NSSI reported more suicide attempts and more lethal attempts that required medical treatment, compared with those adults who did not self-injure (Andover & Gibb, 2010; Sahlin, Moberg, Hirvikoski, & Jokinen, 2015; Ward-Ciesielski, Schumacher, & Bagge, 2016). For adolescent psychiatric inpatients, using more NSSI methods and more severe methods were associated with attempting suicide (Stewart et al., 2017). Among college students, researchers found that those who reported repetitive self-injury over their lifetimes had four times the risk of demonstrating suicidal thoughts or behavior relative to college students with no NSSI history (Whitlock et al., 2013). Investigators have also found a strong cross-sectional relationship between NSSI and suicidal behavior among community samples of adolescents (Muehlenkamp & Gutierrez, 2007; Taliaferro & Muehlenkamp, 2014; Taliaferro, Muehlenkamp, Borowsky, McMorris, & Kugler, 2012).

Although researchers continue to explore different theories to help explain the relationship between NSSI and suicidal behavior, most seem to support Thomas Joiner's Interpersonal Psychological Theory of Suicide (IPTs) (Joiner, Ribeiro, & Silva, 2012). The IPTs posits that repetitive NSSI may increase the risk of suicide by reducing the pain and fear of harming oneself. Repetitive self-injurious behavior may increase risk of suicide by enabling youth to habituate to self-injury and pain. According to this theory, repetitive NSSI reduces self-protective fears of pain and injury, thus removing a barrier to attempting or completing suicide. Part of the current criteria for an NSSI disorder in the Diagnostic and Statistical Manual of Mental Disorders-5 (*DSM-5*) is engagement in NSSI on 5 or more days in the past year (American Psychiatric Association, 2013).

Researchers usually describe NSSI as serving automatic/intrapersonal functions or social/interpersonal functions (Nock & Prinstein, 2004). Most adolescents report engaging in NSSI to cope with overwhelming negative emotions (i.e. automatic/intrapersonal functions) (Nock, Prinstein, & Sterba, 2009). Intense emotions such as anxiety, frustration, and anger often precede NSSI, and those who self-injure report quick decreases in the intensity of these emotions as a result of engaging in self-injury. Another common reason for NSSI involves punishing or expressing anger at oneself. Individuals who self-injure consistently report higher levels of self-derogation, self-criticism, and low self-esteem, compared with their peers who do not self-injure (Muehlenkamp, Claes, Smits, Peat, & Vandereycken, 2011). Furthermore, engaging in NSSI because of self-hatred (e.g. to punish oneself) is a significant risk factor for suicide (Paul, Tsypes, Eidlitz, Ernhout, & Whitlock, 2015; Westers, Muehlenkamp, & Lau, 2016). Finally, for those who self-injure, using NSSI as a coping strategy to avoid suicide is among the strongest risk factors for a future suicide attempt, and for depressed youth, even more so than a history of a suicide attempt (Paul et al., 2015; Westers et al., 2016).

Although some research suggests stability in NSSI functions across time (Victor, Styer, & Washburn, 2016), limited research exists that provides an in-depth understanding of adolescents'

perceptions of the relationship between their NSSI and suicide attempt. Moreover, a dearth of research exists examining how the functions of NSSI may change over time and contribute to adolescents' suicidal behavior. Furthermore, as suicidologists have moved toward using machine learning to quantitatively analyze large datasets (Kessler et al., 2015; Walsh, Ribeiro, & Franklin, 2017), qualitative research is needed to gain more in-depth understanding of adolescents' decision processes from NSSI to attempt suicide. Such research is particularly important as adolescents aged 15–19 report the greatest prevalence of NSSI (Stewart et al., 2017). As such, the overarching goal of this study was to use qualitative methods to examine the functions of NSSI and its relationship with suicide attempts among a clinical sample of adolescents who attempted suicide.

Methods

Design

Participants ($N=15$) were recruited from an inpatient psychiatric unit in a pediatric general hospital in the northeastern United States. Eligible participants were aged 13–17, hospitalized following a suicide attempt, and reported a history of NSSI. The study was approved by the hospital's institutional review board (IRB). Parental consent and adolescent assent were obtained prior to participation. Interviewers used a structured research agenda and participants were asked about factors that contributed to their suicide attempt, including a description of why they engaged in NSSI and the relationship between NSSI and their suicide attempt. The three interview questions analyzed in this study included the following: "Have you ever hurt yourself on purpose, but not to try to kill yourself? How is this (i.e. the suicide attempt) different? Is there a relationship between hurting yourself and your recent suicide attempt?" Interviews were audio-recorded and conducted by one of two licensed clinical social work researchers. The same two clinical researchers coded each transcript separately and met together to resolve any discrepancies.

Data analysis

We used applied thematic analysis (Guest, MacQueen, & Namey, 2011), a type of inductive analysis of qualitative data designed to identify and examine themes from textual data, while drawing from a broad range of theoretical and methodological approaches, and presenting the stories and experiences voiced by study participants as accurately and comprehensively as possible (Braun, Clarke, & Terry, 2014; Guest et al., 2011). Two investigators read a subset of three transcripts to iteratively generate a codebook. Codes were derived from the interview research agenda questions and topics participants raised in the interviews. Investigators then used the codebook to individually code the remaining transcripts, and met in-person to resolve discrepancies and agree upon the final codes. All transcripts were double-coded, and data were analyzed with NVivo 11 software (QSR International Pty Ltd., 2015).

Sample characteristics

All 15 adolescents (mean age = 14.4 years) were interviewed within 2 weeks of a suicide attempt, in a private room on the psychiatric unit. Participants identified as female ($n=13$) or transgender ($n=2$), and most were heterosexual (66.7%). They identified as White (53.3%), multiracial (20%), Hispanic/Latino (13.3%), Asian (13.3%), Black/African American (6.7%), and other (6.7%). Suicide attempt methods included ingestion (60%), cutting (20%), self-strangulation (6.7%), insulin overdose (6.7%), and a combination of methods (6.7%). Almost 87.0% made a prior suicide

attempt. Suicide attempt lethality was determined through a review of participants' medical records regarding the method and circumstances associated with their current suicide attempt. Specifically, two investigators reviewed participants' medical records, guided by a single item from the Columbia-Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011): "Actual Lethality/Medical Damage." Participants' suicide attempt lethality ratings ranged from 1 to 3 ($M=1.7$) on a 0 (no damage) to 4 (severe damage) scale. Raters agreed on the majority of ratings, and all discrepancies between ratings were discussed by the two investigators who completed the chart reviews until they reached an agreement.

Results

Function of NSSI

Among the sample, 11 participants reported the main function of NSSI as "relief" from stress or emotional pain. Some specified that the physical pain of NSSI helped reduce/eliminate their emotional pain by altering their focus away from emotional discomfort toward physical injury ($n=5$):

I just had really heavy, emotional feelings . . . emotional pain was a lot harder than physical pain when I was younger. I'm like, "Maybe physical pain would help make my emotional pain go away if I had enough of it . . ." I think in seventh grade I started doing it on this side "cuz I stopped being more about the pain. I was doing this, but I more liked watching it than the actual feeling of pain—just watching myself bleeding gave me a satisfaction that I couldn't get from other things at the time. It felt like relief. Also when you get punished for what you deserve, but you know that it's good that you got punished—that kinda thing . . . It's like I'm in the middle of being fine and being like I wanna kill myself. It's like that center point where I'm not fine, but at the same time I don't really wanna kill myself, but I know that I deserve to be hurt." (14-year-old transgender)

With a cut, you just bandage it up, and it's fine, and it heals . . . I just had this weight on my chest . . . It just wouldn't go away. You can't just bandage that up or anything. I don't know. If you're getting your ears pierced or something, they say "Oh, bite your tongue or something," so it transfers the focus. It was almost like that, and it didn't work. I just kept going, but it didn't make a difference. (16-year-old female)

Less commonly cited functions included providing a sense of "control" ($n=3$), "self-punishment" ($n=2$), interrupting feelings of "numbness" ($n=1$), feeling "joy" ($n=1$) or "excitement" ($n=1$), and providing a visual image of inner pain ($n=1$):

Cutting is usually in people who have suicidal thoughts, but it's kind of in a way to live. It's a coping mechanism that I use or that a lot of people use to be in control of a lot of things. I'm not in control with a lotta things in my life. There were things like disclosing about my sexual abuse that I thought I would be in control of and I'm not. That was taken over by my parents. This was a way that I could be in control. (14-year-old female)

A lot of the times I'd get really, really anxious and just not know what to do and feel like I had no control over myself . . . or self-blame, like "you deserve this" type of thing I guess. (13-year-old female)

Progression of NSSI

Although most of the sample engaged in cutting, other methods of NSSI were endorsed, and some participants used multiple methods. One participant specifically described NSSI as "addictive":

After the relief of [cutting] you get just this welcoming feeling in your body. It just makes it feel like things are just gonna be so much better until you really get into it too much. It becomes an addictive thing to do because you're just getting so used to it. It feels so good that you keep doing it and doing it and doing it to a point where it really can damage your body severely. (17-year-old female)

Five participants discussed how they habituated to self-injury and the physical pain over time (i.e. an addictive process). For example, the more frequently they self-injured over time, the less pain they felt. This habituation process changed the function of NSSI, that is, from experiencing physical pain to “watching” themselves bleed, and often led to more medically serious self-injury:

It was just a lot of emotional pain too, so it's easier to deal with the physical pain. . . . It's like something I can feel, and I can fix. Then it got to the point where I couldn't feel it anymore. That's when it got out of hand. (16-year-old female)

Relationship between NSSI and suicide attempts

Three adolescents said they attempted suicide because they needed “something more” than what NSSI provided:

When I cut, I do it to distract myself and it causes pain on my arm and so it makes me think about that, and distracts me from other things. It was just like I couldn't be distracted and I was like, “I can't do this. I need more. I don't want to be here. It would just be easier if it all ends . . .” [The day of my attempt] my first instinct was to try to cut and not just automatically kill myself . . . I would just be able to use that instead of wanting to just kill myself. [Cutting] distracts me and then I normally don't get like, “I want to kill myself. I want to kill myself,” and stuff like that unless it's really bad, which was happening that day. (14-year-old female)

Four participants described NSSI as a “step” in the hierarchy of suicidality. Thus, in the short term, NSSI protected against suicide. However, once NSSI stopped working, suicide became the natural next step:

[Cutting] was just a way to relieve stress and anxiety . . . [I attempted suicide when] the cutting wasn't enough to relieve the stress . . . Cutting is only temporary. It's not long-term solution . . . Things got more stressful in junior year. Then I just started cutting a lot more, because it just—it would only keep back the stress for a day or so. (17-year-old female)

Although some participants used the same means to attempt suicide as to self-injure, one participant said that if she had something available to engage in NSSI (e.g. razors to cut), she would have self-injured instead of attempted suicide. Another participant described how her suicidal thoughts related to the guilt and shame she felt engaging in NSSI to relieve her pain:

When I feel like I wanna kill myself, I think a lot during that like, “I'm so messed up. I cut myself' I just feel bad about it.” (14-year-old female)

Among the participants, seven stated that they did not see a direct relationship between their NSSI and suicide attempt. They felt the behaviors were distinct, as the intent to die was not present during NSSI:

I think that [cutting] is just like a bad way of coping, but committing suicide is like, you don't really wanna live anymore. (13-year-old female)

Four participants reported engaging in NSSI while having suicidal thoughts, hoping a cut would be deep enough to cause death, although killing oneself was not the initial intention of the behavior:

I cut because I just feel like when I see myself bleed, I just feel all the anger release. I never really intentionally wanted to die from a cut, but I sometimes want to have a deep cut to bleed out and stuff, but I've only had that once, but kind of the same. Usually when I cut I plan it ahead, usually do it that night or if something happens. (13-year-old female)

One participant noted that having the cuts already on their wrists at times made it easier to act on their suicidal thoughts:

I would cut on my wrists. It wouldn't be too deep where I wanted to kill myself, but I would—but when I did wanna kill myself, I opened them up and cut deeper. (13-year-old transgender)

Participants noted a difference between NSSI and suicide attempts. NSSI temporarily alleviated emotional pain, whereas they believed suicide would provide a permanent solution to their suffering. Furthermore, some participants noted that NSSI was a coping strategy to deal with suicidal thoughts, but their suicide attempt represented specific feelings of not wanting to live anymore. Or, perhaps best stated by one 17-year-old female participant: "Cutting is only temporary. It's not a long-term solution." Thus, once episodic emotional pain become chronic, and NSSI no longer alleviated their emotional pain, they viewed suicide as the only option:

I guess in a way [NSSI is] just something I can do before planning. You can scratch really hard, and then regardless there's gonna be blood . . . It gives me pain. Let's just say pain is better than misery . . . you'd rather feel pain than actually facing that misery, realizing what's happening . . . When you're scratching, you're feeling pain, but the misery only kinda goes away . . . Then when you kill yourself, the misery leaves completely. (14-year-old female)

Discussion

This study begins to fill a gap in the literature on perceptions of NSSI in relation to suicidal behavior by gleaning in-depth perspectives from adolescents who recently attempted suicide. The major themes that emerged support previous research demonstrating that (a) the primary function of NSSI for adolescents involves regulating overwhelming negative emotions (Nock et al., 2009); (b) NSSI is distinct from suicide attempt, yet increases risk of suicidal behavior by reducing fear of pain over time (Joiner et al., 2012); and (c) use of NSSI over time to avoid suicide increases risk of suicidality (Paul et al., 2015; Westers et al., 2016).

The findings are consistent with the IPTS (Joiner et al., 2012), suggesting that if adolescents engage in self-injury over time, and do not receive assistance developing healthful coping skills, they demonstrate increased risk of suicidal thoughts and engaging in more serious self-harm. Thus, clinicians should regularly screen for and thoroughly evaluate NSSI among all adolescents (Kerr, Muehlenkamp, & Turner, 2010; Westers et al., 2016). Repetitive NSSI can lead to habituation to self-injury and pain, increasing risk of attempting or completing suicide (Joiner et al., 2012). Adolescents who do not experience pain or who experience diminished pain over time during self-injury demonstrate increased risk of suicide (Franklin, Puzia, Lee, & Prinstein, 2014). Furthermore,

those who engage in NSSI to avoid suicide also have an increased risk of suicidal behavior (Paul et al., 2015). Thus, clinicians should determine if reasons for NSSI change, or if the behavior no longer serves its initial function, such that suicide risk increases. One never knows when NSSI might become an ineffective strategy to avoid suicide, and an adolescent decides to attempt suicide. The behaviors must be closely cross-monitored.

The findings also suggest that clinicians should avoid making adolescents stop self-injuring right away, as this could eliminate their only coping mechanism, leading to an increase in distress and possibly result in use of a more lethal self-harm method or suicide attempt. Instead, adolescents need skills training to manage their emotions (Walsh, 2012). Although developmental group therapy (combination of cognitive behavioral therapy, dialectical behavioral therapy, and group therapy), individual cognitive-behavioral therapy, and dialectical behavioral therapy are commonly used treatment modalities with adolescents who engage in NSSI, harm reduction is gaining an evidence base with this population (Gonzales & Bergstrom, 2013). Clinicians should add healthier coping strategies to adolescents' toolboxes of coping skills to enhance resilience rather than demand they immediately stop self-injuring to provide these adolescents time and support to practice using healthful coping strategies that will replace NSSI (Walsh, 2012). Clinicians do not want to communicate to adolescents who self-injure that they do not represent safe people with whom the adolescent can talk about their NSSI by simply telling the patient to stop self-injuring, as this situation could result in the young person continuing to self-injure, yet not discuss their behavior with a clinician (Westers et al., 2016).

Study limitations

The small, predominately heterosexual, White, female sample, may limit the transferability of the findings to different populations. Future research should examine the relationship between NSSI and suicidality among more heterogeneous samples, including males, to determine if the themes hold. In addition, intake interviews only included three questions focused on NSSI. Additional questions could explore the behavior and relationship with patients' suicide attempts in greater detail.

Clinical implications

Despite the limitations, our qualitative, in-depth examination of the association between NSSI and suicidal behavior provides a novel method to understand this complex phenomenon among adolescents who attempted suicide. Screening for NSSI must become a regular practice for clinicians, and clinicians should assess for suicide risk among those who endorse the behavior (Kerr et al., 2010; Westers et al., 2016). A limited selection of instruments to screen for NSSI risk have been validated for use with clinical and community-based adolescent samples (see review by Cloutier & Humphreys, 2009), including the Functional Assessment of Self-Mutilation (FASM; Lloyd, Kelley, & Hope, 1997), Self-Harm Behavior Questionnaire (SHBQ; Gutierrez, Osman, Barrios, & Kopper, 2001), Ottawa Self-Injury Inventory (OSI; Nixon, Levesque, Preyde, Vanderkooy, & Cloutier, 2015), and Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007). Furthermore, the findings from this research may inform questions asked of young people regarding their NSSI within research and clinical settings, such as the functions of the behavior, especially related to avoiding killing oneself, coping with self-hatred, and generating feelings (anti-dissociation) and whether certain functions change over time, habituation to self-injury (e.g. level and diminishment of pain experienced over time), and associations between NSSI and suicidal thoughts or behavior (e.g. thoughts of suicide during NSSI). Clinicians must

appreciate how each of these issues relates to increased risk of suicidal behavior (Franklin et al., 2014; Joiner et al., 2012; Paul et al., 2015; Westers et al., 2016). Although research remains equivocal regarding NSSI as an addiction (Blasco-Fontecilla et al., 2016; Buser & Buser, 2013; Victor, Glenn, & Klonsky, 2012), one participant specifically described NSSI as addictive, and several discussed habituating to self-injury and the physical pain over time, as well as attempting suicide due to needing something more than what NSSI provided. Thus, clinicians working with adolescents who self-injure need to understand the functions and possible addictive qualities of the behavior, which might change over time, and relationship with suicidal behavior to prevent future suicide attempts. NSSI represents a maladaptive, yet often effective, in the short term, coping strategy for adolescents to manage overwhelming negative emotions.

Authors' Note

Laika D Aguinaldo is now affiliated with Department of Psychiatry, University of California, San Diego, USA.


Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the Simmons College President's Fund for Faculty Excellence (PIs: O'Brien and Almeida).

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