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Original article

Clinical characteristics and functions of non-suicide self-injury in youth☆

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ABSTRACT

Purpose: Little is known about the clinical characteristics and motivations for engaging in non-suicide self-injury (NSSI) behaviors in adolescence. The aim of this study was to examine the prevalence, characteristics and functions of NSSI among adolescents in community settings, and to explore risk factors related to this behavior.
Subjects and methods: Two hundred and seventy-five adolescents aged 12 to 17 were recruited randomly from different High Schools in Israel. They completed self-report questionnaires assessing NSSI (Ottawa Self-Injury Inventory), depression (Children's Depression Inventory – CDI) and impulsivity (Barratt Impulsiveness Scale – BIS-II).
Results: In the past year, 20.7% of the participants reported engaging NSSI at least once. Among them, 42.1% declared they are still engaging in NSSI at the present. Motives for NSSI were internal emotion regulation reasons, external emotion regulation reasons for social influences. In addition, the NSSI group reported significantly higher levels of depressive, impulsivity and suicidal ideations. Depressive symptoms were found as significant predictors of NSSI in the future.
Discussion and conclusions: High rates of NSSI among community adolescents were found. Depression, impulsivity and suicidal ideation were found significantly related to NSSI. Mental health professionals in schools and in primary care should routinely assess NSSI among adolescents.

Non-suicidal self-injury (NSSI) refers to deliberate and direct destruction of one's body tissue, but without suicidal intent [23,35–37]. NSSI differs from socially acceptable destruction or modification of body tissue, such as piercing and tattoos, and from indirect self-harm, such as smoking or drinking and driving [27,35,44]. Common forms of NSSI include self-cutting, skin curving, biting, scratching, hitting, head banging and interfering with wound healing [7,23,24,27,33,37]. Research suggests that most people who engage in NSSI tend to use more than one method for injuring themselves, and that this behavior tends to repeat itself [7,17,21,27,33,37,44].

NSSI serves different functions and is found to be motivated by different reasons, including the desire to alter one's internal state, eliminating negative emotions (e.g. anger, stress), cognitions (e.g., suicidal ideation, traumatic memories), affect states (e.g., dissociation), as a means of self- punishment and provide an internal sense of control [7,21,22,24,27,33,34]. Additional motives for NSSI include support seeking, communicating distress, for the purpose of affiliation (e.g. being like or bonding with others) and avoidance [26,27,49].

The remarkable research attention on NSSI, which began in the last decade, had contributed to an increase awareness of the prevalence of this behavior, especially in non-clinical young population [41]. Although NSSI was once considered a behavior restricted only to psychiatric populations, especially to borderline personality disorder [11,14,23,44], different studies have found that NSSI is common among non-psychiatric general populations, including adolescents and young adults [9,14,24,28,33,36]. Evidence from population-based surveys suggests that 12% to 37.2% of Adolescents in secondary schools population [20] have engaged in NSSI, as well as 12–20% in the late adolescents and young adult population [13,47].

Onset of NSSI usually occurs in adolescence, between the ages of 11 to 15 [7,9,11,16,14,21,23,32,50]. Mixed results were found regarding gender differences in NSSI prevalence and characteristics. While part of researches show that females are more likely to engage in NSSI [7,17,33,44], other suggest no gender differences exist [2,11,23,27,36]. However, gender differences were found regarding the methods of NSSI: while burning and self-hitting behaviors were found more common in males, cutting and scratching behaviors were found more common in females [1,21].

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A number of risk factors for NSSI were found, including major depression disorders, anxiety, impulsivity, social isolation and low self-esteem [7,16,11,17,21,23,33,37,44,42]. Furthermore, between 31% to 70.7% of those who engage in NSSI meet criteria for depressive disorders [4,10,21].

For decades, many have suggested that NSSI actually represents an impulse control disorder, so that self-injurers have an inability to resist the impulse, or urge, to injure themselves [11,37]. Consistent with this explanation, positive correlation between NSSI and impulsivity-related traits were found in different studies [9,11,28].

Although NSSI differs from suicidality in intention and functions [1,35], the co-occurrence of these behaviors have been reported in different studies, showing that self-injurers tend to have more suicidal ideation and more past suicide attempts [42,44]. Results from prior studies conducted among adolescents in clinical settings, suggests that up to 70% of those with history of NSSI reported having at least one suicidal attempt, and that NSSI is one of the predictors of suicidal behavior [15,36].

Other demographic and situational risk factors including socioeconomic status, stressful living situation, interpersonal difficulties and child maltreatment, were also found to be related to NSSI [17,21,23,27,33,44,49].

Although NSSI received more attention in the past years, there is a notable lack of epidemiological data. Unfortunately, precise prevalence rates of NSSI in community-based populations are unknown, and figures tend to vary considerably across studies due to inconsistent operational definitions and modes of measurement [41]. The purpose of this study was first of all, to explore the prevalence of NSSI among adolescents in the general population of Israel, and to examine the different characteristics of NSSI, such as common methods of NSSI and gender differences. Secondly, to explore the motives for engaging in NSSI and functions this behavior serves, and finally, we wanted to identify whether depression and impulsivity may be considered as risk factors for NSSI in the young Israeli population as well. We hypothesis that NSSI incidents will be frequent in our sample, and that based on prior data, NSSI will be correlated to risk factors such as depression, impulsivity and suicidality.

1. Method

1.1. Sample

Participants in this study included 275 youths, from the age of 12 to 17, who agreed to take part in the research voluntarily and anonymously. The average age was 14.81 (SD = 1.36) and all participants were junior high school and high school students, in grades 7 to 11 – 50.1% of the sample were male. Demographic data of the sample is shown in Table 1. Participants were recruited randomly from 4 schools in the Central District of Israel. Classes that participated were selected by the principles of the schools.

1.2. Assessment

Four self-report questionnaires were administrated to the participants, about NSSI behaviors, symptomatology of depression and impulsivity, using:

- Demographic questionnaire: an 11-item questionnaire about demographic variables such as gender, age, parents education level and profession, family status (living with both parents/other) number of siblings, level of religiosity and economic status;
- Ottawa Self-Injury Inventory-Functions: OSI-F [8]. A three-part questionnaire, which was designed to assess the frequency, methods and functions of non-suicidal self-injury. In the first part the subject answers whether he thought of hearting himself within the past year, whether he deliberately engaged in each of 5 different NSSI behaviors, if so – how many times, and whether medical treatment was necessary. The second and third part presents 29 reasons, plus a fill-in 'other' category, suggesting why the subject started with this behavior and why he is still doing it (if he still does). The subject rates how much each reason is true for him in a scale from "never" to "always". In this study we used the 4 factors of the motives for NSSI suggested by [29], according to the factor analysis they conducted for this questionnaire: internal emotion regulation, external emotion regulation, social influence and sensation seeking. For this study, it was translated into Hebrew and translated back into English by a professional translator who is fluent in both languages;
- Barratt Impulsivity Scale: BIS-II [38]: consists of 30 statements about ways of thinking and acting in different situations. The subject rates each statement from 1 ("never/seldom") to 4 ("almost always"). The answers are then summed and each participant is graded by this sum. The Hebrew version of BIS was used [12];
- the Children Depression Inventory: CDI [25]: consists of 27 items about feelings, behaviors and thoughts. In each item the subject chooses one of three sentences, which describes him the best as for the last two weeks. Each answer receives a grade between 1 to 3, all answers are then summed for each participant, which receives a grade by this sum. We used the Hebrew version of the CDI. It was translated, culturally adapted and validated to the Israeli population [51].

1.3. Procedure

The researchers informed students in the participating classes about an anonymous study exploring the prevalence and motives for non-suicidal self-injury, which will take place in a particular day, instead of the class scheduled. Researchers sent a handout to parents of students, including information regarding the aims of the study. Parents were able to update the school administration or the researchers if they do not wish their children to participate in the study, and students whose parents did not agree they would

Table 1
Frequencies and descriptive characteristics of non-suicidal self-injury (NSSI) within the past year among self-injurers ($n = 57$).

Method	Frequencies, % (n)			
	1–2 times	3–4 times	5 times or more	Total
Sliced wrist, arm or other parts of the body/inserted sharp objects into skin	26.3 (15)	1.7 (1)	7 (4)	35 (20)
Burned parts of the body with a cigarette, lighter or a match	10.5 (6)	1.7 (1)	1.7 (1)	14 (8)
Engraved words, images, symbols or other signs on the skin/scratched until bleeding (not including piercing)	17.5 (10)	3.5 (2)	5.3 (3)	26.3 (15)
Prevented healing of wounds/self-biting up to tearing off skin	22.8 (13)	7 (4)	10.5 (6)	40.3 (23)
Banged head/self-hitting up to bruising	29.8 (17)	7 (4)	7 (4)	43.8 (25)
Self-injured to the extent of needing medical treatment or hospitalization	7 (4)	1.7 (1)	–	8.7 (5)