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Function and Types of Non-Suicidal Self Injury among Adolescents and Young Adult in West Sumatera, Indonesia

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ABSTRACT

Background: Non-suicidal self-injury (NSSI) shows up to be exceedingly predominant in adolescents and young adults. NSSI has been linked to a number of negative consequences, also increase the risk of suicide in the future. The points of this study is to explore different sorts of NSSI as well as their functions in a community test of adolescents and young adults in west Sumatera, Indonesia.

Methods: This cross-sectional study involved 96 participants selected by purposive sampling who met the inclusion and exclusion criteria. The diagnosis of NSSI was based on the Non-Suicidal Self-Injury Disorder Scale (NSSIDS) and the Inventory of Self-Injury Statements (ISAS). The statistical program, SPSS version 29.0, was used for analysis.

Results: The mean age of onset was 15.91±3.37; the typical approach for NSSI is hair pulling (91.7%). There is a significant correlation between ages of onset and the frequency of some NSSI function: cutting ($p=0.04$, $r_s=0.21$), scratching ($p<0.01$, $r_s=-0.28$), and interfering wound healing ($p=0.03$, $r_s=-0.21$). For the duration of the craving and the self-harming act, we find significant differences in biting frequency ($p=0.05$). In terms of the NSSI function, affect regulation gained the highest score 3.27±1.77. Ages of onset and frequency of affect regulation are significantly positively correlated ($p= 0.03$, $r_s = 0.22$). Gender did not significantly affect how the NSSI functioned.

Conclusions: NSSI is rather common, happen in a variety of ways but hair pulling is the most common type, and starts at a reasonably young age, in general doing NSSI functions to regulate affect.

Keywords: Non-suicidal; Self-injury; Adolescents; Young adults

INTRODUCTION

Non-suicidal self-injury (NSSI) is a mental health problem that is often found in teenagers and early adults nowadays, and the diagnosis is relatively new.[1] In situations where suicide is not the intended outcome, NSSI refers to the direct and intentional destruction of the body's own tissue. NSSI is intentional since the person intends to harm themselves rather than doing it by accident.[2] Other terms that are frequently used to describe this type of behavior include "self-mutilation," "parasuicide," and "deliberate self-harm."[3–5] The term "self-harm" encompasses a wide range of behaviors and intentions, including efforted hanging, impulsive self-poisoning, and shallow cutting, all of which are responses to intolerable tension.[6]

NSSI seems to be disproportionately prevalent in teenagers and early adults. Globally, NSSI has been identified around 17.2% in teenagers and 13.4% in early adults.[7] In Indonesia, the incidence rate was

higher, namely 31.9% in young adults, and is reported to increase in adolescents, although the available data is still inadequate.[8,9] This is in accordance with longitudinal research conducted by Plener et al. where self-harm behavior begins at the age of 13 years, grows and reaches its peak in mid-adolescence (around the age of 15–17 years), and then begins to decline.[10]

The most common reason for NSSI was trying to get a reaction from someone, to gain control of a situation, and to alleviate negative feelings.[11] Although NSSI actions are not accompanied by suicidal intentions, this behavior can increase the risk of suicide in the future.[9,12–14] Seventy-three percent of participants with a history of NSSI reported having had suicidal thoughts once in their lifetime, and 35% reported having attempted suicide.[13] The incidence of suicidality increases with greater frequency, greater diversity of methods, and a longer duration of the NSSI behavior.[12]

Several studies have demonstrated the robust correlation between NSSI and the existence of a mental illness.[15] NSSI has been linked to a number of negative consequences, including violent crimes, poor interpersonal interactions, and cognitive deficits.[16,17] Early teenager NSSI may indicate increased depression, borderline personality disorder, eating disorders, and anxiety spectrum disorder in late teenager.[7,18,19]

Cutting and scratching became the most common NSSI methods used by participants in some research.[19–21] Apart from knowing the type of NSSI, we can also assess the function of the NSSI action. This function can be investigated using the Inventory of Statements About Self-Injury (ISAS). ISAS was developed to do a thorough assessment of NSSI functions. The ISAS evaluates 13 possible functions for NSSI in its second section: affect-regulation, anti-dissociation, anti-suicide, autonomy, interpersonal boundaries, interpersonal influence, marking distress, peer-bonding, self-care, self-punishment, revenge, sensation seeking, and toughness.[22] In several study we found that affect regulation was NSSI's particularly prevalent function ("overcoming negative emotions" and "to feel relaxed"), it supported the widely held notion that the main purposes of NSSI were to lessen unpleasant emotions, lower alertness levels, and concurrently induce pleasant sensations like calmness or relaxation.[20,23]

In the current study, we aim to investigate various types of NSSI as well as the functions among adolescents and young adults in West Sumatera, Indonesia. We also examined the characteristic of self-destruction, including its early onset, the pain experienced during NSSI, the presence of others or not, the interval between impulses and self-harming behaviors, and the desire to cease self-damaging. Then we also assess whether there are correlations between these variables.

MATERIALS & METHODS

Participants and Procedure

This research uses a cross-sectional study design. Participants selected by purposive sampling at the psychiatry clinics at Dr. M. Djamil Padang General Hospital, Ibnu Sina Islamic Hospital Padang, and HB Saanin Padang Psychiatric Hospital. The research was conducted from January to July 2024. The inclusion criteria were: adolescent and young adults aged 12–40 years; have never received psychopharmaceutical therapy; are willing to be research subjects. Exclusion criteria were: having been diagnosed with a mental illness; suffering from physical illnesses such as fever and cough; having a history of serious medical illnesses such as tuberculosis, cancer, and cardiovascular disease. The participants were 160 teenagers and early adults who had not less than one symptom of self-harm; only 96 participants were suitable for an NSSI diagnosis. Data were collected by a questionnaire that was filled out on a google form after given informed consent. The research was authorized by the institutional ethical board of the university.

Measures

The diagnosis of NSSI is based on the fifth edition of the Diagnostic and Statistical

Manual of Mental Disorders (DSM-5). Interview guide using the Non-Suicidal Self-Injury Disorder Scale (NSSIDS) developed by Victor SE et al in 2017.[24] The lifetime frequency of twelve NSSI behaviors is evaluated in the first part of the Inventory of Statements About Self-Injury (ISAS). Banging or beating oneself, nibble, incinerate, sculpt, slash, inhibits wound healing, inserting needles in the skin, pinching, pulling hair, stroking skin against rough surfaces, severe itching, and ingesting chemicals are among the behaviors evaluated. Participants requested to estimate how often they have engaged in all conduct. Five further characteristics evaluate the following contextual and descriptive factors: age at first act; pain experienced trough NSSI; if NSSI is performed alone or in conjunction with others; time interval in the midst of urge and act of self-harm; and desire to cease self-harming. The behavioral scales have proven to be valid and reliable.[25] The ISAS questionnaire has been validated for Indonesia's version, and reliability analysis showed a Cronbach's alpha of 0,966 (value > 0.60); therefore, the questionnaire used was reliable.[26]

The second part of the ISAS must be completed by anybody who supports any NSSI practices. The second section evaluates thirteen putative NSSI functions, including sensation seeking, anti-dissociation, anti-suicide, affect regulation, autonomy, marking distress, peer bonding, self-care, self-punishment, and toughness. All function scored from 0 to 6. Each function is evaluated using three items that are graded as not relevant, somewhat relevant, and very relevant.[22]

STATISTICAL ANALYSIS

We used SPSS to conduct the analyses. For the main research variables, descriptive statistics are presented as mean values (M) and related standard deviations (SD) or as proportions (%) and related standard errors (SEs). Along with associated measures of effect size, the Mann Whitney and Kruskall-Wallis tests were used to assess if the difference between the medians of two groups is statistically significant between the independent variables and the current NSSI. To identify if there was a correlation between the variables under study, we also implemented the Spearman test. NSSI functions were evaluated using principal axis factoring in SPSS with ProMax rotation, known as Exploratory Factor Analysis.

RESULT

There were 96 participants in the study: 88 females (91.7%) and 8 males (8.3%). The participants ages varied from 14 to 27 years old with an average 20.85 (SD: 2.19) (min. 14 years and max. 27 years of age). Only 1% of participants reported being married. Characteristics of participant with NSSI are shown in *table 1*.

Table 1. Characteristics of participant with NSSI (Non-suicidal Self-injuries)

Characteristic		**n (N=96)**	**%**
Sex	Male	8	8.3
	Female	88	91.7
Age (years old) M (20.85) SD (2.19) Min (14) Max (27)	14	1	1.0
	18	8	8.3
	19	20	20.8
	20	18	18.8
	21	16	16.7
	22	15	15.6
	23	5	5.2
	24	6	6.3
	25	4	4.2
	26	2	2.1
	27	1	1.0
Married status	Single	95	99.0
	Married	1	1.0

The NSSI had an average onset age of 15.91 (SD = 3.37), the youngest is 9 years old and the oldest is 24 *(Figure 1)*. Most of participants started doing self-harm at 15-17 years old (39.6%). The majority of participants "sometimes" experienced pain throughout the NSSI (51.0%) *(Figure 2a)*. Injuring oneself while alone is done by the majority of participants (71.9%, n = 69) *(Figure 2b)*. When doing self-harm, 97.9% (n = 94) of participants said they intended to stop the behaviour while 2.1% (n = 2) did not *(Figure 2c)*. The lifetime number of methods used for self-harm varies. Most people injured themselves using more than three different methods (51.0%, n = 49) *(Figure 2d)*.

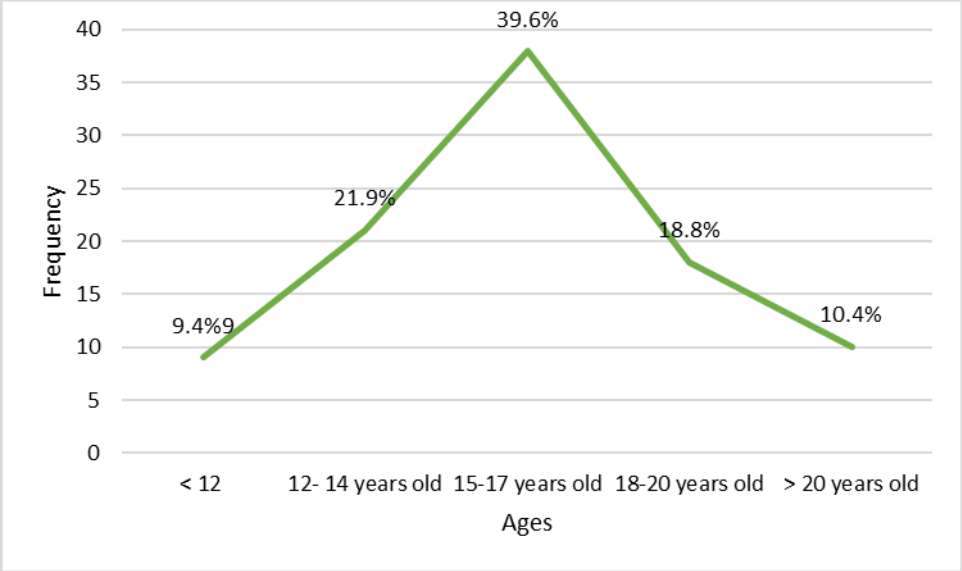

***Figure 1*. Onset of NSSI (n = 96)**

The frequency of self-harm behavior was decreased along with the increasing the time span between the impulse and the NSSI action, except for durations greater than 1 day. The time span between the impulse and the self-harm action was less than an hour in 69.8% (n = 67) participant, followed by "1-3 hours" (17.7%, n = 17), ">1 day" (7.3%, n = 7), "3-6 hours" (3.1%, n = 3), and "6-12 hours" (2.1%, n = 2) *(Figure 3)*.

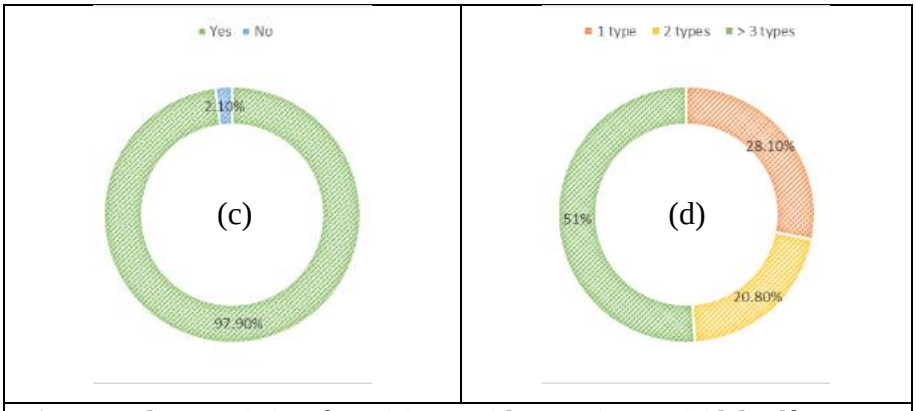

***Figure 2*. Characteristics of participant with NSSI (Non-suicidal Self-injuries): (a) pain during act; (b) alone during act; (c) intention to stop the act; (d) method used**

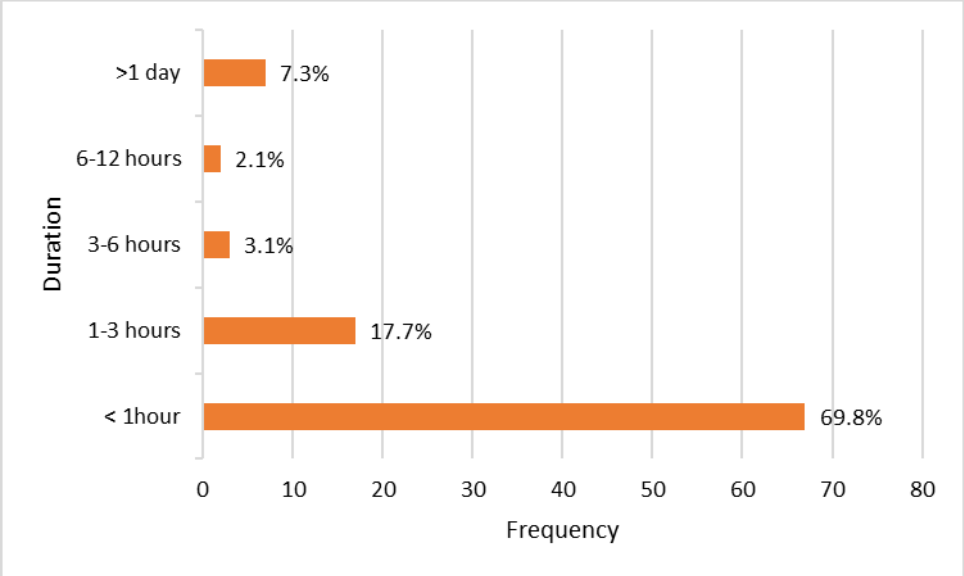

***Figure 3*. Time interval between motivation and action**

There were twelve types of non-suicidal self-injury; the most common type that used by participant was pulling hair (91.7%) with the maximum frequency of action 1 to 50 times (69.8%, M = 2.21, SD = 0.695), followed by banging or hitting self (79.2%) (63.5% 1 to 50 times, M = 2.03, SD = 0.787), and scratching (74%) (60.4% 1 to 50 times, M = 1.93, SD = 0.743). In the present study, burning was a method that participant used the least (8.3%) (1 to 50 times, M = 1.08, SD = 0.278) (*Table 2*).

Table 2. Types and frequency of Self-Injury

NSSI Types	Total (n=96)	Frequency of NSSI				M (SD)	*p*
		never	1-50	51-100	>100		
Cutting	47 (49.0)	49 (51.0)	43 (44.8)	3 (3.1)	1 (1.0)	1.54 (0.614)	**0.04*[a]**
Biting	61 (63.5)	35 (36.5)	55 (57.3)	6 (6.3)	0	1.70 (0.583)	**0.05[d]**
Burning	8 (8.3)	88 (91.7)	8 (8.3)	0	0	1.08 (0.278)	0.66
Curving	12 (12.5)	84 (87.5)	12 (12.5)	0	0	1.13 (0.332)	0.80
Pinching	71 (74.0)	25 (26.0)	60 (62.5)	8 (8.3)	3 (3.1)	1.89 (0.679)	0.92
Pulling hair	88 (91.7)	8 (8.3)	67 (69.8)	14 (14.6)	7 (7.3)	2.21 (0.695)	0.76
Scratching	71 (74.0)	25 (26.0)	58 (60.4)	8 (8.3)	5 (5.2)	1.93 (0.743)	**0.00*[b]**
Banging or Hitting self	76 (79.2)	20 (20.8)	61 (63.5)	7 (7.3)	8 (8.3)	2.03 (0.787)	0.22

Interfering with wound healing	62 (64.6)	34 (35.4)	46 (47.9)	11 (11.5)	5 (5.2)	1.86 (0.816)	**0.03*[c]**
Rubbing skin around rough surface	36 (37.5)	60 (62.5)	31 (32.3)	3 (3.1)	2 (2.1)	1.45 (0.663)	0.11
Sticking self with needles	39 (40.6)	57 (59.4)	34 (35.4)	3 (3.1)	2 (2.1)	1.48 (0.665)	0.55
Swallowing dangerous substance	15 (15.6)	81 (84.4)	13 (13.5)	1 (1.0)	1 (1.0)	1.19 (0.488)	0.36

*** Spearman test; [a] (r_s)=0.21; [b] (r_s)=-0.28; [c] (r_s)=-0.21**
[d] Chi-Squared test

To evaluate the differences across ages onset of NSSI to the frequency of NSSI action was tested using nonparametric analysis. Based on the Spearman rank correlation analysis test for ages of onset in frequency of NSSI type behavior, we found that there is a significant positive correlation ($p = 0.04$) between ages of onset and the frequency of cutting, although it's remained weak ($r_s = 0.21$). Another correlation is for scratching ($p < 0.01$), and there is a negative correlation between ages of onset and frequency of scratching ($r_s = -0.28$). Ages of onset also have a significant negative correlation with the frequency of interfering wound healing ($p = 0.03$, $r_s = -0.21$). For nine other types of NSSI was insignificant differences ($p > 0.05$) (*Table 2*).

This study also performed analysis for gender and pain characteristic during NSSI, and interval between the desire and the act of self-harm. There was no significant difference for gender and pain characteristic in NSSI frequency ($p. > 0.05$) but for interval between the desire and the act of self-harm, there was significant differences for biting frequency ($p = 0.05$) (*Table 2*).

Table 3. Structure of ISAS Functions

Function Domain	Total	Male	Female	Factor 1 (a = 0.89)	Factor 2 (a = 0.78)	*p*
Affect Regulation	3.27 (1.77)	3.25 (2.05)	3.27 (1.76)	**.75**	.06	**0.03[a]**
Interpersonal Boundaries	2.03 (1.84)	1.13 (1.81)	2.11 (1.83)	**.49**	.23	0.15
Self-Punishment	2.24 (1.67)	2.50 (1.61)	2.22 (1.68)	**1.06**	-.45	0.68
Self-Care	1.90 (1.72)	2.13 (1.86)	1.88 (1.71)	**.62**	.22	0.67
Anti-Dissociation/Feeling-Generation	2.73 (1.91)	2.38 (1.69)	2.76 (1.94)	**.78**	-.02	0.61
Anti-Suicide	2.81 (2.03)	3.50 (2.07)	2.75 (2.03)	**.56**	.18	0.32
Sensation-Seeking	1.84 (1.89)	2.00 (1.93)	1.83 (1.90)	-.06	**.84**	0.72
Peer-Bonding	0.42 (0.90)	0.63 (1.06)	0.40 (0.90)	**.32**	.27	**0.02[b]**
Interpersonal Influence	1.00 (1.28)	0.88 (1.46)	1.01 (1.27)	.25	**.56**	0.65
Toughness	1.86 (1.66)	2.13 (1.96)	1.84 (1.64)	.15	**.68**	0.75
Marking Distress	2.77 (2.03)	1.75 (1.49)	2.86 (2.06)	**.77**	.04	0.15
Revenge	0.75 (1.08)	0.50 (0.76)	0.77 (1.10)	-.19	**.64**	0.62
Autonomy	1.48 (1.80)	1.63 (1.92)	1.47 (1.80)	**.47**	.39	0.74

[a] Spearman test; (r_s)=0.22
[b] Chi-Squared test

The subject in the research with the highest NSSI function score was affect regulation (M=3.27, SD=1.77) along with "letting go of the tension that has accumulated within of me," and "compose oneself" became the highest function point. Followed by anti-suicide (M = 2.81, SD=2.03) and marking distress (M=2.77, SD=2.03). The lowest score was for peer-bonding (M=0.42, SD=0.90). In terms of gender, interval between the desire to the act of self-harm, and ages of onset, the results showed a statistically insignificant differences in function of NSSI ($p> 0.05$). Thought so, pain characteristic has significant differences in peer-bounding function of NSSI ($p = 0.02$).

A strong positive association found between ages of onset and frequency of affect regulation ($p = 0.03$, $r_s = 0.22$) (*Table 3*).

Exploratory factor analysis was used to explore the psychometric features of the ISAS functional scales using ProMax rotation. Analysing the scree plot and eigenvalues revealed a strong, two-factor answer (*Table 3*). Autonomy, emotion regulation, anti-dissociation, anti-suicide, marking distress, self-punishment interpersonal boundaries, peer-bonding, and self-care were all represented by the first factor (eigenvalue=5.6). Intrapersonal functions were represented by the second factor. (interpersonal influence, revenge, toughness, and sensation seeking; eigenvalue=1.4). Examining the correlation matrix showed that the majority of the coefficients were more than 0.3. The correlation matrix's factorability was supported by the Barlett's Test of Sphericity, which was statistically significant (<.001) and had a Kaiser-Meyer-Oklin value of 0.85, above the advised value of 0.6.

The scores for the functions of each element were added to create measures for interpersonal and intrapersonal function. There is a high degree of internal consistency demonstrated by the interpersonal and intrapersonal coefficient alphas, which measure 0.89 and 0.78, respectively. The intrapersonal scale included four subscales, while the interpersonal scale had eight. The pro-ration of the results was based on the number of subscales used to differentiate the intrapersonal and interpersonal functions.

DISCUSSION

This study aimed to investigate various types of NSSI as well as their functions among adolescents and young adults. Our study found that pulling hair became the most used type of NSSI and its function was affect-regulation.

There were 96 participants that took part in this study in total. From this number, it was obtained that there were far more woman participants than man. While some research claim that women experience NSSI more frequently than men, other studies find no gender-specific differences in NSSI frequency or a significant correlation is only found in adolescents, not in young adults.[18,19,27] In this study, we found there weren't any obvious distinctions between gender characteristics in NSSI types and the NSSI function.

The average age of participants was 20.85 (2.19), and their average age of onset was 15.91 (3.37). This is consistent with previous studies, where NSSI behavior begins at the age of 13 years, grows and reaches its peak in mid-adolescence (around the age of 15-17 years), and then begins to decline in late adolescence or young adults.[7,10,18] It's possible that early adolescents are experimenting with self-injury more frequently because they are exposed to it in society. Conversely, adolescents in their mid- and late-teen years may be turning to self-injury as a defense mechanism or way to relieve.[18] Age of onset has an important role in the occurrence of NSSI. According to Brager-Larsen et al.'s research, there was a significant rise in the incidence of NSSI episodes for both longer durations and decreasing age of onset ($p<0.001$) (SE: 0.10, CI95% -0.58 to -0.13).[21] In this research, we also found a significant correlation between ages of onset and the frequency of cutting, scratching, and obstruct with wound healing. The frequency of suicide attempts was significantly correlated with the beginning and duration ages of NSSI, both independently and in combination. There is a positive correlation ($p<0.05$) between the length of NSSI and the participant's age of onset as well as the frequency of suicide attempts (SE: 0.08, CI95% -0.34 to -0.03).[21] Most participants used a variety of NSSI methods (51.0%), these findings are consistent with earlier studies.[28] Adolescents who hurt themselves frequently report having little to no pain, according to some study.[3] This research showed a similar thing where only 21.9% of participants felt pain during NSSI actions. Although Kostic et al. showed that compared to those who said they felt little to no pain during self-harm,

more respondents said they experienced pain.[20] However, the time for implementing NSSI measures remains the same, where most of respondents experience self-injury when they are companionless.[20] Ninety-seven percent of participants intended to quit performing NSSI acts. This is in line with Sabrina's earlier study in 21 Indonesian provinces.[29] But in contrast to south-east Serbia, 56% of respondents overall said they had no intention of quitting self-harm.[20] Several participants in this study said that the reason they carried out NSSI was help relieve mental strain that has accumulated inside them and to express anger towards their self for being worthless or stupid.

Pulling hair was the type of NSSI that was most frequently carried out by participants, followed by banging or hitting oneself, scratching, pinching, and interfering with wound healing. This contradicts studies conducted by Brager-Larsen et al. in Norway, Martorana in Italy, and Kostic et al. in South-east Serbia, where cutting is the most frequently performed type of NSSI.[19–21] These findings are related with other studies that discovered various religious beliefs among participants influence the correlation between positive religious coping and NSSI severity. Positive religious coping (e.g., a secure connection with God, beliefs of a meaningful life, and spiritual connections with others) has a statistically significant negative correlation with NSSI severity.[30] The higher a person's religious coping, the lower the severity of their NSSI actions.

In line with previous findings that affect regulation was the most common function of NSSI behavior, participants in the current study perceived this function as followed by anti-suicide and marking distress.[11,19,20,23,29] Statements such "calming myself down" and " letting go of the tension that has accumulated within of me " considered to be very relevant by most participants. This study also found a significant positive correlation between ages of onset and frequency of affect regulation.

The two-factor structure that represents the NSSI's intrapersonal and interpersonal functions, respectively, was hypothesized and the results of the ISAS section that assesses NSSI functions generally confirmed it. In particular, all functions that were categorized as interpersonal were loaded to the interpersonal component; however, several functions were also loaded to the intrapersonal factor and although isn't in line with the ISAS's original factor structure, it's correlate with previous studies that have looked at the factor structure of this measure.[5,31]

CONCLUSION

According to our findings, the NSSI methods used are quite diverse, but the most common is hair pulling. The initial age for carrying out NSSI is childhood, but most often it starts in adolescence, generally carrying out the function of NSSI to regulate affect. These results emphasize how important it is to understand why people engage in NSSI and, ultimately, what treatments are most successful at reducing this behavior. Research shows that young people in West Sumatra and other countries exhibit similar NSSI behavior; these findings support the idea that NSSI is developing into a global problem that transcends national boundaries. Despite the fact that it is impossible to generalize the traits of this group to all self-injurers, this research paints a particular image. Since there are no national data on non-self-selected self-injury (NSSI) among adolescents in Indonesia, future research should not just concentrate on a self-selected sample of individuals who self-injure, but should also be representative of the whole young population in Indonesia.

Declaration by Authors

Ethical Approval: Approved

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