



Self-Harm Behavior among High School Students: A Descriptive Study

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ABSTRACT

Self-harm is a prevalent form of self-inflicted behavior not motivated by the desire to die. Previous reports have shown that the youngest age group is the most affected on a global scale. Therefore, this study aimed to investigate the most prevalent forms of self-harm and the associated psychosocial factors among high school students in Medan, Indonesia. The convenience sampling was implemented and data were obtained through questionnaire containing demographic information and Self-Harm Screening Inventory (SHSI), which comprised 10 yes or no questions. To investigate the association between demographic variables and particular behavior, descriptive statistics and bivariate cross-tabulations were implemented. The results showed that the most frequently reported behavior included head banging (23%), intense scratching (33.3%), and hitting oneself (37.9%). Several factors, such as female gender, history of abuse, suicide attempts, emotional dysregulation (frequent anger), eating disorders, and exposure to domestic violence, were found to have significant associations. Furthermore, self-harm behavior was prevalent among high school students and was related to various psychosocial risk factors. These results emphasize the need for school-based mental health interventions concentrating on the early identification of at-risk youth, emotional regulation, and trauma history.

Keyword: Adolescent, High school students, Psychosocial factors, Self-harm behavior



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1. Introduction

The occurrence of self-harm behavior is gaining significant attention, leading to an increase in investigations across various sectors. Numerous scholars contend that this behavior is associated with suicidal ideation, as 5% of those who engage in it succumb to highly lethal methods (Leung et al., 2019). In comparison, some scholars contend that self-harm is not associated with suicidal intent but rather functions as a coping mechanism to alleviate the psychological distress that individuals encounter (Tossani, 2013; Hicks & Hinck, 2008). It is a response to self-inflicted injury that is indicative of maladaptive help-seeking behavior.

According to Tofthagen & Fagerstrøm (2010), self-harm is a common way for individuals to psychologically release mental pain. These individuals show negative emotions due to prior experiences with trauma, grief, abuse, or mental health disorders, which contribute to mental suffering (Tossani, 2013). Lim et al. (2019) had explored various methods, including drug abuse, burning, cutting, and consuming lethal substances. Additionally, this behavior is accomplished through several methods, including non-life-threatening and potentially death.

Self-harm includes intentionally inflicting injuries on oneself, often through cutting with sharp objects. Although practice like piercing and tattooing are socially accepted, cutting is widely stigmatized (Rissanen et al., 2011). According to Favazza (2006), college students practice self-harm through mutilation or burning, identifying as “cutters” or “burners.” In regions like Pakistan and parts of Africa, self-poisoning, using substances such as rat poison or pesticides, is more common (Naz et al., 202; Pieterse et al., 2020). However, cutting remains the most frequent method in Western countries (Brown & Kimball, 2013; McAndrew & Warne, 2005; Rissanen et al., 2011) and Indonesia (Tresno et al., 2012a). Previous studies have shown that various methods are becoming prevalent with greater access to tools and technology, including life-threatening devices for severe injuries (Xiao et al., 2022; Edriss et al., 2022). This behavior is often repetitive among young people and is associated with future suicide risks (World Health Organization, 2021).

Denton & Alvarez (2024) discovered that 17.7% of adolescents (ages 10-19) from 17 countries engaged in non-suicidal activities. Tharani et al. (2022) observed that the age group of 20-39 was the most susceptible to self-harm. In countries such as the United States, Europe, and Australia, rates among adolescents aged 19-24 can reach approximately 80% (Greydanus & Shek, 2009). According to Liem et al. (2022b), 45% of Indonesian youth engaged in self-harm during the COVID-19 pandemic, driven by hopelessness and loneliness, despite the absence of official statistics. Extreme behavior, including drowning or jumping from buildings, was also documented (N. Kim et al., 2022). Furthermore, 38% of Indonesian college students reported at least once during academic careers (Tresno et al., 2012b).

Hawton et al (2002) stated that adolescent was the most prevalent age group to engage in self-harm behavior. In certain schools in England, 6.9% of victims searched for medical attention, while only 12.6% visited hospitals due to the severity of the injury. However, the percentage of high school students in Italy who engage in this behavior is 11.1%, which is nearly twice the rate in England. Currently, there is no statistical data on the prevalence of self-harm among high school students or adolescents in Indonesia. Therefore, this study aims to describe self-harm behavior of high school students in Medan and contributing factors.

2. Methods

This study was conducted among high school students in Medan. The quantitative analysis used a descriptive survey design, with a population size of 390 students. The Slovin formula was used to select a sample of 87 students through convenience sampling. Originally composed of 20 items, Self-Harm Screening Inventory (SHSI) questionnaire was used as a study instrument. However, Kim et al (2022) found that only 10 items were deemed pertinent to self-harm behavior. These included self-mutilation, choking, stabbing, slashing body parts, choking, hitting oneself, banging the head, intense scratching, overdosing on medication, and cutting the body. The range of validity values was from 0.777 to 0.992. In a study conducted by Kim et al (2022), the Cronbach's alpha value of the SHSI questionnaire was 0.795, showing reliability.

In order to ensure clarity and comprehensibility, the questionnaire was modified through a translation process that included language evaluation. The objective of the assessment was to ascertain the frequency of self-harm for each item and identify self-harm behavior that adolescent most frequently practiced. A binary scoring system was used to record responses, with "Yes" denoting 1 and "No" representing 0. This study received ethical approval from the Faculty of Nursing, Universitas Sumatra Utara, under approval number 1007/UN5.2.1.13/SPB/2023.

3. Results

Several critical attributes of the sample were identified by the results. The majority of participants were female (66.7%), and 62.1% reported a propensity to become enraged. Although the responses to inquiries concerning violence, drug use, criminal records, suicide attempts, and eating disorders did not yield a significant overall figure, specific results required further investigation. Approximately 11.5% of students reported having attempted suicide, while 17.2% had experienced past violence. Table 1 shows the demographic data with 87 participants.

Table 1 Demographic data (n=87)

No	Characteristics	f	%
1	Gender		

	Male	29	33.3
	Female	58	66.7
2	Age		
	15 years old	36	41.4
	16 years old	51	58.6
3	Have you experienced abuse in the past?		
	No	72	82.8
	Yes	15	17.2
4	Have you experienced violence within your family?		
	No	75	82.8
	Yes	12	17.2
5	Do you get angry easily?		
	No	33	37.9
	Yes	54	62.1
6	Do you have eating disorders?		
	No	74	85.1
	Yes	13	14.9
7	Have you had any disorders in the past that required hospitalization?		
	No	62	71.3
	Yes	25	28.7
8	Have you ever been arrested or detained by authorities in the past?		
	No	85	97.7
	Yes	2	2.3
9	Have you ever attempted suicide?		
	No	77	88.5
	Yes	10	11.5
10	Is there any history of drug abuse?		
	No	87	100.0
	Yes	0	0.0

SHSI questionnaire showed that the most prevalent self-harm behavior was hitting oneself (37.9%), while the least common was overdosing on drugs (5.7%), with the frequency presented in Table 2.

Table 2 Frequency of self-harm (n=87)

No	Statements	f (Yes)	%	f (No)	%
1	Overdosing on drugs	5	5.7	82	94.3
2	Cutting my body with sharp objects	6	6.9	81	93.1
3	Hitting my body (Hitting my body, such as the head hard, with my hands)	33	37.9	54	62.1
4	Banging my head against a wall, desk, etc.	20	23.0	67	77.0
5	Scratching my body	29	33.3	58	66.7
6	Cutting or carving something onto my skin using a knife	9	1.3	78	89.7
7	Stabbing my body with sharp or pointed objects	6	6.9	81	93.1
8	Slitting or cutting my body with sharp objects	11	12.6	76	87.4
9	Strangling my neck	8	9.2	79	87.4
10	Engaging in bloodletting (draining blood from my body)	6	6.9	81	93.1

From the cross-tabulation between demographic variables and self-harm behavior in Table 3, several intriguing conclusions can be drawn. The bivariate analysis results for each variable are summarized in the following narrative.

Table 3 Cross-tabulation of demographic variables with self-harm behavior: cutting the body with sharp objects, hitting body parts, banging the head against surfaces, and forceful scratching

Variables	Overdosi ng on Drugs	Cutting with sharp objects		P. Value	Hitting the body		P. Value	Banging Head			P. Value	Forceful scratching		P. Value
		No	Yes		No	Yes		No	Yes	No		Yes		
Age														
15 years old	36 (41.4)	33 (37.9)	3 (3.4)	0.688	21 (24.1)	15 (17.2)	0.655	29 (33.3)	7 (8.0)	0.609	22 (25.3)	14 (16.1)	0.489	
16 years old	46 (52.9)	48 (55.2)	3 (3.4)		33 (37.9)	18 (20.7)		38 (43.7)	13 (14.9)		36 (41.4)	15 (17.2)		
Gender														
Male	29 (33.3)	29 (33.3)	0	0.172	24 (27.6)	5 (5.7)	0.009	26 (29.9)	3 (3.4)	0.047	23 (26.4)	6 (6.9)	0.094	
Female	53 (60.9)	52 (59.8)	6 (6.9)		30 (34.5)	28 (32.2)		41 (47.1)	17 (19.5)		35 (40.2)	23 (26.4)		
Past abuse experience														
No	70 (80.5)	67 (77.0)	5 (5.7)	1.000	48 (55.2)	24 (27.6)	0.078	59 (67.8)	13 (14.9)	0.024	53 (60.9)	19 (21.8)	0.005	
Yes	12 (13.8)	14 (16.1)	1 (1.1)		6 (6.9)	9 (10.3)		8 (9.2)	7 (8.0)		5 (5.7)	10 (11.5)		
Violence within family														
No	72 (82.8)	71 (81.6)	4 (4.6)	0.191	49 (56.3)	26 (28.9)	0.198	61 (70.1)	14 (16.1)	0.027	53 (60.9)	22 (25.3)	0.048	
Yes	10 (11.5)	10 (11.5)	2 (2.3)		5 (5.7)	7 (8.0)		6 (6.9)	6 (6.9)		5 (5.7)	7 (8.0)		
Angry easily														
No	33 (37.9)	31 (35.6)	2 (2.3)	1.000	28 (32.2)	5 (5.7)	0.001	30 (34.5)	3 (3.4)	0.019	26 (29.9)	7 (8.0)	0.100	
Yes	49 (56.3)	50 (57.5)	4 (4.6)		26 (29.9)	28 (32.2)		37 (42.5)	17 (19.5)		32 (36.8)	22 (25.3)		
Eating disorders														
No	70 (80.5)	73 (83.9)	1 (1.1)	0.0001	49 (56.3)	25 (28.7)	0.070	62 (71.3)	12 (13.8)	0.001	53 (60.9)	21 (24.1)	0.027	
Yes	12 (13.8)	8 (9.2)	5 (5.7)		5 (5.7)	8 (9.2)		5 (5.7)	8 (9.2)		5 (5.7)	8 (9.2)		
Past disorders that required hospitalization														
No	59 (67.8)	58 (66.7)	4 (4.6)	1.000	39 (44.8)	23 (26.4)	0.812	48 (55.2)	14 (18.1)	1.000	45 (51.7)	17 (19.5)	0.081	
Yes	23 (26.4)	23 (26.4)	2 (2.3)		15 (17.2)	10 (11.5)		19 (21.8)	6 (6.9)		13 (14.9)	12 (13.8)		

Table 3 Continued

Variables	Overdosing on Drugs	Cutting with sharp objects		P. Value	Hitting the body		P. Value	Banging Head		P. Value	Forceful scratching		P. Value
		No	Yes		No	Yes		No	Yes		No	Yes	
Detained by authorities in the past													
No	80 (92.0)	80 (92.0)	5 (5.7)	0.015	53 (60.9)	32 (36.8)	1.000	65 (74.7)	20 (23.0)	1.000	57 (65.5)	28 (32.2)	1.000
Yes	2 (2.3)	1 (1.1)	1 (1.1)		1 (1.1)	1 (1.1)		2 (2.3)	0		1 (1.1)	1 (1.1)	
Suicide attempt													
No	77 (88.5)	75 (86.2)	2 (2.3)	0.001	54 (62.1)	23 (26.4)	0.0001	64 (73.6)	13 (14.9)	0.001	57 (65.5)	20 (23.0)	0.0001
Yes	5 (5.7)	6 (6.9)	4 (4.6)		0	10 (11.5)		3 (3.4)	7 (8.0)		1 (1.1)	9 (10.3)	

Table 4 Cross-tabulation of demographic variables with self-harm behavior: cutting or carving the skin with a knife, stabbing the body with sharp objects, slashing the body with sharp objects, strangulation, and inclusion in bloodletting

Variables	Carving something on the skin		P. Value	Stabbing the body with sharp objects		P. Value	Slitting/cutting with sharp objects		P. Value	Strangling neck		P. Value	Engaging in blood letting		P. Value
	No	Yes		No	Yes		No	Yes		No	Yes		No	Yes	
Age															
15 years old	32 (36.8)	4 (4.6)	1.000	33 (37.9)	3 (3.4)	0.688	30 (34.5)	6 (6.9)	0.514	33 (37.9)	3 (3.4)	0.815	34 (39.1)	2 (2.3)	0.678
16 years old	46 (52.9)	5 (5.7)		48 (55.2)	3 (3.4)		46 (52.9)	5 (5.7)		46 (52.9)	5 (5.7)		47 (54.0)	4 (4.6)	
Gender															
Male	28 (32.2)	1 (1.1)	0.251	29 (33.3)	0	0.172	28 (32.2)	1 (1.1)	0.091	28 (32.2)	1 (1.1)	0.190	28 (32.2)	1 (1.1)	0.369
Female	50 (57.5)	8 (9.2)		52 (59.8)	6 (6.9)		48 (55.2)	10 (11.5)		51 (58.6)	7 (8.0)		53 (60.9)	5 (5.7)	
Past abuse experience															
No	65 (74.7)	7 (8.0)	1.000	70 (80.5)	2 (2.3)	0.007	65 (74.7)	7 (8.0)	0.091	68 (78.2)	4 (4.6)	0.010	69 (79.3)	3 (3.4)	0.029
Yes	13 (14.9)	2 (2.3)		11 (12.6)	4 (4.6)		11 (12.6)	4 (4.6)		11 (12.6)	4 (4.6)		12 (13.8)	3 (3.4)	
Violence within family															
No	69 (79.3)	6 (6.9)	0.105	72 (82.8)	3 (3.4)	0.032	68 (78.2)	7 (8.0)	0.041	68 (78.2)	7 (8.0)	0.911	72 (82.8)	3 (3.4)	0.008
Yes	9 (10.3)	3 (3.4)		9 (10.3)	3 (3.4)		8 (9.2)	4 (4.6)		11 (12.6)	1 (1.1)		9 (10.3)	3 (3.4)	
Angry easily															
No	31 (35.6)	2 (2.3)	0.473	33 (37.9)	0	0.047	32 (36.8)	1 (1.1)	0.035	33 (37.9)	0	0.020	33 (37.9)	0	0.047
Yes	47 (54.0)	7 (8.0)		48 (55.2)	6 (6.9)		44 (50.6)	10 (11.5)		46 (52.9)	8 (9.2)		48 (55.2)	6 (6.9)	

Table 4 Continued

Variables	Carving something on the skin		P. Value	Stabbing the body with sharp objects		P. Value	Slitting/cutting with sharp objects		P. Value	Strangling neck		P. Value	Engaging in bloodletting		P. Value
	No	Yes		No	Yes		No	Yes		No	Yes		No	Yes	
Eating disorders															
No	70 (80.5)	4 (4.6)	0.003	71 (81.6)	3 (3.4)	0.013	67 (77.0)	7 (8.0)	0.033	68 (78.2)	6 (6.9)	0.402	70 (80.5)	4 (4.6)	0.190
Yes	8 (9.2)	5 (5.7)		10 (11.5)	3 (3.4)		9 (10.3)	4 (4.6)		11 (12.6)	2 (2.3)		11 (12.6)	2 (2.3)	
Past disorders that required hospitalization															
No	58 (56.7)	4 (4.6)	0.112	59 (67.8)	3 (3.4)	0.348	55 (63.2)	7 (8.0)	0.550	56 (64.4)	6 (6.9)	0.906	58 (66.7)	4 (4.6)	0.796
Yes	20 (23.0)	5 (5.7)		22 (25.3)	3 (3.4)		21 (24.1)	4 (4.6)		23 (26.4)	2 (2.3)		23 (26.4)	2 (2.3)	
Detained by authorities in the past															
No	77 (88.5)	8 (9.2)	0.197	79 (90.8)	6 (6.9)	1.000	74 (85.1)	11 (12.6)	0.586	77 (88.5)	8 (9.2)	0.649	79 (90.8)	6 (6.9)	0.697
Yes	1 (1.1)	1 (1.1)		2 (2.3)	0		2 (2.3)	0		2 (2.3)	0		2 (2.3)	0	
Suicide attempt															
No	74 (85.1)	3 (3.4)	0.0001	74 (85.1)	3 (3.4)	0.002	70 (80.5)	7 (9.0)	0.006	74 (85.1)	3 (3.4)	0.0001	74 (85.1)	3 (3.4)	0.002
Yes	4 (4.6)	6 (6.9)		7 (8.0)	3 (3.4)		6 (6.9)	4 (4.6)		5 (5.7)	5 (5.7)		7 (8.0)	3 (3.4)	

Tables 3 and 4 show an overview of significant relationships between demographic or psychosocial variables and different types of self-harm behavior identified in this study. The results showed that some factors were statistically associated, such as sex, history of abuse, emotional dysregulation (anger), or suicide attempts. The corresponding p-values, showing statistically significant relationships ($p \leq 0.05$), indicated a meaningful association between the factor and self-harm behavior. This summary showed the complex and multifactorial nature of self-harm. Furthermore, several risk factors were common, particularly female gender, suicide attempt history, past abuse and family violence, and emotional dysregulation, including anger and eating disorders.

4. Discussion

The results showed that some related factors could contribute to self-harm behavior. These included female gender, history of suicide attempts, experience with abuse, emotional dysregulation, and domestic violence. Some scholars stated that there was no relationship with the intention to die (Mangnall & Yurkovich, 2008), although the results identified suicide as a related factor of self-harm. This was supported by the review of Angelotta (2015) who suggested the redefinition of self-harm as spectrum ranging from conditions where individual wished to end their life using highly lethal methods, to situations and practices using non-lethal self-injury solely to induce physical pain as a form of coping mechanism (Liljedahl, 2015).

Previous studies have identified several risk factors associated with self-harm behavior (Rissanen et al., 2011). Among these, childhood abuse or trauma is considered the most significant contributor (Kaligis et al., 2021; Rawit, Devi Angelina; Tatipikalawan, Firens Victor; Christabela, Verina; Juniarta, Juniarta; Barus, 2024; Tresno et al., 2012c; Wiguna et al., 2021). This experience can impair individuals ability to form empathetic and intimate relationships, express emotions, and feel understood. An abusive family environment and domestic violence underscore the critical role of parental figures in shaping a child's sense of self-worth. The results showed some similar causes according to most literature. Additionally, experience of abuse at school and on social media has also shown a significant relationship (Handayani et al., 2024). An analysis by

Tofthagen & Fagerstrøm (2010) found that mental disorders, particularly borderline personality, as well as the use of illicit drugs, were contributing factors. This study identified overdose as another factor, particularly in relation to the experience of abuse, although there was no reported history.

The results show that self-harm is multifaceted, often driven by underlying psychological distress, trauma, or family dysfunction. This behavior is not often intended as a suicidal act (Zanus et al., 2021), this study confirms that the line between non-suicidal and suicidal act can be blurred, echoing the concept of a “self-harm spectrum” (Edwards-Bailey et al., 2023).

Compared to studies in Western settings (Lim et al., 2019), the high prevalence of aggressive self-injury (hitting, head-banging) and low prevalence of overdose may reflect cultural or accessibility factors in Indonesia. The absence of drug abuse in this cohort might suggest a unique pattern compared to substance-related behavior observed in other regions.

5. Conclusion

In conclusion, this study shows that several key factors are associated with self-harm behavior, including female gender, history of suicide attempts, experience of abuse or domestic violence, and difficulties with emotional regulation. Consistent with previous literature, the result confirms that childhood abuse and trauma remain the most significant contributors. Although no participants report a history of drug overdose, the association between abuse and overdose behavior suggests a potentially significant risk that requires further exploration. Moreover, this study emphasizes the importance of recognizing the complexity and multidimensionality of self-harm and the need for early intervention strategies that address underlying causes.

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Conflict of Interest

The authors declare that there is no conflict of interest in this study.

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