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Exploring The Link Between Demographic Factors and Non-Suicidal Self-Injury (NSSI) Among Indonesian Adolescents : An Educational Psychology Perspective

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Abstract: This study aims to explore the relationship between demographic factors and self-injury behavior (Non-Suicidal Self-Injury/ NSSI) in Indonesian adolescents from an educational psychology perspective. Using a cross-sectional study method with a quantitative approach, this study involved 213 adolescents aged 12-18 years (Mage = 14.95; SD = 1.52). Participants were recruited via a purposive sampling method. The Deliberate Self-Harm Inventory (DSHI) was employed to assess self-injurious behaviors. Inferential analysis utilized the Chi-square test to examine associations between categorical demographic variables, while one-way ANOVA was conducted to identify significant differences in mean NSSI scores across independent groups. The result showed that the proportion of participants who reported doing NSSI did not differ by socioeconomic status and education level. However, a significant association was found between NSSI and gender. Furthermore, it was also found a significant difference in the degree of NSSI between male and female adolescents. Females were more potential than males to do NSSI. These findings emphasize the imperative for educational psychology policies to incorporate routine screenings, targeted intervention or educational programs to alleviate NSSI among female adolescents. It should also implement professional training and culturally sensitive mental health services to create stigma-free environments that promote early intervention and resilience-building.

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Introduction

The global population of adolescents has reached approximately 1.3 billion, making up 16 percent of the world's population (WHO, 2024). In Indonesia, growing population of adolescents – more than 46 million aged 10-19 years – faces mounting health challenges, including mental health issues, representing a vital demographic whose well-being significantly influences the country's future (UNICEF Indonesia, 2023). Despite their size and importance, adolescents mental health in Indonesia remains under-prioritized, with limited access to professional support and potential cultural stigma, leading to reluctance in seeking help and may play a role in the understanding of Non-Suicidal Self-Injury (NSSI) (Subu, et al, 2024).

Adolescence is a vital developmental period marked by significant psychological, social, and emotional changes. It is a time for identity exploration, forming peer and intimate relationships, and the growing responsibilities accompanying the transition into adulthood (Foulkes, 2024). Challenges like family conflict, academic pressure, and bullying can significantly impact adolescents' well-being (Liu et al., 2019). Adolescents are particularly susceptible to stress and adverse life experiences due to significant psychological, social, and emotional transformations. These changes may increase vulnerability to various health risks,

including mental health issues (Blakemore, 2019). Experiencing adverse life events during this critical phase can contribute to an increase in emotional distress, which can elevate the tendency of adolescents to engage in harmful behaviors. Previous research has reported that adolescents are prone to developing mental health problems, including NSSI (Magson et al., 2021; Poudel et al., 2022). NSSI is a prevalent issue among adolescents, with lifetime rates estimated at 17.2% globally (Swannell et al., 2014) and up to 22% in non-clinical populations (Xiao et al., 2022). Subgroup analyses link higher prevalence to factor such as gender, substance use, family structure, and sibling presence. The COVID-19 pandemic further intensified adolescent mental health struggles, with NSSI rates rising from 31% to 48% (Berger et al., 2022). Younger adolescents show particularly elevated risk, underscoring this developmental period as critical for NSSI onset (De Luca et al., 2023).

NSSI refers to the deliberate, self-inflicted destruction of body tissue, causing harm to one's body (e.g. cutting, burning, stabbing, hitting or excessive rubbing) that typically leads to bleeding, bruising, or pain. Importantly, this behavior occurs without suicidal intent and serves purposes that lack social or cultural acceptance (Xiao et al., 2022). NSSI, though intentional, is not aligned with socially acceptable practices and serves as a maladaptive coping strategy for managing intense emotions and challenging social experiences. Studies indicate that adolescents who engage in self-harm often face difficulties in their relationships (Stänicke, 2021; Townsend et al., 2022). Experiences such as bullying, cyberbullying, and conflicts with peers are particularly prominent factors that contribute to NSSI in adolescents (Townsend et al., 2022). The combination of significant life stressors and intricate psychosocial changes increase the likelihood of resorting to harmful coping mechanisms like NSSI in adolescents (Zhang et al., 2022).

Explanations for adolescents NSSI are multifaceted, spanning emotional regulation, cognitive, developmental, and social learning frameworks. Emotional regulation models are especially relevant, as adolescents often use NSSI to manage intense emotions or seek relief from distress (Klonsky et al., 2014; Lan et al., 2022). Low self-esteem and negative self-beliefs may further impair emotional coping (Wang et al., 2023). Developmental perspectives highlight the influence of early trauma and adverse childhood experiences (Li et al., 2024), while social learning theory suggests that NSSI may be acquired through observation, including via social media (Ramsey et al., 2021; Jarvi et al., 2017). Integrated models underscore how emotional, cognitive, and social factors interact in shaping vulnerability to NSSI (Shi et al., 2024). A review of 39 studies identified key risk factors, e.g., depression, prior self-injury, low self-esteem, and peer pressure (Valencia-Agudoa et al., 2018).

Research on demographic factors reveals complex associations between NSSI and socioeconomic status (SES), education, and gender. While findings on SES are mixed, some studies suggest that adolescents' subjective perceptions of financial hardship, rather than objective income, may predict NSSI behaviors (Rajhvajn Bulat et al., 2024; Liu et al., 2024). Both low and high SES have been associated with increased NSSI, and protective factors such as family functioning and partnership quality appear across SES groups (Ao et al., 2024). Educational level also influences NSSI prevalence, with middle school students in China showing higher rates than global averages, likely due to developmental, psychological, and academic stressors (Lang & Yao, 2018; Ma & Su, 2023). Gender differences are equally complex; females typically show higher NSSI rates during mid-adolescence, partly due to elevated emotional distress (Wilkinson et al., 2022), though findings vary by region, as seen in Nepal where males reported higher NSSI engagement (Poudel et al., 2022). Contextual and developmental factors thus shape how demographic variables interact with NSSI risk (Wichstrøm & Wichstrøm, 2024; Bresin & Schoenleber, 2015).

Research in Indonesia suggests a notable association between demographic factors and NSSI among adolescents. Approximately 34.9% (15.5 million) of Indonesian adolescents experience mental health problems (Syahril, 2024), and nearly one-third of Indonesian university students have engaged in NSSI behaviors (Hidayati et al., 2023). Studies indicate associations between gender, self-esteem, and self-injury (Pratiwi & Djuwita, 2022; Putri & Nusantoro, 2020), with socioeconomic status and parental education linked to lower quality of life (Sari et al., 2021; Sitaresmi et al., 2022). Additional predictors of NSSI include cyberbullying, childhood abuse, and excessive screen time—risks amplified in Indonesia's digitalized adolescents culture (Wiguna et al., 2021). NSSI often serves as a coping strategy for emotional distress (Arinda & Mansoer, 2020), and perceived social support plays a protective role (Izzah & Ariana, 2022). Psychological inflexibility, moderated by life satisfaction, also correlates with NSSI (Khairunnisa & Oriza, 2023). Poor mental health literacy, cultural stigma, and religious interpretations—such as viewing mental illness as a test of faith—further hinder help-seeking behavior and reinforce adolescent isolation (Anjara et al., 2021; Elvina & Bintari, 2023; Tanaka et al., 2025; Yani et al., 2025).

Despite growing recognition of adolescents NSSI, research on its demographic aspects in Indonesia remains limited (Fernandez et al., 2022). Whereas demographic factors play a pivotal role in shaping Indonesian adolescents' psychological well-being and behaviors, including managing the risk of engaging in NSSI, through the accessibility to emotional support and mental health resources (Pandia et al., 2021). This study aims to explore the association between demographic factors—i.e., socioeconomic status, education level, and gender—and NSSI among Indonesian adolescents, using an educational psychology perspective. Understanding the interplay of these demographics factors in adolescents could offer valuable insight essential to developing culturally sensitive interventions and educational programs to alleviate NSSI among Indonesian adolescents.

Research Method

This study employs a cross-sectional method with a quantitative approach. A non-probability purposive sampling technique, a sample selection accoring to certain criteria desired by researcher (Kumar, 2019), was utilized for participants selection. Five schools in the Greater Jakarta area (Jabodetabek) representing Indonesia, including three middle schools and two high schools, were selected to participate in the study. The schools that agreed to participate were provided with detailed information about the procedures and requirements. The distribution of parental informed consent forms was facilitated by the participating schools, with the forms sent home for review and authorization by parents or legal guardians. Alongside the consent form, parents were also required to complete a socioeconomic data questionnaire. Only students who granted parental consent were eligible for the study. Students whose parents did not grant permission or chose not to participate were excluded from the study but faced no penalties or consequences for their non-participation.

This study utilized the Deliberate Self-Harm Inventory (DSHI), which consists of 17 items related to self-injury behaviors. The inventory was developed by Gratz (2001) and later adapted into an Indonesian version by Tresno et al. (2012). Items are answered in a dichotomous "Yes" or "No" format. In this study, the DSHI demonstrated good internal reliability (Cronbach's $\alpha = .83$).

Primary data collection was conducted from May until July 2024 in a classroom setting, where participants completed online questionnaires through www.survey.ui.ac.id. These questionnaires included a self-report section (collecting information, i.e. full name, age, gender, school, and domicile) as well as the Deliberate Self-Harm Inventory (DSHI).

Students used their own devices, either mobile phones or laptops, to fill out the survey under the supervision of the researcher, ensuring a controlled and consistent environment for data collection. In total, 425 participants completed the first part of the questionnaire. However, data from 212 participants were excluded due to inconsistencies in responses on the Deliberate Self-Harm Inventory (DSHI) and missing values on demographic information (i.e., socio-economic status and education level information). The inconsistencies include: (1) students who indicating they had never attempted self-harm but providing an age for the first attempt, or (2) indicating they had attempted self-harm but listing implausible ages for the first attempt (i.e., 0, 1, 3, or 5 years old). Data quality control measure were also implemented. The dataset was screened for missing data patterns; cases with incomplete key variables were identified using missing data analysis. Outliers in the DSHI scores and demographic variables were detected through visual inspection and were verified for data entry errors or inconsistencies. Additionally, demographic data were cross-checked to confirm eligibility criteria (adolescents aged 12-18 years). Ultimately, 213 participants' data met eligibility criteria for statistical analysis.

Upon completing the questionnaire, participants were provided with a debriefing session that included a detailed explanation of the study's purpose and information. Additionally, psychoeducational content regarding the negative effects of NSSI was shared. Participants were instructed in deep breathing techniques as a coping strategy and were given information on available mental health support services, including contact details for psychological assistance in their local area, should they require further help. Furthermore, participants were provided with the researcher's contact information for any additional support or inquiries.

The data was analysed using descriptive statistics, including frequency, percentage, mean and standard deviation. Inferential analysis employed the Chi-square test to examine associations between demographics (i.e., socioeconomic status, education level and gender) and NSSI in adolescents. The Chi-square test represents one of the most utilized statistical analyses for answering questions about the association or difference between categorical variables (Franke et al., 2011). Furthermore, one-way ANOVA test also performed to determine if there are significant differences between the means of two or more independent groups. A sensitivity analysis was also conducted using the full data set ($N = 425$) to examine the robustness of the findings. All data analyses were carried out using Jeffreys's Amazing Statistics Program (JASP) version 0.19.1.

Results and Discussion

In this study, nearly half of the participants (45.5%; Table 1) reported a history of NSSI, a rate higher than previous study in the United States (34%; Howe-Martin et al., 2012) yet consistent with findings from Nepal (Poudel et al., 2022). This discrepancy may reflect cultural variations and differences in the methods used to assess self-injury. Additionally, the most common NSSI behaviors in this study included intense scratching, self-punching, and wound disruption, differing from the more frequent hair-pulling and pinching seen in Chinese adolescents (Xiao et al., 2022). This finding highlights the diversity of methods used in NSSI among adolescents and the varying behavior patterns across contexts.

Table 1. Behavioral patterns of adolescent

Variables	Category	Number	%
NSSI behavior (n = 213)	No NSSI	116	54.5%
	Performing NSSI	97	45.5%
Severity of NSSI	Minor cases	89	91.8%

behavior	Major cases	8	8.2%
Method of NSSI performed (n =97) Participants may engage in multiple NSSI methods	Intense scratching (leads to bleeding)	50	51.5%
	Punching self	38	39.1%
	Disruption of healing process	38	39.1%
	Intentionally biting to wound skin	37	38.1%
	Other forms of self-harm	33	34.02%
	Cutting	31	31.9%
	Sticking pins, needles, staples in skin	28	28.8%
	Banging head	23	23.7%
	Rubbing glass into skin	19	19.5%
	Inscribing words into skin	16	16.4%
	Engraving pictures onto skin surface	14	14.4%
	Scraping skin with sandpaper	9	9.2%
	Burning skin with lighter or match	8	8.2%
	Burning skin with cigarette	6	6.1%
	Using bleach or oven cleaner on skin	2	2.06%
	Dripping acid on skin	1	1.03%
	Breaking bones	1	1.03%

Table 2. NSSI behaviors prevalence by demographic variables (*N* = 213)

Demographic Variables		No NSSI (n, %)	NSSI (n, %)	Total (*N*, %)	Mean	SD
Gender	Male	65 (65.7%)	34 (34.3%)	99 (46.5%)	.343	0.4773
	Female	51 (44.7%)	63 (55.3%)	114 (53.5%)	.553	0.4994
	Total (*N*, %)	116 (54.5%)	97 (45.5%)	213 (100%)	0.46	0.499
Education level	Junior high school	65 (50.4%)	64 (49.6%)	129 (60.6%)	0.50	0.502
	Senior high school	51 (60.7%)	33 (39.3%)	84 (39.4%)	0.39	0.491
	Total (*N*, %)	116 (54.5%)	97 (45.5%)	213 (100%)	0.46	0.499
Socioeconomic status	Low income	62 (55.4%)	50 (44.6%)	112 (52.6%)	0.45	0.499
	Middle income	48 (55.8%)	38 (44.2%)	86 (40.4%)	0.44	0.500
	High income	6 (40.0%)	9 (60.0%)	15 (7.0%)	0.60	0.507
	Total (*N*, %)	116 (54.5%)	97 (45.5%)	213 (100%)	0.46	0.499

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Table 3. Characteristics of NSSI and demographic factors in adolescents (*N* = 213)

Demographics Variables	Categories	NSSI (*n* = 97)		Chi-square test (χ^2)	*p*-value	ANOVA test (*F*)	*p*-value
		n	%				
Gender	Male	34	35	9.350	0.002*	9.687	0.002*
	Female	63	64.9				
Socioeconomic status	Low income	50	51.5	1.365	0.505	0.677	0.509
	Middle income	38	39.1				
	High income	9	9.2				
Educational level	Junior high school	64	65.9	2.187	0.139	2.189	0.140
	Senior high school	33	34				

**p-value significance at ≤ 0.05 level*

The current study examined the association between demographics and NSSI in adolescents. In the primary analysis (N = 213), Chi-square and one-way ANOVA tests showed significant association between NSSI and gender ($p \leq 0.05$, Table 3). A sensitivity analysis using the full dataset (N = 425) revealed that both gender ($p < .001$) and educational level ($p \leq 0.05$) were significantly associated with NSSI, indicating that exclusion criteria influenced the observed patterns. No significant differences were observed based on socioeconomic status (SES), consistent with prior research (Valencia-Agudo et al., 2018). The lack of SES effect may stem from reliance on parent-reported data, whereas adolescents perceived SES has been shown to more strongly predict NSSI (Rajhvajn Bulat et al., 2024; Liu et al., 2024). Although NSSI rates were slightly higher among adolescents from high-income families, the behavior was prevalent across all SES groups. This suggests that SES alone does not account for NSSI risk, which is more likely mediated by psychological stress, family dynamics, and access to mental health support (Sari et al., 2021; Sitaresmi et al., 2022). As a coping mechanism for emotional distress (Lan et al., 2022), NSSI is not limited to any SES group and is more closely linked to internal stressors, peer dynamics, and emotional regulation than to demographic factors (Klonsky et al., 2014; Ramsey et al., 2021).

Regarding the educational level, previous findings (e.g., Liang et al., 2014; Ma & Su, 2023; Lang & Yao, 2018; Iyanda et al., 2022) emphasized the complexity of the relationship between educational level and NSSI, suggesting that developmental and psychological stressors are more influential. Socio-cultural pressures, such as family expectations and peer conflicts, affect adolescents across educational levels, often outweighing academic factors (Hamza & Heath, 2018). Although academic stress may contribute to NSSI, its impact does not significantly differ by school ranking or level (Munir et al., 2023). This study aligns with prior findings in reporting higher NSSI rates among junior secondary students, potentially due to developmental vulnerabilities like low self-esteem, which impairs emotional regulation and fosters negative self-beliefs (Putri & Nusantoro, 2020; Wang et al., 2023). Thus, internal and contextual factors appear to be stronger predictors of NSSI than educational level alone.

This study also found a higher prevalence of NSSI among female adolescents (Table 2, Table 3), consistent with prior research (Bresin & Schoenleber, 2015; Wilkinson et al., 2022). Gender differences in NSSI tend to widen during mid-adolescence, when females often experience heightened emotional distress and report higher rates of internalizing disorders such as anxiety and depression—key risk factors for NSSI (Lutz et al., 2022).

Socialization processes may contribute, as females are more likely to internalize emotions and use NSSI as a coping strategy for self-criticism and interpersonal stress (Sornberger et al., 2012). While females are more likely to seek clinical support, NSSI among males may be underreported due to gender norms, stigma, and reluctance to seek help (Vogel & Heath, 2016). In Indonesia, low mental health literacy and strong sociocultural and religious norms further compound these issues (Anjara et al., 2021; Elvina & Bintari, 2023; Tanaka et al., 2025; Yani et al., 2025). These findings underscore the need for culturally sensitive, gender-informed interventions and efforts to destigmatize mental health care (Mahardika et al., 2021).

The study's findings suggest that NSSI in adolescents is less influenced by socioeconomic status or educational level, reinforcing educational psychology perspectives that prioritize emotional and cognitive vulnerabilities (e.g., emotional dysregulation and negative self-concept) over demographic factors. The significant gender difference, with females showing higher NSSI prevalence, highlights the role of internalizing symptoms and socialization patterns in shaping maladaptive coping. Practically, these results underscore the need for universal school-based mental health interventions that include gender-sensitive support, emotional regulation training, and early detection strategies. Moreover, educational policies should incorporate culturally informed psychoeducation to address mental health stigma and promote help-seeking behavior in diverse student populations.

Conclusion

To conclude, there is a significant association between gender and NSSI in adolescents. Moreover, there was also found a significant difference in the degree of NSSI between male and female adolescents. Female adolescents had more potential than male adolescents to perform NSSI. The results highlight the need for targeted, gender-based interventions within school and community settings. Furthermore, the findings point to the value of routine screening and school-based mental health programs that may enable early identification and provide critical support, particularly for at-risk female adolescents.

Overall, these findings contribute valuable insights into adolescent mental health and emphasize the urgency of gender-sensitive strategies in addressing NSSI. The study offers a foundation for further research and policy development aimed at supporting adolescents' mental health in Indonesia, particularly regarding gender differences in NSSI prevalence and the corresponding need for tailored interventions. Crucially, school-based mental health services must be culturally informed and accessible to reduce stigma and promote help-seeking behaviors, especially in contexts like Indonesia where mental health remains subject to stigma. National educational frameworks should also implement comprehensive mental health policies that align prevention, intervention, and referral procedures across all schools.

Recommendation

Educational practitioners play a critical role in addressing NSSI among Indonesian students, particularly female adolescents. Teachers should embed social-emotional learning into daily instruction to strengthen emotional regulation, self-esteem, and resilience—skills essential for navigating cultural pressures and emotional stressors. Cultivating classroom environments that normalize mental health dialogue can reduce stigma and encourage early help-seeking. School leaders should implement gender-sensitive frameworks incorporating routine psychological screenings, culturally informed interventions, and targeted monitoring tools. Implementing routine screenings in educational settings and mental health promotion and prevention programs focused on conflict resolution, dealing with emotion, overcoming

stress, and enhancing self-esteem (Wiguna et al., 2018) were indicated to facilitate early identification and prevention of NSSI. Educational institutions are also urged to invest in professional development for teachers and counselors to effectively identify and respond to emotional distress and NSSI-related behaviors. Furthermore, coordinated partnerships between schools, families, and community health providers are essential for building accessible, sustained support systems. From a policy and research perspective, school-based mental health services must be both culturally informed and easily accessible to reduce persistent stigma in Indonesian settings. National educational frameworks should adopt comprehensive mental health policies that standardize prevention, intervention, and referral systems across schools.

The primary findings, based on a rigorously screened sample, provide evidence for associations between demographic variables and NSSI. However, the sensitivity analysis indicated that the inclusion of lower-quality data altered the results, suggesting these associations might not be robust across varied samples. This highlights the importance of data quality in behavioral research and suggests that caution is warranted when generalizing the findings. Future research should replicate these analyses in larger, well-controlled samples to assess stability. Further research is also needed to examine the sociocultural and psychological mechanisms underlying NSSI in Indonesian girls, particularly through qualitative studies that explore stigma, emotional distress, and help-seeking behaviors. Longitudinal studies should assess the development and long-term outcomes of self-injurious behaviors, applying a gender-sensitive lens to inform effective, contextually relevant educational psychology interventions.

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