

High Bullying Exposure and Depression Risk Among Indonesian Adolescents in Boarding Schools: Multivariate Insights from a Cross-Sectional Study

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Abstract

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Background: Bullying is an aggressive behavior that negatively impacts students' mental health, potentially leading to depression. Boarding school environments are marked by intense peer dynamics, which may facilitate the occurrence of various forms of bullying. **Methods:** This cross-sectional study employed a quantitative approach involving 296 Indonesian boarding school students selected through multistage random sampling. Data were collected using the Form of Bullying Scale (FBS) and the depression subscale of the Depression, Anxiety, and Stress Scale (DASS-21). Descriptive and inferential statistics were used, including simple and multivariate logistic regression. Initial multivariate modeling included age, grade level, parental occupation, and parental income; however, only gender and bullying level remained significant and were retained in the final model. **Results:** The findings revealed that 38.5% of students experienced a high level of bullying, and 43.6% were identified as experiencing depression, with most cases classified as mild to moderate. Multivariate analysis showed that female gender (AOR = 3.716, $p < 0.001$) and high bullying exposure (AOR = 3.379, $p < 0.001$) significantly increased the risk of depression. **Conclusion:** Depression is prevalent among boarding school students, with over one-third also reporting high levels of bullying. Gender and bullying exposure were identified as key risk factors. These findings highlight the need for targeted preventive and promotive interventions, such as peer support programs, resilience workshops, and school staff training, focusing on strengthening students' mental resilience and implementing gender-based anti-bullying strategies within the boarding school environment.

Keywords: Bullying, Depression, Adolescents, Boarding school

Introduction

Bullying in educational settings remains a significant concern, with variations in its characteristics depending on the school type. In Islamic boarding schools, bullying is often shaped by rigid seniority hierarchies and, at times, by misinterpretations of religious values. Excessive seniority may lead senior students to intimidate juniors under the guise of unofficial "educational" traditions, which are sometimes culturally accepted within these settings (Rijal, 2025). In contrast, bullying in non-Islamic boarding schools is more frequently associated with academic competition, peer rivalry, and the pressure of achievement in environments that lack sufficient emotional support. Additional contributing factors may include previous victimization experiences and inadequate institutional responses, which further exacerbate the prevalence of bullying (Ibrahim et al., 2022).

Globally, bullying among adolescents has become a widely recognized issue within the fields of education and mental health. According to a report by the Centers for Disease Control and Prevention (CDC, 2023) 14% of schools report bullying as a recurring issue in the United States experience bullying on a regular basis, with the highest prevalence occurring at the middle school level. In Indonesia, the Ministry of Women's Empowerment and Child Protection (Kementerian PPPA, 2024) reported that 41% of 15-year-old children had experienced bullying, while 12% to 15% of adolescents aged 13 to 17 years had been exposed to cyber-based violence. Additionally, data from the Indonesian Child Protection Commission (KPAI, 2020) recorded 2,473

reports of bullying within a single year. Specifically, the Aceh Province has shown a significant increase in reported cases, rising from 881 in 2023 to 1,085 in 2024.

The boarding school setting intensifies the complexity of bullying issues, given the continuous nature of social interactions within dormitory life that lacks private space (Gomba & Zindonda, 2021). In this context, bullying extends beyond physical violence to include verbal, social, and digital forms—such as insults, harassment, exclusion, rumor-spreading, and social media-based intimidation (Waliyanti et al., 2021). Myklestad and Straiton (2021) noted that these various forms of bullying can trigger psychological instability, including heightened anxiety, prolonged stress, and symptoms of depression, which in some cases may lead to self-harming behaviors.

The city of Banda Aceh is one of the regions with the highest incidence of violence in the Aceh Province. According to data from the Ministry of Women's Empowerment and Child Protection (Kementerian PPPA, 2024), a total of 112 cases of violence were recorded, making Banda Aceh the city with the second-highest number of reported cases in the province. Forms of bullying in Islamic boarding schools tend to be direct, such as physical violence, mocking, and social exclusion, reflecting the internal social dynamics and the more closed community structure (Liu et al., 2023). In contrast, in non-Islamic boarding schools, bullying more often takes the form of subtle yet impactful verbal and relational aggression, including insults, social manipulation, and cyberbullying through electronic media (Zahra et al., 2024). In both contexts, students who experience bullying exhibit disturbances in their emotional and social well-being (Aqillah et al., 2025).

This study is grounded in Callista Roy's Adaptation Model, which conceptualizes individuals as biopsychosocial systems that continuously strive to maintain their integrity through adaptive coping mechanisms in response to various environmental stimuli (Alligood, 2014). Bullying is considered a negative stimulus that can disrupt the balance of an individual's adaptive system, particularly among adolescents in boarding school settings (Liu et al., 2023). Within this framework, bullying may affect both the internal regulator and cognator subsystems, leading to either adaptive or maladaptive psychological responses. When left unaddressed, bullying experiences can increase adolescents' vulnerability to depression.

The psychological impact of bullying becomes increasingly significant when associated with depressive symptoms experienced by students. A study by Zhang et al., (2024) revealed that adolescents who are victims of bullying are 2.77 times more likely to develop depression compared to those who have not been bullied. The closed nature of boarding school environments and the lack of emotional support further exacerbate students' psychological vulnerability. A study by Anugrah Eni et al., (2023) also identified that students who experience bullying frequently exhibit symptoms such as decreased self-esteem, feelings of insecurity, and the emergence of negative self-perceptions. Research examining the relationship between bullying and depression within the context of Indonesian boarding schools remains limited, particularly studies that focus on the psychological aspects of victims in the Aceh region. Therefore, this study aims to examine the relationship between bullying and depression among boarding school students.

Methods

This cross-sectional study was conducted among students at Islamic boarding schools in the province of Aceh, Indonesia.

Data Collection Instruments

The instruments used in this study consisted of three sections of questionnaires designed to collect data related to respondent characteristics, the level of bullying behavior, and the psychological condition of students, including depression, anxiety, and stress. The first instrument was a demographic questionnaire developed by the researchers to obtain baseline data from respondents. This questionnaire included items on the date of completion, respondent initials, age, gender, grade level, parents' occupations, and parental income. The data were completed directly by the respondents, while the respondent codes were recorded by the researcher.

The second instrument utilized the *Form of Bullying Scale* (FBS) developed by There Shaw et al., (2013), which consists of 10 items designed to measure the frequency of bullying behaviors experienced by high school students. The instrument employs a 5-point Likert scale with the following response options: 1 (never happened to me), 2 (once or twice), 3 (every few weeks), 4 (about once a week), and 5 (several times a week or more). Total scores are categorized into two levels: scores below the mean are classified as low bullying, while scores equal to or above the mean are categorized as high bullying.

The third instrument was the *Depression Anxiety Stress Scale* (DASS-21), which consists of 21 items covering three subscales: depression, anxiety, and stress. Although the full questionnaire was administered to respondents, only the depression subscale was analyzed in this study to assess students' psychological conditions. The depression subscale comprises 7 items, rated using a 4-point Likert scale: 0 (did not apply to me at all or never), 1 (sometimes), 2 (often), and 3 (very often). The interpretation of the scores was categorized into two levels: a score of ≤ 9 indicated a normal condition (no depression), while a score of > 9 indicated the presence of depressive symptoms. The cutoff score of > 9 for the depression subscale of the DASS-21 was based on the clinical thresholds established by Lovibond and Lovibond (1995), which have been widely applied in adolescent research. This threshold was adopted to facilitate binary classification in regression analysis and has been previously utilized in studies involving Indonesian adolescent populations.

The instruments used in this study have been linguistically and culturally adapted for Indonesian adolescent populations based on previous research. Specifically, the validity test for the Form of Bullying Scale (FBS) showed that all items exceeded the minimum r table value of 0.329, with item-total correlation coefficients ranging from 0.38 to 0.81. The reliability test for the FBS indicated a Cronbach's alpha of 0.86, demonstrating high internal consistency in measuring bullying behaviors among high school students.

In parallel, the Depression Anxiety Stress Scale (DASS-21) has also been validated in the Indonesian context. A study by (Hakim & Aristawati, 2023) confirmed that the Indonesian version of the DASS-21 is a valid and reliable tool for assessing psychological symptoms among young adults. The inter-construct correlations were strong (Depression–Anxiety = 0.864; Depression–Stress = 0.950; Anxiety–Stress = 0.947), indicating excellent convergent validity. Furthermore, the reliability of each subscale was high, with Cronbach's alpha values of 0.84 for Depression, 0.85 for Anxiety, and 0.84 for Stress.

Sample Size and Study Location

The study population consisted of 3,350 active students enrolled in senior high school-level boarding schools across Aceh Province. Using a 5% margin of error, a sample of 296 students was selected. To ensure representativeness, a multistage random sampling technique was used. First, the population was clustered by type of secondary boarding school in Banda Aceh City. From the complete list, one Islamic and one non-Islamic boarding school were randomly chosen as study sites. Although this process may limit the generalizability of the findings, the selected schools were considered sufficiently representative of the local educational context. Finally, five classes were randomly selected from each school to serve as sampling units.

Statistical Analysis

Descriptive analysis was performed to summarize the characteristics of respondents, including age, gender, grade level, parental occupation, and income, as well as the distribution of bullying and depression variables. Simple logistic regression was initially conducted to identify independent variables associated with depression. Variables with a p -value less than 0.25, including age, gender, grade level, and bullying level, were selected for multivariate analysis. Multivariate logistic regression was then applied using the enter method to assess the strength of association while adjusting for potential confounders. In the final model, only gender and bullying level remained statistically significant ($p < 0.05$), and thus were retained. Model fit was evaluated using the Hosmer-Lemeshow goodness-of-fit test, which confirmed an acceptable fit ($p > 0.05$).

Ethical Considerations

This study was approved by the Ethics Committee of the Faculty of Nursing, Universitas Syiah Kuala, under research approval code 112020111024. Prior to data collection, participants were provided with comprehensive information regarding the study's objectives, benefits, and potential risks. Each participant who agreed to take part was required to sign a written informed consent form. To ensure the emotional well-being of participants, students who showed signs of severe depressive symptoms were offered immediate follow-up with school counselors or referred to mental health services. Psychological safety protocols were integrated to minimize harm during and after participation.

Results

The majority of the respondents were in the mid adolescence stage (78.4%), with a higher proportion of females (65.2%). Most students were enrolled in grade X (54.1%) and had parents employed as government workers (53.0%). Additionally, the majority reported parental income below the regional minimum wage (59.1%),

reflecting a generally lower-middle socioeconomic background. In terms of social experience and mental health, 61.5% of respondents reported low levels of bullying; however, 38.5% experienced high levels of bullying, which remains a significant concern. Details of demographics characteristics of study participants is presented in Table 1.

Table 1. Demographics characteristics of study participants

No	Characteristics	n	%
1	Age Group		
	Mid Adolescence	232	78.7
	Late Adolescence	64	21.6
2	Gender		
	Male	103	34.8
	Female	193	65.2
3	Class		
	X	160	54.1
	XI	136	45.9
4	Parental Occupation		
	Civil servant	157	53
	Not a civil servant	139	47
5	Parental Income		
	Below Minimal wage	175	59.1
	Above minimal wage	121	40.9
6	Bullying		
	Low	182	61.5
	High	114	38.5
7	Depression		
	Normal	167	56.4
	Mild Depression	65	22
	Moderate Depression	58	19.6
	Major Depression	6	2

The levels of depression experienced by respondents showed considerable variation. A total of 167 respondents (56.4%) were classified as having no depression. The estimated prevalence of depression among boarding school students was 43.6% (95% CI: 37.5-49.0). Meanwhile, 65 respondents (22.0%) experienced mild depression, 58 (19.6%) experienced moderate depression, and 6 (2.0%) reported severe depression. No respondents were found to be experiencing extremely severe depression. For the purposes of further analysis, particularly multivariate analysis, the depression levels were recategorized into two groups: non-depressed (56.4%) and depressed (43.6%). This classification facilitated the interpretation of results using inferential statistical approaches such as logistic regression.

Multivariate logistic regression analysis was used to identify the key variables associated with students' depression levels. Demographic data were also included as independent variables in the analysis. Prior to developing the logistic regression model, bivariate analyses were conducted on all independent variables to select potential candidates. Variables that met the selection criterion of $p < 0.25$ and were subsequently included in the multivariate logistic regression model were age ($p = 0.147$), gender ($p < 0.001$), grade level ($p = 0.178$), and bullying level ($p < 0.001$).

In the initial stage of modeling, logistic regression analysis was conducted using the enter method. The results indicated that, among the four variables included in the model, only two showed a statistically significant association with depression level ($p < 0.05$): gender and bullying level. The non-significant variables, age ($p = 0.589$) and grade level ($p = 0.505$), were subsequently removed from the model. The results of the binary logistic regression model are presented in Table 2:

Table 2. Results of Logistic Regression Analysis

No	Independent Variables	<i>p-value</i>	AOR	95 % CI	
				Lower	Upper
1	Gender (Female)	<0.001	3.716	2.134	6.471
2	High Bullying	<0.001	3.379	2.026	5.638

The final logistic regression model showed that gender ($p < 0.001$; AOR = 3.716; 95% CI: 2.134–6.471) and bullying level ($p < 0.001$; AOR = 3.379; 95% CI: 2.026–5.638) had statistically significant associations with depression levels ($p < 0.05$). Among these, gender demonstrated the strongest association, suggesting that female students were 3.716 times more likely to experience depression than male students. Meanwhile, students with high levels of bullying exposure were 3.379 times more likely to develop depressive symptoms compared to those with low bullying exposure. As a result, further modeling stages were not conducted.

Discussion

The study highlights a significant overlap between high levels of bullying (38.5%) and depression (43.6%) among students, emphasizing the urgency for institutional mental health interventions. These findings suggest that the boarding school environment, with its closed social system and rigid routines, may amplify the psychological impact of peer victimization (Simpson et al. 2022).

Previous findings revealed that 65.2% of the respondents were female, suggesting a higher potential for depression among female students compared to their male counterparts. The boarding school environment, characterized by strict supervision and disciplinary systems, may serve as an additional source of stress, particularly for adolescent girls, who generally exhibit a greater tendency toward emotional internalization (Simpson et al. 2022). This aligns with international studies indicating that adolescent girls are twice as likely to experience depression because of social pressure and negative experiences such as bullying (Li & Li. 2023). This gender disparity aligns with previous findings, where hormonal regulation, socialization patterns, and emotional internalization contribute to increased depressive risk among girls (Ye et al. 2023). A gender-specific meta-analysis in Asia found that female adolescents had a significantly stronger association between bullying and depression than males (OR = 3.06) (Sun et al. 2025).

The prevalence of depression among students in this study reached 43.6%, including mild, moderate, and severe symptoms. The boarding school setting contributes to psychosocial vulnerability through academic pressure, social hierarchy, and limited family interaction (Gomba & Zindonda, 2021). These stressors may intensify emotional isolation, potentially leading to depressive outcomes (Simpson et al. 2022). In particular, the lack of emotional expression and access to parental support in dormitory life may further compound depressive experiences (Liu et al. 2023).

Bullying experiences were also strongly linked to depression, consistent with prior findings. Research by Gomes et al. (2020) emphasizes that bullying within educational settings can have long-term effects on a child's self-esteem, academic performance, and mental health. Victims of bullying are more likely to experience anxiety, social isolation, and, in many cases, the development of significant depressive symptoms (Waliyanti et al.2021). However, individual resilience, perceived peer support, and school connectedness have been shown to buffer the effects of bullying. Lin et al. (2022) demonstrated that resilience moderates the impact of peer victimization on depression, particularly in high-pressure school environments.

The logistic regression analysis showed that gender and bullying level were significantly associated with depression, with female students and those who experienced high levels of bullying being more likely to suffer from depressive symptoms. These statistical associations underscore the necessity for targeted intervention programs, especially those that address gender-specific vulnerabilities and peer dynamics within school settings. A recent boarding school study in China highlighted that school belonging and resilience significantly mediated the bullying–mental health relationship, accounting for over 35% of the total effect (Wang et al. 2024).

These results are consistent with previous studies that also found a strong relationship between bullying and mental health problems. Research conducted by Ye et al. (2023) identified bullying as a significant contributor to depression, particularly among adolescents in school settings. Hanis et al. (2021) also emphasized that persistent bullying increases emotional distress. Suandana et al. (2024) further noted that bullied students experience long-term psychological effects. What differentiates boarding schools is the round-the-clock exposure to peer interactions, stricter supervision, and fewer opportunities to emotionally recharge outside the school environment (Simpson et al. 2022).

This study provides support for previous findings from Gomes et al. (2020), which showed that bullying impacts students' self-esteem, academic motivation, and emotional resilience. Similar patterns were also noted in a study by Waliyanti et al. (2021). However, protective factors such as peer support, emotional regulation, school connectedness, and resilience can mitigate these risks. Lin et al. (2022) emphasized that adolescents with strong resilience were less likely to develop depressive symptoms even after experiencing bullying. Therefore, interventions should not only aim to reduce bullying but also promote individual and systemic resilience through peer mentoring programs, school-wide anti-bullying policies, and inclusive school environments.

Based on these findings, implementing integrated preventive and promotive interventions in boarding schools is critical (Puri et al. 2024). These programs should involve not only students but also teachers, parents, and administrators to foster a supportive school climate. Concrete strategies may include mental health curricula, resilience workshops, school-based counseling, and peer mediation initiatives. Moreover, future research should adopt longitudinal and participatory methodologies, involving adolescents in the co-design and evaluation of mental health programs to ensure relevance and sustainability.

Limitation

This study has several limitations that should be considered. First, the data were collected from only two boarding schools in Banda Aceh, which may limit the generalizability of the findings to other regions or school contexts. Second, the use of self-administered questionnaires may have introduced social desirability bias, potentially leading students to underreport bullying experiences or depressive symptoms. Third, non-response bias could not be entirely ruled out, as students with the most severe symptoms might have opted not to participate. Additionally, the study only analyzed the depression subscale of the DASS-21 and did not include anxiety or stress components, which may have influenced the interpretation of emotional burden. Given the sensitive nature of the topic, the format of the survey may also have affected disclosure patterns. Future studies should consider mixed methods or qualitative approaches to explore students' psychological experiences in more depth.

Conclusion

This study found that gender and bullying level were significantly associated with depressive symptoms among adolescents in boarding schools. Female students and those exposed to high levels of bullying demonstrated higher odds of experiencing depression. These findings underscore the urgency of integrating gender-sensitive and anti-bullying interventions into boarding school mental health frameworks. Promotive strategies should include peer support mechanisms, resilience training, and school-based mental health education. Future research should adopt longitudinal and participatory approaches, enabling adolescents to take part in designing and evaluating interventions that directly affect their mental well-being.

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Availability of Data and Materials

The data used in this study are available to the primary author upon reasonable request.

Consent for Publication

Participants provided written consent for anonymous data to be published as part of the results of this study.

Competing Interests

The authors declare that they have no conflicts of interest related to this research.

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