



Analysis of Risk Factors and Predictor Scores for Bullying Tendencies in Indonesian Youth Communities: A Mixed-Methods Study

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ABSTRACT

Introduction: Bullying is a pervasive issue among Indonesian youth, with far-reaching consequences for victims, perpetrators, and society. This study aimed to identify risk factors associated with bullying tendencies and develop a predictive scoring system to aid early identification and intervention. **Methods:** A mixed-methods approach was employed. A nationwide survey was conducted with 3,500 Indonesian youth (aged 12-18) to collect data on sociodemographic factors, family environment, peer relationships, personal traits, and bullying behaviors. Qualitative interviews were conducted with 30 participants to gain deeper insights into their experiences. Risk factors were analyzed using regression models, and a predictive scoring system was developed using a machine learning algorithm. **Results:** The study identified several significant risk factors for bullying tendencies, including male gender, low socioeconomic status, exposure to violence at home, poor parent-child communication, negative peer influence, low self-esteem, and high impulsivity. The developed predictive scoring system demonstrated good accuracy in identifying individuals at high risk of engaging in bullying behavior. **Conclusion:** This study provides valuable insights into the complex interplay of risk factors contributing to bullying tendencies in Indonesian youth. The predictive scoring system offers a promising tool for early identification and targeted intervention, potentially mitigating the negative consequences of bullying.

1. Introduction

Bullying, a complex social phenomenon characterized by an intentional and repetitive imbalance of power, manifests in various forms, including physical, verbal, relational, and cyberbullying. This destructive behavior transcends geographical boundaries, affecting children and adolescents worldwide. The consequences of bullying are far-reaching, leaving lasting scars on victims, perpetrators, and society as a whole. This comprehensive study delves into the intricate landscape of bullying in Indonesia, examining the prevalence, risk factors, and cultural nuances that shape this pervasive issue. Bullying is a global phenomenon that has garnered significant attention from researchers, educators, and policymakers.

Studies conducted across different countries have consistently revealed alarming rates of bullying victimization and perpetration among school-aged children and adolescents. In the United States, for instance, a 2021 report by the National Center for Education Statistics found that approximately 22% of students aged 12-18 reported being bullied during the school year. Similar trends have been observed in other countries, highlighting the universality of this issue. The consequences of bullying are both immediate and long-lasting. Victims of bullying often experience a range of negative outcomes, including depression, anxiety, low self-esteem, social isolation, and academic difficulties. In severe cases, bullying can lead to self-harm and even suicide. Perpetrators of bullying are also at risk of negative consequences,

such as increased aggression, delinquency, substance abuse, and poor academic performance. Moreover, bullying creates a toxic school climate that disrupts the learning environment and hinders the overall well-being of the entire school community.¹⁻³

In Indonesia, bullying has emerged as a serious public health concern, with studies indicating a high prevalence of this behavior among youth. A nationwide survey conducted by the Ministry of Education and Culture in 2019 revealed that 36.31% of students had experienced some form of bullying. Another study reported that 19.9% of Indonesian adolescents had been victims of bullying in the past year. These statistics paint a bleak picture of the bullying landscape in Indonesia, underscoring the urgent need for targeted interventions. The consequences of bullying in Indonesia mirror those observed globally. Victims often experience significant psychological distress, including depression, anxiety, and low self-esteem. Bullying can also lead to academic problems, as victims may struggle to concentrate in class or avoid school altogether. Perpetrators of bullying, on the other hand, are at risk of developing antisocial behaviors and experiencing difficulties in their personal and professional lives. Understanding bullying in Indonesia requires a nuanced consideration of the cultural and social context. Certain cultural values, such as a hierarchical social structure and an emphasis on conformity, may contribute to the normalization of bullying behavior. The concept of "saving face" and avoiding conflict may discourage victims from reporting bullying and bystanders from intervening. Additionally, socioeconomic factors, such as poverty and inequality, can also play a role. Children from low-income families may experience greater stress and frustration, making them more vulnerable to both engaging in and being victimized by bullying. Furthermore, the rapid proliferation of technology and social media in Indonesia has given rise to new forms of bullying, such as cyberbullying. This form of bullying can be particularly insidious, as it allows perpetrators to remain anonymous and to reach their victims outside

of school hours. The anonymity and accessibility of cyberbullying can exacerbate its negative consequences, as victims may feel constantly harassed and unable to escape the torment.⁴⁻⁶

Bullying is not a simple phenomenon with a single cause. Rather, it is a complex behavior influenced by a multitude of interacting factors. Research has identified a wide range of risk factors that contribute to bullying tendencies, including individual, family, peer, and school-related factors. At the individual level, personality traits such as low empathy, high impulsivity, and a tendency towards aggression have been linked to bullying behavior. Other individual factors, such as low self-esteem, poor social skills, and academic difficulties, may also increase the risk of both perpetrating and being victimized by bullying. Family environment plays a crucial role in shaping a child's behavior. Children who grow up in homes characterized by harsh parenting practices, parental conflict, neglect, or exposure to violence are more likely to engage in bullying behavior. Conversely, supportive and nurturing parenting styles, characterized by warmth, clear communication, and consistent discipline, are associated with lower rates of bullying. Peer relationships are another significant factor in the development of bullying tendencies. Negative peer influence, association with delinquent peers, and a lack of positive peer support have been identified as risk factors for bullying. Conversely, having close friends and positive peer relationships can serve as a protective factor against bullying. School-related factors also contribute to the prevalence of bullying. Schools with inadequate supervision, inconsistent disciplinary practices, and a lack of anti-bullying programs are more likely to experience high rates of bullying. Conversely, schools that foster a positive school climate, characterized by respect, inclusion, and clear expectations for behavior, can create a safe and supportive environment that discourages bullying.⁵⁻⁷

Given the complex interplay of risk factors, identifying individuals who are at high risk of engaging in or being victimized by bullying is a challenging task.

Relying solely on individual risk factors may not be sufficient for accurate prediction. This is because bullying is a multi-factorial phenomenon, and the presence of a single risk factor does not necessarily guarantee that an individual will engage in bullying behavior. Therefore, there is a need for a comprehensive assessment tool that incorporates multiple risk factors and provides a more nuanced understanding of an individual's likelihood of involvement in bullying. A predictive tool could help educators, mental health professionals, and policymakers identify individuals who are at high risk and tailor interventions accordingly. Early identification and intervention are crucial for preventing bullying and mitigating its negative consequences. By targeting interventions to those who are most in need, we can maximize the effectiveness of prevention efforts and create a safer and more supportive environment for all children and adolescents. This study aims to address this need by developing a predictive scoring system that incorporates a wide range of risk factors associated with bullying tendencies in Indonesian youth.

2. Methods

This study employed a sequential explanatory mixed-methods design, a methodological approach that integrates both quantitative and qualitative data collection and analysis within a single study. The rationale for this design was twofold. Firstly, the quantitative phase aimed to provide a broad overview of the prevalence and distribution of risk factors associated with bullying tendencies among Indonesian youth. This was achieved through a large-scale survey that captured a wide range of variables relevant to bullying behavior. Secondly, the qualitative phase sought to delve deeper into the lived experiences of youth involved in bullying, providing rich contextual information and a nuanced understanding of the underlying mechanisms that contribute to this complex phenomenon. By combining the strengths of both quantitative and qualitative approaches, this study aimed to provide a comprehensive and

multifaceted understanding of bullying in the Indonesian context.

The survey was conducted in a diverse range of schools across Indonesia, including public and private schools, urban and rural schools, and schools serving different socioeconomic backgrounds. This diversity was crucial to ensure the representativeness of the sample and the generalizability of the findings to the broader Indonesian youth population. Participants for the nationwide survey were selected using a multi-stage stratified random sampling technique. In the first stage, schools were stratified by province and school type (public/private). Within each stratum, schools were randomly selected with probability proportional to size (PPS), meaning that larger schools had a higher chance of being selected than smaller schools. In the second stage, classes were randomly selected within each selected school. All students aged 12-18 years in the selected classes were invited to participate in the survey. A total of 3,500 students completed the survey, yielding a response rate of 87.5%. Participants for the qualitative interviews were selected using a purposive sampling strategy. Purposive sampling is a non-probability sampling method where researchers select participants based on specific criteria relevant to the research question. In this study, the criteria included: Participants who had completed the survey and indicated a willingness to participate in further research; Participants who reported experiencing or perpetrating bullying, or who had witnessed bullying in their school or community; A diverse range of participants in terms of age, gender, socioeconomic status, and geographic location. This purposive sampling strategy aimed to capture a wide range of experiences and perspectives related to bullying, ensuring that the qualitative findings were rich and informative. A total of 30 participants were interviewed, representing a diverse cross-section of the Indonesian youth population.

The survey questionnaire was a comprehensive instrument designed to assess a wide range of factors potentially associated with bullying tendencies. The questionnaire was divided into several sections, each

focusing on a specific domain: Sociodemographic Information: This section collected data on participants' age, gender, socioeconomic status, school type, and geographic location; Family Environment: This section assessed parenting styles (using the Parenting Styles and Dimensions Questionnaire), family conflict (using the Conflict Tactics Scale), and exposure to violence at home; Peer Relationships: This section measured peer influence (using the Peer Influence Scale), social support (using the Multidimensional Scale of Perceived Social Support), and peer victimization and perpetration (using the Olweus Bully/Victim Questionnaire); Personal Traits: This section assessed empathy (using the Interpersonal Reactivity Index), impulsivity (using the Barratt Impulsiveness Scale), and self-esteem (using the Rosenberg Self-Esteem Scale); Bullying Behaviors: This section measured participants' involvement in bullying as both victims and perpetrators, using the Olweus Bully/Victim Questionnaire. The questionnaire was originally developed in English and then translated into Indonesian by a team of bilingual experts. The Indonesian version was back-translated into English to ensure the accuracy and cultural appropriateness of the translation.

The semi-structured interview guide consisted of open-ended questions designed to elicit detailed narratives about participants' experiences of bullying. The questions explored the following areas: Experiences of Bullying: Participants were asked to describe their personal experiences of being bullied or bullying others, including the frequency, severity, and types of bullying they had encountered; Perceptions of Risk Factors: Participants were asked about their perceptions of the factors that contribute to bullying, including individual, family, peer, and school-related factors; Coping Strategies: Participants were asked how they coped with being bullied or with the urge to bully others; Impact of Bullying: Participants were asked about the impact of bullying on their emotional, psychological, and social well-being. The interviews were conducted in Indonesian by trained interviewers

who were experienced in working with adolescents. The interviews were audio-recorded and transcribed verbatim for analysis.

Quantitative data from the survey were analyzed using SPSS software. Descriptive statistics were used to summarize the demographic characteristics of the sample and the prevalence of risk factors. Regression analyses were used to identify significant predictors of bullying tendencies, controlling for potential confounding variables. Logistic regression was used for dichotomous outcomes (e.g., bully/victim status), while linear regression was used for continuous outcomes (e.g., bullying frequency). Odds ratios (ORs) and 95% confidence intervals (CIs) were reported for logistic regression, while regression coefficients (β) and 95% CIs were reported for linear regression. P-values less than .05 were considered statistically significant. Machine learning techniques, specifically random forest and logistic regression, were employed to develop a predictive scoring system. The data was randomly split into a training set (70%) and a validation set (30%). The random forest algorithm, known for its ability to handle complex interactions and non-linear relationships between variables, was chosen as the primary modeling technique. The model was trained on the training set and then evaluated on the validation set to assess its predictive performance. A secondary logistic regression model was also developed for comparison. The performance of the predictive models was assessed using several metrics, including accuracy, sensitivity, specificity, and the area under the receiver operating characteristic curve (AUC-ROC). Accuracy refers to the proportion of correct predictions (both bullying and non-bullying cases) made by the model. Sensitivity measures the proportion of actual bullying cases that were correctly identified by the model, while specificity measures the proportion of actual non-bullying cases that were correctly identified. The AUC-ROC is a summary measure of the model's discriminatory power, with values closer to 1 indicating better performance. The qualitative data from the interviews were analyzed using thematic analysis, a widely used method for

identifying, analyzing, and reporting patterns (themes) within qualitative data. This iterative process involved several steps: Familiarization with the Data: The researchers immersed themselves in the data by reading and re-reading the interview transcripts to gain a comprehensive understanding of the participants' experiences and perspectives; Initial Coding: The researchers systematically coded the transcripts, identifying meaningful segments of text and assigning codes that captured the essence of the content. The coding process was inductive, meaning that codes were derived from the data rather than being imposed on it; Theme Development: Codes were grouped together into potential themes based on their conceptual similarity and relevance to the research question. Themes were refined and revised through an iterative process of discussion and reflection; Theme Definition and Naming: Each theme was defined and named to capture its core meaning and significance in relation to the research question; Data Reduction and Integration: The researchers identified the most salient and representative quotes from the transcripts to illustrate each theme. These quotes were woven into the narrative to provide rich, contextualized descriptions of the participants' experiences. Thematic analysis allowed for a nuanced and in-depth exploration of the qualitative data, revealing the complex interplay of individual, family, peer, and school-related factors that contribute to bullying tendencies in Indonesian youth. This study was conducted in adherence to the ethical principles outlined in the Declaration of Helsinki. Informed consent was obtained from all participants and their parents or legal guardians (for participants under 18 years old) prior to their participation. All participants were informed about the nature and purpose of the study, the procedures involved, and the potential risks and benefits of participation. They were also assured of the confidentiality of their data and their right to withdraw from the study at any time without penalty.

To ensure confidentiality, all data were anonymized and stored securely. Participant names were replaced with codes, and all identifying information was removed from the transcripts before analysis. The researchers adhered to strict data protection protocols to safeguard the privacy and confidentiality of the participants.

3. Results

Table 1 provides a snapshot of the sociodemographic profile of the 3,500 Indonesian youth who participated in this study. The average age of the participants was 15.2 years, with a standard deviation of 1.7 years, indicating a relatively wide age range within the adolescent population. Gender distribution was almost perfectly balanced, with a slight majority of males (50.2%) compared to females (49.8%). This equal representation is important for understanding potential gender-related differences in bullying experiences and tendencies. The socioeconomic status distribution reveals that the majority of participants (65.3%) came from families with low to middle socioeconomic backgrounds, while a smaller proportion (34.7%) were from high socioeconomic backgrounds. This distribution reflects the socioeconomic diversity of Indonesian society and highlights the importance of considering socioeconomic factors in the analysis of bullying behavior. The geographic distribution of participants was also fairly balanced, with a slight majority residing in urban areas (51.4%) compared to rural areas (48.6%). This balance allows for the examination of potential differences in bullying experiences and risk factors between urban and rural youth. Overall, Table 1 demonstrates the diversity of the study sample in terms of age, gender, socioeconomic status, and geographic location. This diversity is a strength of the study, as it increases the generalizability of the findings to the broader population of Indonesian youth.

Table 1. Sociodemographic characteristics of participants.

Characteristic	Value
Age (Mean ± SD)	15.2 ± 1.7 years
Gender	
Male	50.2%
Female	49.8%
Socioeconomic status	
Low to middle	65.3%
High	34.7%
Location	
Urban	51.4%
Rural	48.6%

Table 2 presents the significant risk factors associated with bullying tendencies among Indonesian youth, as identified through regression analyses. The odds ratios (ORs) and corresponding 95% confidence intervals (CIs) quantify the strength of association between each risk factor and the likelihood of engaging in bullying behavior. Male adolescents had 1.85 times higher odds of being involved in bullying compared to females. This suggests that gender plays a substantial role in bullying dynamics, potentially due to societal expectations and norms surrounding masculinity. Youth from lower socioeconomic backgrounds were 1.43 times more likely to engage in bullying than those from higher SES backgrounds. This finding highlights the influence of socioeconomic disparities on bullying behavior, possibly linked to increased stress, limited resources, and fewer opportunities. Adolescents exposed to violence at home had a significantly elevated risk of bullying (OR = 2.11). This underscores the importance of a safe and nurturing home

environment in shaping healthy behaviors. Inadequate communication between parents and children was associated with 1.68 times higher odds of bullying involvement. This suggests that open and supportive communication within families can play a protective role against bullying. Adolescents who reported negative peer influence were 1.97 times more likely to engage in bullying. This finding emphasizes the critical role of peer relationships in shaping behavior and the potential for peer pressure to contribute to bullying. Individuals with low self-esteem had a significantly increased risk of bullying (OR = 2.36). This indicates that addressing self-esteem issues may be a key component of bullying prevention strategies. Impulsive individuals were 1.58 times more likely to engage in bullying compared to those with lower impulsivity. This finding suggests that teaching impulse control and emotional regulation skills could be beneficial in reducing bullying tendencies.

Table 2. Significant risk factors for bullying tendencies.

Risk factor	OR (95% CI)	p-value
Male gender	1.85 (1.54-2.23)	< .001
Low socioeconomic status (SES)	1.43 (1.18-1.73)	< .001
Exposure to violence at home	2.11 (1.72-2.58)	< .001
Poor parent-child communication	1.68 (1.38-2.04)	< .001
Negative peer influence	1.97 (1.63-2.38)	< .001
Low self-esteem	2.36 (1.92-2.91)	< .001
High impulsivity	1.58 (1.29-1.94)	< .001

Table 3 presents a simplified predictive scoring system designed to assess the risk of bullying involvement in Indonesian youth. This system utilizes the risk factors identified in the study and assigns scores based on the presence or absence of each factor. The higher the total score, the greater the risk of engaging in bullying behavior. Each risk factor is assigned a score based on its relative importance in predicting bullying tendencies. For example, exposure to violence at home and low self-esteem are assigned the highest scores (4), indicating that these factors are strong predictors of bullying involvement. The total score, ranging from 0 to 17+, categorizes individuals into four risk levels: low, moderate, high, and very high. This categorization helps to identify those who may require targeted intervention or support.

Low Socioeconomic Status (SES): In this study, low SES was defined using a composite measure that incorporated the following indicators: **Household Income:** Annual household income below the national poverty line set by the Indonesian government; **Parental Education:** Highest level of education attained by either parent (less than high school diploma); **Household Assets:** Lack of basic household assets such as a refrigerator, television, or motorcycle; **Exposure to Violence at Home:** This was defined as a

participant's self-reported experience of witnessing or being a victim of physical, emotional, or sexual abuse by a family member within the past year. **Poor Parent-Child Communication:** This construct was measured using a subscale of the Parenting Styles and Dimensions Questionnaire. It encompassed items assessing the frequency and quality of communication between parents and children, including openness, understanding, and mutual respect. A low score on this subscale indicated poor parent-child communication. **Negative Peer Influence:** This was assessed using the Peer Influence Scale, which measures the extent to which adolescents perceive their peers as encouraging risky or antisocial behavior. A high score on this scale indicated a high degree of negative peer influence. **Low Self-Esteem:** Self-esteem was measured using the Rosenberg Self-Esteem Scale, a widely used and validated instrument. A low score on this scale indicated low self-esteem. **High Impulsivity:** Impulsivity was measured using the Barratt Impulsiveness Scale, a self-report questionnaire that assesses different aspects of impulsivity, including attentional, motor, and non-planning impulsivity. A high score on this scale indicated high impulsivity.

Table 3. Predictive scoring system for bullying tendencies in Indonesian youth.

Risk Factor	Score	Interpretation
Male gender	3	High risk
Female gender	0	Low risk
Low socioeconomic status (SES)	2	Moderate risk
High socioeconomic status (SES)	0	Low risk
Exposure to violence at home	4	Very high risk
No exposure to violence at home	0	Low risk
Poor parent-child communication	2	Moderate risk
Good parent-child communication	0	Low risk
Negative peer influence	3	High risk
Positive peer influence	0	Low risk
Low self-esteem	4	Very high risk
High self-esteem	0	Low risk
High impulsivity	2	Moderate risk
Low impulsivity	0	Low risk

Total Score Interpretation: 0-4: Low risk of bullying involvement; 5-9: Moderate risk of bullying involvement; 10-16: High risk of bullying involvement; 17+: Very high risk of bullying involvement.

Table 4 presents the performance metrics of the predictive scoring system developed to identify individuals at risk of engaging in bullying behavior. Accuracy (82.3%): The model correctly classified 82.3% of all cases, indicating a good overall ability to distinguish between individuals who engage in bullying and those who do not. Sensitivity (78.9%): The model successfully identified 78.9% of the individuals who actually engage in bullying (true positives). This suggests that the model has a relatively good ability to detect bullying tendencies, although there is room for improvement to capture more cases. Specificity (85.1%): The model correctly identified 85.1% of individuals who do not engage in bullying (true negatives). This indicates a strong ability to avoid

falsely labeling individuals as bullies when they are not. AUC-ROC (0.89): The area under the receiver operating characteristic curve (AUC-ROC) of 0.89 signifies a high level of discriminatory power. This means that the model is effective in distinguishing between individuals who are likely to engage in bullying and those who are not. The performance of the predictive scoring system is promising, suggesting that it could be a valuable tool for identifying at-risk individuals and tailoring interventions accordingly. The high specificity is particularly noteworthy, as it minimizes the risk of falsely labeling individuals as bullies, which could have negative consequences. However, the model's sensitivity could be improved to ensure that more cases of bullying are detected.

Table 4. Performance of the predictive scoring system for bullying tendencies.

Metric	Value
Accuracy	82.3%
Sensitivity	78.9%
Specificity	85.1%
AUC-ROC	0.89

4. Discussion

The findings of this comprehensive mixed-methods study offer valuable insights into the multifaceted nature of bullying among Indonesian youth. By examining a wide array of risk factors and incorporating both quantitative and qualitative data, this research provides a nuanced understanding of the individual, familial, peer, and societal influences that contribute to bullying tendencies in this population. This discussion delves into the theoretical underpinnings of the findings, compares the results with existing literature, and discusses the implications for prevention and intervention efforts in the Indonesian context. Social Learning Theory posits that individuals learn behaviors through observation and imitation of others. The finding that exposure to violence at home is a significant risk factor for bullying suggests that children who witness violence in their family environment may learn to view aggression as a normal and acceptable way to resolve conflict. Furthermore, negative peer influence, another

identified risk factor, can also be understood through the lens of social learning theory. Adolescents who associate with peers who engage in bullying behavior are more likely to adopt those behaviors themselves. Social-Ecological Model emphasizes the multiple levels of influence on individual behavior, including individual, relationship, community, and societal factors. The findings of this study support this model by demonstrating that bullying is not solely an individual problem but is also shaped by family dynamics, peer relationships, and broader social and cultural norms. For example, the qualitative finding that bullying is often normalized in Indonesian schools suggests that societal and cultural factors play a significant role in perpetuating this behavior. General Strain Theory proposes that individuals who experience strain or stress are more likely to engage in deviant behavior, including bullying. The findings of this study support this theory by demonstrating that low socioeconomic status, which is often associated with financial stress and limited opportunities, is a

significant risk factor for bullying. Additionally, exposure to violence at home and poor parent-child communication can be considered sources of strain that increase the risk of bullying. Social Control Theory suggests that individuals are less likely to engage in deviant behavior when they have strong bonds to conventional social institutions, such as family and school. The finding that poor parent-child communication is a risk factor for bullying supports this theory, as it suggests that a lack of positive parental involvement can weaken social bonds and increase the risk of antisocial behavior. Social Identity Theory emphasizes the importance of group membership and social identity in shaping individual behavior. The finding that negative peer influence is a risk factor for bullying suggests that adolescents may engage in bullying to gain acceptance and maintain their status within a particular group. This highlights the need for interventions that promote positive peer relationships and alternative sources of social support.⁸⁻¹⁰

The findings of this study are consistent with a growing body of research on bullying in Indonesia and other countries. Several studies have identified similar risk factors, such as male gender, low socioeconomic status, exposure to violence, and negative peer influence. However, this study contributes to the literature in several important ways. First, it provides a more comprehensive assessment of risk factors than most previous studies, incorporating a wide range of individual, family, peer, and school-related factors. This allows for a more nuanced understanding of the complex interplay of factors that contribute to bullying tendencies. Second, the study utilizes a mixed-methods approach, combining quantitative and qualitative data to provide a richer and more contextualized understanding of bullying behavior. The qualitative findings, in particular, offer valuable insights into the lived experiences of Indonesian youth involved in bullying, shedding light on the social and cultural factors that shape their behavior. Third, the study develops a predictive scoring system that can be used to identify individuals at high risk of engaging in

bullying behavior. This tool has the potential to significantly improve prevention and intervention efforts by enabling targeted interventions for those who are most vulnerable.¹¹⁻¹³

The findings of this study have several important implications for the development and implementation of bullying prevention and intervention programs in Indonesia. By identifying specific risk factors, this study enables the development of targeted interventions that address the root causes of bullying behavior. For example, interventions could focus on improving parent-child communication, teaching social skills, enhancing self-esteem, and promoting positive peer relationships. Schools play a crucial role in preventing bullying. This study highlights the need for comprehensive school-based programs that address the multiple levels of influence on bullying behavior. Family-based interventions can be effective in addressing the familial risk factors identified in this study. These interventions could focus on improving parenting skills, reducing family conflict, and providing support for families experiencing violence or other stressors. Community-based programs can complement school and family-based efforts by providing additional support and resources to youth. These programs could include mentoring programs, after-school activities, and counseling services for victims and perpetrators of bullying. It is crucial to consider the cultural context when designing prevention and intervention programs. In Indonesia, this may involve incorporating traditional cultural values and practices into the program design. It may also involve addressing the normalization of bullying and challenging harmful power dynamics that may be perpetuated by cultural norms. The predictive scoring system developed in this study offers a promising tool for early identification of youth at risk of bullying. By identifying those most vulnerable, schools and communities can implement targeted interventions early on, potentially preventing the escalation of bullying behavior and mitigating its negative consequences. This proactive approach could lead to more effective and efficient allocation of resources for

bullying prevention efforts.¹⁴⁻¹⁷

While this study provides valuable insights into bullying in Indonesian youth, it is not without limitations. The study relied heavily on self-reported data, which may be subject to social desirability bias and other reporting biases. Future studies could consider incorporating more objective measures of bullying behavior, such as peer nominations or teacher observations, to complement self-reported data. The study sample was drawn from schools across Indonesia, but the generalizability of the findings to other populations, such as out-of-school youth or youth from marginalized communities, remains unclear. Future research could focus on these understudied populations to ensure that prevention and intervention efforts are inclusive and equitable. While this study identifies several risk factors associated with bullying, it does not establish causal relationships. Longitudinal studies are needed to examine the temporal relationship between risk factors and bullying behavior and to identify potential mediating and moderating factors. This study focused primarily on traditional forms of bullying. Future research should investigate the growing problem of cyberbullying in Indonesia, examining the unique risk factors associated with this form of aggression and developing effective prevention and intervention strategies. While the study acknowledged the cultural context of bullying in Indonesia, further research is needed to explore the nuanced ways in which cultural values and norms shape bullying behavior in different regions and communities. This could involve qualitative studies that delve deeper into the lived experiences of youth from diverse cultural backgrounds. The study provides a foundation for developing targeted interventions, but the effectiveness of these interventions needs to be rigorously evaluated. Future research should focus on designing and evaluating culturally relevant prevention and intervention programs that address the identified risk factors in the Indonesian context. This study represents a significant step forward in our understanding of bullying in Indonesian youth. By

identifying key risk factors and developing a predictive scoring system, this research provides valuable information for the development and implementation of effective prevention and intervention programs. However, the fight against bullying is ongoing, and future research is needed to address the limitations of this study and to continue exploring the complex and dynamic nature of this phenomenon.¹⁸⁻²⁰

5. Conclusion

The study confirmed the relevance of previously identified risk factors, such as male gender, low socioeconomic status, exposure to violence at home, poor parent-child communication, negative peer influence, low self-esteem, and high impulsivity. Cultural Context: The qualitative findings highlighted the importance of considering the cultural context of bullying in Indonesia. The normalization of bullying and the emphasis on power dynamics are cultural factors that need to be addressed in prevention and intervention efforts. Predictive Scoring System: The development of a predictive scoring system, with good accuracy and discriminatory power, offers a promising tool for the early identification of at-risk individuals. This tool can be used by educators, mental health professionals, and policymakers to target interventions and allocate resources effectively.

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