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How adolescent bullying victims recover self-esteem: is family function or school climate more important?

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ABSTRACT

Objective: Bullying has been widely recognised as a critical risk factor for adolescent self-esteem, and highly prevalent in Indonesia. While studies have explored the complexity of self-esteem among bullying victims, predictors and their interrelationships remain unclear. This study examines the influence of family function and school climate on self-esteem among Indonesian adolescents who experienced bullying, with resilience investigated as a mediator.

Method: A total of 1.274 adolescents reporting experiences of bullying victimisation participated. Standardised instruments were used to measure self-esteem, family function, school climate, and resilience. Path analysis examined direct and indirect effects, focusing on the mediating role of resilience.

Results: Both family function and school climate predicted self-esteem through resilience. Resilience consistently emerged as a key psychological mechanism that supports positive self-evaluation despite adverse experiences. Among male participants, family function was the primary predictor of resilience and self-esteem, whereas both family function and school climate were significant for females.

Conclusions: Findings highlight resilience as a central pathway linking ecological factors to self-esteem among bullying victims. The study contributes to theoretical models of resilience by demonstrating gender specific pathways and emphasises resilience focused interventions to support adolescent mental health and reduce bullying's negative effects.

KEY POINTS

What is already known about this topic:
(1) Negative experiences originating from the family, school, and surrounding environment can lower adolescents' self-esteem, which in turn leads to poor mental health.
(2) The identity disruption model (IDM) is widely used to explain the effects of these environmental factors on self-esteem.
(3) The concept of resilience is useful in revealing how adolescents who are victims of bullying can maintain positive self-esteem.

What this topic adds:
(1) This article contributes to the understanding of resilience as an internal factor by demonstrating its role in enabling individuals to maintain positive self-esteem despite having experienced bullying.
(2) This article emphasises the importance of strengthening resilience, with reference to Indonesia, where bullying frequently occurs within educational settings.
(3) This article highlights that psychological support for the victims of bullying often focuses on the victims, overlooking the importance of fostering a positive school climate and a functional family environment to enhance the self-esteem of bullying victims.

Introduction

Bullying refers to deliberate aggressive behaviour towards a victim, that is carried out repeatedly by the perpetrator over a certain period (Yosep et al., 2023). A recent study in schools in Surabaya, the second biggest city in Indonesia, documented that 16% students in the schools had experienced physical bullying, 46% had experienced verbal bullying, and 39% had experienced social bullying (Virlia et al., 2024). Physical bullying refers to aggressive actions directed towards the victim's body or property, such as hitting, pushing,

biting, damaging the victim's belongings, and includes sexual coercion. Verbal bullying involves the use of words that attack and harm the victim, such as mocking, threatening, or using insulting language. Social bullying damages children's social relationships through exclusion, neglect, and social deceit (Virlia et al., 2024; Yosep et al., 2023). At its most detrimental, bullying can lead to suicidal ideation (Prawira et al., 2023). Bullying is therefore an important topic of psychological research that warrants systematic investigation.

The high number of bullying cases among adolescents in Indonesia may stem from various underlying causes, including a societal tendency to normalise bullying as a part of child and adolescent development. This normalisation can result in inadequate responses from parents, schools, and authorities, allowing bullying behaviours to persist unchecked. Additionally, certain individual and environmental risk factors, such as a poor school climate, lack of adult supervision, and peer pressure may contribute to the prevalence of bullying (Ayoub et al., 2021; Choi & Park, 2021; Pramanik et al., 2024). The consequences of bullying are deeply concerning. Adolescents who experience bullying often suffer from psychological distress, including symptoms of depression, anxiety, and diminished self-esteem (Agustiningsih et al., 2024; Pramanik et al., 2024). Studies show that victims of bullying frequently face emotional turmoil, such as sadness, feelings of worthlessness, and social withdrawal (Arhin et al., 2019; Tarafa et al., 2022). The long-term impacts can be severe and include suicidal ideation and chronic depression (Ord et al., 2020; Shrivastava et al., 2019; Ye et al., 2023). When bullying is not addressed seriously by adults and institutions, it further exacerbates the decline in adolescents' self-esteem (Choi & Park, 2021; Wang et al., 2024; Zhong et al., 2021). Those with already low self-esteem are particularly vulnerable, as they tend to internalise negative self-perceptions and are less able to recover from victimisation, making the psychological damage even more profound (Iswinarti et al., 2021). Moreover, bullies often target those who are already vulnerable, perceiving them as easy prey (Choi & Park, 2021). Interventions focused on enhancing self-esteem and self-compassion may be effective in minimising the negative impacts of bullying on adolescent victims (Agustiningsih et al., 2024). These studies demonstrate the crucial role of self-esteem in resilience and recovery for victims of bullying; therefore, this study has focused on self-esteem because self-esteem is a crucial factor that shapes students' growth and learning performances (Fernandez-Castillo et al., 2022; Liu et al., 2021; Ruther et al., 2023).

Conceptually, self-esteem is the result of a self-evaluation that refers to both positive and negative attitudes towards oneself and leads to self-acceptance as valuable and worthy (Rosenberg, 1979; Surzykiewicz et al., 2022). Self-esteem is a protective factor for individuals' mental health, and is associated with self-confidence, self-acceptance, and increased hope for the future (Agustiningsih et al., 2024; Mullan et al., 2023). Self-esteem develops through an individual's social interactions within their environment and experiences, both pleasant and unpleasant, which later shape their self-perception as either positive or negative (Santrock, 2019). International literature has also suggested that someone with high resilience will also tend to view him or herself more positively (Fernandez-Castillo et al., 2022; Liu et al., 2021; Ruther et al., 2023).

In adolescence, self-esteem is relational in nature, in the sense that it is greatly influenced by the judgements of the important people in a teenager's life, such as parents, family, teachers, and friends. The process of developing self-esteem begins with the interpersonal relationships within the family and is gradually influenced by interpersonal relationships in school and other social domains. Family and school environments play crucial roles in preventing and addressing children's vulnerability to bullying. Positive family communication and a supportive school climate can reduce bullying prevalence, while negative dynamics can exacerbate it (Aminah et al., 2023). Adolescents from families with poor communication or those attending schools with a negative climate are more likely to engage in or become victims of bullying (Aminah et al., 2023; Yudiono & Sulistyo, 2020). This indicates that social factors influence the social dynamics that contribute to bullying.

Family function affects the fulfilment of healthy internal and external tasks and includes intrafamilial roles, boundaries, support, dependency, and rituals, which contribute to achieving collaboration, mutual support, and joint decision-making (Huang et al., 2022; Liang et al., 2024; Usta et al., 2021). Family can play a role in teaching children how to interact with others and how to understand the feelings and needs of others. Familial relationships have a significant impact on an individual's mental health and socioemotional and moral development (Risnawaty & Suryadi, 2020; Usta et al., 2021). Family function is one of the predictors factors that contributes to a child's vulnerability to victimisation. Less than warm relationships among family members make it difficult to build communication

and emotional connections with parents and siblings (Mazzone & Camodeca, 2019). Family function is a key factor for addressing problems faced by adolescents and enhancing their resilience in over-coming difficulties, which ultimately supports positive self-esteem (Desrianty et al., 2021; Dou et al., 2023).

Within the context of early adolescence, the school has a significant role in the development of self-esteem in middle-school students. Adolescents develop in the context in which they are situated and learn about themselves both implicitly and explicitly while undergoing significant changes (Santrock, 2019). Accordingly, the school climate serves as a key determinant in shaping self-esteem. School climate is defined as the quality and character of school life shaped by values, norms, teaching practices, interpersonal relationships, and the general school environment, including school discipline and safety (Ebbert & Luthar, 2021; Frazier et al., 2021; Grazia & Molinari, 2021). Previous findings suggest that a positive school climate plays a crucial role in reducing bullying, through factors such as school connectedness and peer attachment (Acosta et al., 2019). Previous research has also shown that a positive school climate influences students' self-esteem, as those who experience greater happiness within the school environment tend to develop a more positive perception of themselves (Arya & Syanti, 2022).

Recent research has highlighted the complex interplay between self-esteem, resilience, and mental health, particularly in the context of bullying and traumatic experiences. Prior studies have consistently shown a positive correlation between self-esteem and resilience, with higher self-esteem associated with greater resilience in coping with adversity (Cyndi, 2024; Virlia et al., 2024). Resilience and self-esteem have been found to be crucial in maintaining psychological well-being, especially for individuals who have experienced bullying or other stressful events (Ioannidou & Michael, 2024; Kocaturk & Cicek, 2023). Resilience is a personal quality that enables individuals to thrive despite difficulties and serves as an effective and adaptive strategy for coping with loss, suffering, and hardship (Dimitriou et al., 2020; Shemesh & Heiman, 2021). Resilience can reduce vulnerability to risky environmental experiences, help with overcoming stress and difficulties, and contribute to good self-esteem, despite experiences of risky situations (Chung et al., 2020; Jefferies et al., 2022; Chung et al., 2020).

Resilience has emerged as a key mediator linking bullying victimisation to adolescent mental health outcomes, including depression, anxiety, self-harm, and overall well-being (Anderson et al., 2022; Ran et al., 2020; Shemesh & Heiman, 2021). Higher resilience levels are consistently associated with fewer psychological symptoms, with particularly strong protective effects observed in bullying contexts (Lin et al., 2022; Santos et al., 2021). Previous studies investigating statistical models of bullying among teenagers in Germany and China found that social support, resilience, and self-efficacy served as mediators between experiences of bullying and mental health, for both victims and perpetrators (Ganotz et al., 2023; Lin et al., 2020; Mahdiani & Ungar, 2021). Ran et al. (2020) examined models of bullying among teenagers in China, finding that resilience can mediate the relationship between experiences of being bullied in school and self-harm. Shemesh and Heiman (2021) found that resilience mediates the relationship between bullying victimisation and well-being and self-concept. Regardless of the type of bullying victimisation, resilience has been shown to serve as a protective factor against depression (Anderson et al., 2022; Cyndi, 2024). Fostering resilience during adolescence can be an effective early intervention to reduce the adverse effects of bullying (Lin et al., 2022).

This research is important because it offers a new perspective on how environmental factors such as family function and school climate work synergistically through resilience to influence self-esteem. This study provides more holistic insight compared to previous research that focused only on internal factors (Dewi et al., 2020; Ran et al., 2020). In addition, previous research on gender differences in the context of bullying has shown inconsistent findings. Sexism and discriminatory attitudes directed at females solely based on gender have been identified as some of the underlying factors in gender-based violence (Guerrero-Molina et al., 2020). Erika et al. (2017) reported that bullying victims were predominantly female, with only a small proportion being male. However, other studies have found that males are more frequently victimised than females (Pontes et al., 2018; Smith et al., 2019), which has been attributed to the tendency for higher levels of aggression among males (Yang et al., 2022).

Based on the findings above, the problem formulation in this study is: Can resilience mediate the influence of family function and school climate on self-esteem in Javanese adolescent victims of bullying? (see Figure 1 below). Which external factors act as protective factors for the victims of bullying, directly or indirectly through the resilience of the victims? Since previous studies of gender differences in bullying and
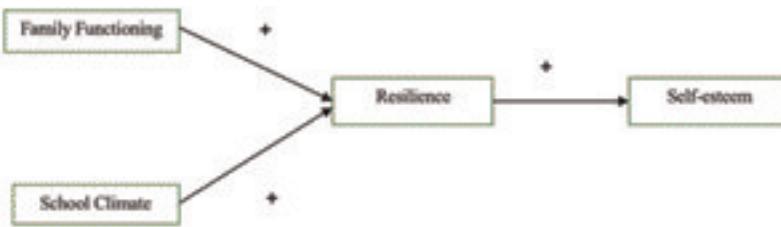
Figure 1. Research hypothesis.

victimisation have shown inconsistent results in (Erika et al., 2017; Guerrero-Molina et al., 2020; Pontes et al., 2018; Semenza, 2021; Smith et al., 2019; Sun et al., 2022; Yang et al., 2022) this research includes gender in the analyses.

Hypotheses

H₁: Family function affects self-esteem through the mediation of resilience in adolescent victims of bullying.

The development of this hypothesis is grounded in psychological theories on family systems, resilience, and self-esteem, particularly in the context of bullying victimisation (Huang et al., 2022; Jefferies et al., 2022; Liu et al., 2021). Family function plays a crucial role in shaping an adolescent's psychological well-being, as supportive and cohesive family environments provide emotional security and coping resources (Huang et al., 2022; Mazzone & Camodeca, 2019; Risnawaty & Suryadi, 2020; Usta et al., 2021). According to resilience theory, individuals who experience adversity, such as bullying, can develop protective mechanisms that help them navigate stress and maintain psychological stability (Jefferies et al., 2022). Adolescents from well-functioning families are more likely to develop resilience through adaptive coping strategies that buffer the negative effects of bullying (Mahdiani & Ungar, 2021). In turn, resilience fosters self-esteem by enabling individuals to reframe negative experiences and maintain a sense of self-worth despite victimisation (Desrianty et al., 2021; Dou et al., 2023).

H₂: School climate affects self-esteem through the mediation of resilience in adolescent victims of bullying.

Secondly, school climate plays a role in shaping adolescents' psychological resilience and self-esteem, particularly for those who experience bullying. A positive school climate, characterised by supportive teacher-student relationships, a sense of belonging, and clear anti-bullying policies, creates an environment where victimised adolescents feel safe and valued. According to resilience theory, supportive environments foster adaptive coping mechanisms, enabling students to manage the emotional distress caused by bullying (Ebbert & Luthar, 2021; Frazier et al., 2021; Grazia & Molinari, 2021). Resilience, in turn, acts as a protective factor that helps adolescents reframe negative experiences, maintain confidence in their abilities, and sustain positive self-concepts (Ganotz et al., 2023). Given this process, the hypothesis suggests that school climate does not directly influence self-esteem but does so through its impact on resilience, which serves as a crucial buffer against the detrimental effects of bullying on adolescents' self-worth.

Methods

Design

This research employed a quantitative method within an explanatory research type to examine the influence of family function and school climate on self-esteem with resilience as a mediator among adolescents who are victims of bullying.

Table 1. Participant distribution and mean age by grade.

Grade level	N	%	Mean age (SD)
Grade 7	420	32.97	12.72 (0.60)
Grade 8	383	30.06	13.61 (0.59)
Grade 9	471	36.97	14.57 (0.56)
Total	**1274**	**100**	**13.67 (0.97)**

Participants

The sample in this study consisted of 1274 junior high school students with a mean age of 13.67 years. The selection of participants was based on the following criteria: (1) adolescents at junior high school level (2) with experiences as victims of bullying. Participants came from five schools in Surabaya, Java, Indonesia. All participants, his/her parents, and the teachers gave informed consent to participate in this study. Ethics approval for the study was granted by Universitas Ciputra Ethics Committee (109/EC/KEPK-FKUC/IV/2024). Research participants received information about the research procedures and filled out consent forms prior to completing the research instruments. Mean and standard deviation values for participants' ages were calculated for each grade as summarised in Table 1.

Table 1 shows a relatively balanced distribution of participants across grade levels. Mean age increased consistently with grade level, ranging from 12.72 years ($SD = 0.60$) in Grade 7 to 14.57 years ($SD = 0.56$) in Grade 9, with an overall sample mean age of 13.67 years ($SD = 0.97$). The low standard deviations indicate minimal age variation within each grade.

Measures

Self-esteem

The scale used to measure self-esteem was the Rosenberg Self-Esteem Scale (Rosenberg, 1979). This scale is unidimensional and consists of 13 statements, with 7 favourable items and 6 unfavourable. Respondents are asked to provide an assessment on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree). The higher the total score, the more positively a person can evaluate him or herself. Conversely, the lower the total score, the more negatively a person evaluates him or herself. During the confirmatory factor analysis (CFA), eight items with factor loadings below the recommended threshold of .50 were removed from the scale. The final 5-item version of the instrument demonstrated satisfactory model fit for assessing self-esteem, as indicated by CFA results (CFI = .993, TLI = .987, SRMR = .013, RMSEA = .051) with acceptable reliability (α = .809). The refinement of the self-esteem measure was guided by confirmatory factor analysis (CFA), which indicated that several items demonstrated low factor loadings (<.50) and inconsistent interpretation among Indonesian adolescents. These item were removed to improve construct clarity and cultural alignment., as some wording did not resonate with how adolescent in this cultural context typically conceptualise self-worth. Although this process resulted in a reduced set of items, the retained indicators sufficiently represented the theoretical essence of global self-evaluation and showed satisfactory psychometric performance. Previous evidence supports that shorter scales can maintain construct validity and reliability when the retained items capture the essential content of construct (Worthington & Whittaker, 2006).

Family function

The instrument used to assess family function was the Family Quality of Life by Summers et al. (2005). This scale consists of 26 items divided into four dimensions, namely family interaction (7 items), parenting (8 items), emotional well-being (6 items), and physical well-being (5 items). Respondents are asked to provide ratings on a scale from 1 (Very Dissatisfied) to 5 (Very Satisfied). All items are favourable. The higher the score, the better the perception of the family function. Conversely, the lower the score, the less functional the perception of the family. During the confirmatory factor analysis (CFA), three items with factor loadings below the recommended threshold of .50 were removed from the scale. The final 23-item version of the instrument demonstrated satisfactory model fit for assessing family function, as indicated by CFA results (CFI = .930, TLI = .920, SRMR = .038, RMSEA = .068) with acceptable reliability (α = .814). In this final version, the composition of the construct maintain four dimensions of the original version.

School climate

The scale used to assess school climate was the Delaware School Climate Survey-Student by Bear et al. (2011). This scale consists of 26 items divided into five dimensions, namely teacher-student relations (8 items), student-student relations (4 items), fairness of rules (5 items), school safety (3 items), and liking of school (6 items). Respondents are asked to provide ratings on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree). All items are favourable. The higher the score, the more positive the perception of the school climate. Conversely, the lower the score, the more negative the perception of the school climate. During the confirmatory factor analysis (CFA), four items with factor loadings below the recommended threshold of .50 were removed from the scale. The final 22-item version of the instrument demonstrated satisfactory model fit for assessing school climate, as indicated by CFA results (CFI = .965, TLI = .960, SRMR = .031, RMSEA = .048) with acceptable reliability (α = .823). In this final version, the composition of the construct maintain four dimensions of the original version.

Resilience

The questionnaire used to measure resilience was the Rugged Resilience Measure by Jefferies et al. (2022). This unidimensional scale consists of 12 statements. Participants are asked to provide ratings on a scale from 1 (Never) to 5 (Always). All items are favourable. The higher the total score obtained, the higher the resilience of the adolescents. Conversely, the lower the total score, the lower the resilience. During the confirmatory factor analysis (CFA), two items with factor loadings below the recommended threshold of .50 were removed from the scale. The final 10-item version of the instrument demonstrated satisfactory model fit for assessing resilience, as indicated by CFA results (CFI = .954, TLI = .941, SRMR = .031, RMSEA = .084) with acceptable reliability (α = .920).

Data analysis

The research instruments included explanations about the research objectives and instructions for completing each research instrument. After the data was collected, path analysis was conducted using the JAMOVI 2.3.28 program. The analysis involved 4 research variables, namely family function and school climate as independent variables, resilience as a mediator variable, and self-esteem as a dependent variable.

Results

Most of the participants were female (55.97%), from the 9th grade (36.97%), had experienced bullying since elementary school (71.19%), and lived with their parents (93.96%). The characteristics of the participants are described in Table 2.

Table 2. Participant characteristics.

	Descriptions	Frequency ($N = 1274$)	Percentage (%)
Gender	Male	561	44.03
	Female	713	55.97
Age	11 years	4	0.31
	12 years	142	11.15
	13 years	418	32.81
	14 years	428	33.60
	15 years	274	21.50
	16 years	8	0.63
Grade	7th Grade	420	32.97
	8th Grade	383	30.06
	9th Grade	471	36.97
First bullying experience	Kindergarten	95	7.46
	Elementary School	907	71.19
	Junior High School	272	21.35
Living with	Parent(s)	1197	93.96
	Relatives	74	5.81
	By oneself	3	0.23

Table 3. Correlation matrix of male and female participants.

		1	2	3	4
All participants	Self-esteem				
	Resilience	.276***			
	Family function	.248***	.566***		
	School climate	.219***	.465***	.477***	
Male	Self-esteem				
	Resilience	.227***			
	Family function	.218***	.608***		
	School climate	.214***	.503***	.560***	
	Mean	2.78	3.98	4.02	3.19
	SD	.76	.79	.78	.53
Female	Self-esteem				
	Resilience	.288***			
	Family function	.266***	.531***		
	School climate	.203***	.427***	.407***	
	Mean	2.35	3.83	3.95	3.12
	SD	.82	.77	.78	.52

N = 1274, *** = p < .001.

Table 4. Between-variable correlations.

		All participants	Male	Female
Direct Effect	Family Function – Self-esteem	.145**	.122	.178***
Mediator	Family Function – Resilience – Self-esteem	.082***	.069*	.082***
Direct Effect	School Climate – Self esteem	.039	.041	.027
Mediator	School Climate – Resilience – Self-esteem	.046***	.034	.047**

*** = p < .001; ** = p < .01; * = p < .05.

Table 3 shows the correlations between variables, revealing notable patterns across gender. The correlation between resilience and family function, was the strongest among all variables for both males (r = .608; p < .001) and females (r = .531; p < .001), while mean score comparisons indicated that female participants had lower scores among all variables.

Path analysis revealed distinct mechanism underlying the effects of family function and school climate on adolescent self-esteem. For family function, the effect on self-esteem was partially mediated by resilience, a pattern consistently observed in the full sample as well as in both male and female subgroups. By contrast, the effect of school climate on self-esteem was fully mediated through resilience, indicating that school climate exerted no direct influence on self-esteem once resilience was taken into account. This pattern was particularly evident among female participant (Table 4).

The role of family function in self-esteem with resilience mediation

When gender is not taken into account, family function contributes directly and positively to self-esteem (a = .145; p < .01). This means that when the family functions well, self-esteem is also high. However, when resilience is included as a mediator, the contribution of family function to self-esteem becomes smaller (b = .082; p < .001). This means that someone raised in a well-functioning family environment is likely to be more resilient, resulting in higher self-esteem, and conversely, someone raised in a poorly functioning family environment is likely to be less resilient, resulting in lower self-esteem. A similar tendency was found when gender was taken into account. Resilience partially mediated the effect of family function on self-esteem among female participants (b = .082; p < .001), while it fully mediated this relationship among male participants (b = .069; p < .05). This means that, specifically for male participants, family function only contributes to self-esteem when mediated by resilience, indicating that external factors alone are not sufficient to enhance self-esteem; and internal factors are needed to support the improvement of self-esteem.

The role of school climate in self-esteem with resilience mediation

When gender is not taken into account, the school climate does not contribute directly (a = .039; p > .05). This means that there is a possibility that there are other variables that influence the self-esteem of bullying victims. However, when resilience is included as a mediator, the contribution of the school climate to self-

esteem is greater *(b = .046; p < .001)*. This indicates that resilience can function as a full mediator in the role of school climate on self-esteem. This means that someone experiencing a supported school climate is likely to be more resilient, leading to higher self-esteem, and conversely, someone raised in a unsupportive school climate is likely to be less resilient, leading to lower self-esteem. A similar tendency was found when gender was taken into account. Resilience does not function as a mediator in the role of school climate in self-esteem for male participants *(b = .034; p > .05)* but can function as a full mediator for female participants *(b = .047; p < .01)*.

Family function showed a significant direct effect on self-esteem ($a = 0.145$, $p < .01$) and a significant indirect effect through resilience ($b = 0.082$, $p < .001$). The effect of school climate on self-esteem was mediated by resilience ($b = 0.046$, $p < .001$), such that higher school climate scores predicted greater resilience, which subsequently predicted higher self-esteem. The direct path from school climate to self-esteem was not statistically significant ($a = 0.039$, $p > .05$).

Family function showed a positive and statistically significant association with resilience ($b = 0.069$, $p < .001$). The path from school climate to resilience was positive but not statistically significant ($b = 0.034$, $p > .05$). Neither family function ($a = 0.122$, $p > .05$) nor school climate ($a = 0.041$, $p > .05$) showed a significant direct effect on self-esteem when resilience was included in the model.

Family function showed a positive and statistically significant direct effect on self-esteem ($a = 0.178$, $p < .001$) and a significant indirect effect through resilience ($b = 0.082$, $p < .001$). School climate was also significantly associated with resilience ($b = 0.047$, $p < .01$), which in turn predicted higher self-esteem. The direct path from school climate to self-esteem was positive but not statistically significant ($a = 0.027$, $p > .05$).

Discussion

This study examined the mediating role of resilience in the relationship between family function, school climate, and self-esteem among adolescents who have experienced bullying. Across the three tested models, a consistent pattern emerged in which resilience significantly mediated the association between family function and self-esteem, while the mediating role of resilience in the school-climate and self-esteem link showed variability. These findings extend the literature on adolescent self-esteem by integrating ecological and psychological perspectives, particularly in contexts of peer victimisation.

The findings of this study support previous research, which has established that low self-esteem is both a risk factor for and a consequence of bullying, influencing social relationships, mental health, and physical well-being (Agustiningsih et al., 2024; Mullan et al., 2023). The identity disruption model posits that negative experiences in the family, school, and broader environment can undermine identity development, including self-esteem, and consequently lead to poorer mental health (Hayward et al., 2020). Our results contribute to this model by demonstrating that resilience, defined as the capacity to adapt positively despite adversity, operates as a psychological mechanism through which family and, in certain models, school contexts influence self-esteem (Mahdiani & Ungar, 2021; Ostaszewski, 2020; Ungar & Theron, 2020). Consistently across all models, family function was a significant predictor of resilience, which in turn predicted higher self-esteem (Twum-Antwi et al., 2020).

The distinction between partial and full mediation in this study provides important theoretical insight into how resilience functions within different ecological systems. The partial mediation observed in the family pathway indicates that family functioning influences self-esteem both directly and indirectly through resilience. Theoretically, this dual process may occur because familial warmth and parental affirmation directly shape adolescent's internalised self-worth while simultaneously fostering resilient coping strategies that buffer against adversity (Dou et al., 2023). In contrast, the full mediation found in the school pathway suggests that school-related influences on self-esteem operate mainly through resilience, as positive school experience enhance adaptive coping rather than directly altering self-evaluation. This finding aligns with prior studies showing that adolescents who perceive strong familial support are more likely to develop adaptive coping resources, reducing the psychological toll of bullying (Plexousakis et al., 2019; Silva-Rocha et al., 2020; Zhang & Wang, 2020).

The findings further reflect the centrality of Indonesia's collectivist culture, which emphasises harmony and kinship, in shaping how adolescents derive self-worth and resilience from their social environments. Within this cultural context, the family is viewed as the primary source of emotional security and identity,
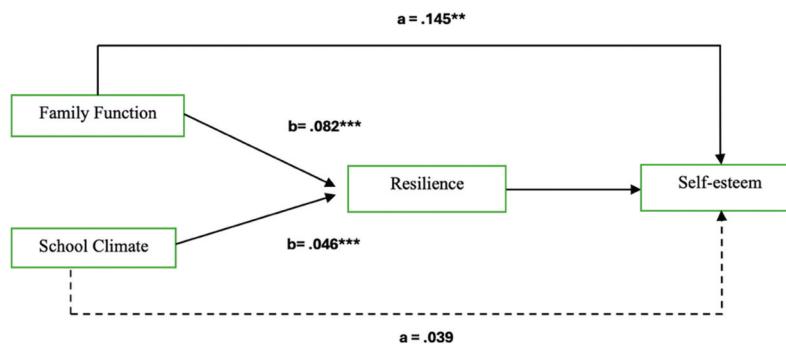
Figure 2. Model for all participants. → : Statistically significant. ⇢ : Not statistically significant.

helping adolescents maintain a positive sense of self-esteem. As demonstrated in the study, resilience, therefore, functions as a culturally congruent mechanism that enables individuals to sustain positive self-regard through relational adjustment and group belonging. This dynamic may explain why family functioning directly contributes to self-esteem, whereas school climate influences self-esteem primary through resilience, adolescents tent to rely on family based emotional support for self-definition, while school relationship strengthen adaptive coping within broader social networks.

In contrast, the role of school climate was less stable across models. In the first (See Figure 2) and third models (See Figure 3), school climate significantly predicted resilience, which subsequently predicted self-esteem. However, in the second model (See Figure 4), this pathway was not statistically significant. This variability suggests that the influence of school climate on self-esteem may depend on additional factors such as peer relationships, perceived safety, or teacher support (Coelho et al., 2020; Frazier et al., 2021; Grazia & Molinari, 2021; Manzano-Sanchez et al., 2021; Zhang et al., 2023). A positive school climate characterised by supportive teacher-student relationships, peer inclusivity, and a safe learning environment can foster
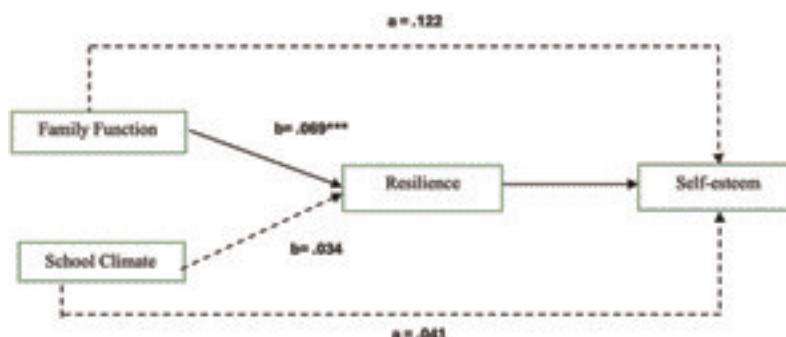
Figure 3. Model for male groups. → : Statistically significant. ⇢ : Not statistically significant.
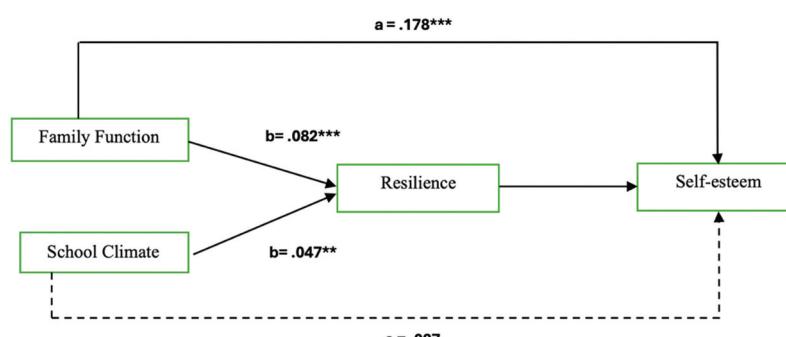

Figure 4. Model for female groups. → : Statistically significant. ⇢ : Not statistically significant.

resilience, enabling students to appraise themselves more positively despite adversity (Civitillo et al., 2021; Flores-Buils & Andrés-Roqueta, 2023; Tseliou & Ashfield-Watt, 2022; Twum-Antwi et al., 2020). However, without sufficient emotional safety and belonging, the capacity of school climate to influence self-esteem may be diminished.

Among male adolescents, family function significantly predicted resilience, which in turn enhanced self-esteem, whereas school climate showed no significant effects. This suggests that male adolescents derive their resilience primarily from family resources, consistent with evidence that they are less likely to rely on school-based emotional support (Jefferies et al., 2022). This gender difference observed in this study can be further interpreted through the lens of gender socialisation and cultural norms in Indonesia. Traditional expectations often encourage males to exhibit independence, emotional restraint, and achievement orientation, which may limit the relevance of relational contexts such as school climate for their self-worth (Guerrero-Molina et al., 2020). In contrast, among female adolescents, both family function and school climate significantly predicted resilience, which subsequently increased self-esteem. Family function also retained a direct effect on self-esteem, reflecting partial mediation. This pattern aligns with prior research indicating that girls place greater emphasis on relational support in both family and school contexts (Markus et al., 2022). Females are typically socialised to value relational connectedness and interpersonal harmony, making them more responsive to supportive social environments (Erika et al., 2017). Overall, these findings underscore resilience as a key protective factor against the psychological impacts of bullying (Mahdiani & Ungar, 2021; Ran et al., 2020; Ungar & Theron, 2020), while also highlighting gender-specific pathways in how family and school environments contribute to resilience and self-esteem.

From a theoretical standpoint, these findings support the protective factor model of resilience (Mahdiani & Ungar, 2021), which emphasises the role of supportive ecological systems in fostering resilience that buffers against negative psychological outcomes. The gender differences observed suggest that resilience processes are not uniform, but rather shaped by differential access to and valuation of social resources across genders. In practical terms, the results suggest that interventions for bullying victims should be gender-responsive (Mullan et al., 2023). For males, family-focused strategies such as enhancing communication, emotional support, and stability may be more effective in building resilience and self-esteem. For females, interventions should address both family and school contexts, with school-based initiatives aimed at strengthening teacher-student relationships, promoting peer inclusivity, and preventing relational bullying. Overall, these findings contribute to a more culturally grounded understanding of adolescent development by showing that resilience functions differently across relational systems. The collectivist contexts emphasising that self-esteem is sustained not only by individual mastery but also by relational stability and adaptive coping.

Practically, the result suggest that intervention aiming to enhance adolescents' self-esteem should integrate resilience training with family and school engagement, considering gender and cultural dynamics as central design components. Several limitations should be acknowledged in interpreting the findings of this study. Some items from the measurement instruments were removed during confirmatory factor analysis to improve model fit and cultural relevance. Although these refinements enhanced reliability, they may have slightly reduced the completeness of the constructs and limited cross-cultural comparability with the original versions. In addition, the use of a cross-sectional design restricts causal interpretation, while reliance on self-report measures may have introduced response biases, including social desirability bias. Future research could address these issues by employing longitudinal or mixed-method designs, incorporating teacher or parent reports, and further validating the adapted instruments across diverse samples to enhance generalisability and construct robustness.

Conclusion

This study found that resilience acts as a full mediator in the influence of school climate on self-esteem, and as a partial mediator in the influence of family function on self-esteem. In male participants, resilience functions as a full mediator in the role of family function in self-esteem, whereas it does not play a role in influence of school climate. Interestingly in female participants, resilience functions as a partial mediator in the role of family function in self-esteem, while for school climate, it acts as a full mediator. In practical terms, the results of this research can encourage parents to build warm and open interactions with their children,

thereby enhancing their self-esteem. This research also recommends that schools develop anti-bullying interventions by incorporating support for student resilience when facing bullying incidents and creating a positive school atmosphere.

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Disclosure statement

Data availability statement

The anonymised data from this study are available from the corresponding authors on reasonable request.

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