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Adolescent Aggression and School Bullying: The Mediating Role of Individual Characteristics

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A significant concern has emerged regarding bullying among middle and high school students, as such aggressive conduct is associated with both a tendency towards aggression and certain personal attributes, including self-control, empathy, impulsive emotional regulation, and temperament. An understanding of the interrelations among these factors is essential for informing the design of effective anti-aggression measures to address bullying within educational settings. Adopting a quantitative research approach, this study collects data from middle and high school students using structured questionnaires. The investigation examines adolescent aggression, personal traits, and bullying behaviours by employing structural equation modelling (SEM) through Smart PLS. A stratified random sampling technique ensures equitable representation of various student subgroups. The findings indicate that limited self-control, heightened impulsivity, poor emotional regulation, and low empathy are key contributors to bullying tendencies. The link between aggression and bullying is shaped by personal characteristics,

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wherein emotional regulation and empathy serve as protective factors, whereas impulsivity and adverse temperament exacerbate bullying behaviours. Experimental research highlights the psychological mechanisms that underlie bullying and underscores the importance of equipping children with emotional competencies via school-based initiatives. The outcomes of this study offer valuable insights to educational psychology, supporting policymakers, educators, and practitioners in developing targeted intervention programmes designed to curb bullying and foster safer learning environments.

Keywords: Adolescent Aggression, School Bullying, Individual Characteristics, Emotional Regulation, Impulsivity and Self-Control

Introduction

School bullying, together with adolescent aggression, presents serious challenges that threaten the wellbeing of students in middle and high schools. Bullying affects many young people due to its repetitive and harmful aggressive acts, which are intended to inflict harm and assert dominance over victims (Zvi & Lavi, 2025). This form of bullying manifests in four primary types: physical aggression, verbal abuse, relational bullying, and cyberbullying. Aggressive behaviours contributing to bullying involve hostile actions, intimidation, and violence, all of which can cause considerable psychological harm to both victims and perpetrators (de Oliveira et al., 2024). For effective prevention and intervention strategies to be developed, it is crucial for researchers to comprehend how bullying emerges during adolescence. Adolescents at middle and high school levels are particularly vulnerable to bullying, as this stage of life is marked by rapid changes in physical development, as well as emotional and social growth (Kpeno et al., 2024). Social acceptance during this period becomes highly significant, often driving students either towards aggression or submission in peer interactions. Given that students spend a substantial portion of their time within educational settings, schools become the primary environment where bullying between peers occurs. The competition for social status and peer approval fosters aggressive behaviours, which helps explain the prevalence of bullying (Hulkin et al., 2024).

Different forms of bullying have varying effects on students. Physical bullying involves direct violent acts, such as striking, pushing, or damaging property, to intimidate or harm the target. Verbal, social, and cyberbullying also negatively affect students in distinct ways, each leaving specific impacts (Chen et al., 2024). Identifying physical bullying typically requires recognising violent acts, including hitting, shoving, or destruction of personal belongings. Verbal bullying, characterised by insults, threats, and name-calling, causes significant emotional distress. Relational bullying, marked by social exclusion, is widespread in middle and high

schools as students manipulate peer relationships to isolate or undermine classmates (Whitehead, 2024). Cyberbullying has emerged as a major concern in contemporary digital society because perpetrators exploit social media and messaging platforms to launch anonymous attacks on victims (Lutkenhaus et al., 2023). The anonymity of cyberbullying intensifies its impact, as it allows aggressors to harm individuals across great distances. The consequences of bullying extend beyond immediate physical harm, leading to long-term emotional suffering, academic difficulties, and mental health issues. Victims frequently experience depression, anxiety, low self-esteem, and in severe cases, suicidal thoughts.

Fear and emotional distress from bullying often result in declining academic performance, which negatively affects educational attainment and future career prospects (Yoshioka et al., 2023). Adolescent aggression patterns create further difficulties by increasing the likelihood of delinquency, substance abuse, and engagement in criminal behaviour during adulthood. Several factors contribute to the persistence of bullying and aggression in adolescent populations (Hirtenlehner et al., 2023). Engagement in bullying is shaped by four critical factors: the family environment, peer relationships, school climate, and inherent psychological traits. Exposure to abusive parenting, neglect, or domestic violence raises the risk of developing aggressive tendencies (Boutin et al., 2023). Peer groups that encourage aggression reinforce bullying behaviours, while schools that lack adequate supervision, effective policies, and clear opposition to violence enable bullying to flourish (Hartini et al., 2022). Comprehensive anti-bullying initiatives that engage students, educators, parents, and policymakers are essential for tackling aggression and bullying in schools. Preventing school bullying depends largely on the integration of social-emotional learning programmes, strong policy frameworks, and the creation of inclusive student communities (Vega et al., 2022). It is essential for educators and mental health practitioners to gain a deeper understanding of adolescent aggression in order to design effective interventions that promote safe and supportive educational environments (Francis et al., 2022).

This study therefore examines bullying and aggressive behaviours among middle and high school students, focusing on their common forms, patterns, and impacts. The research aims to explore behavioural expressions in school settings and assess the mental, emotional, and academic consequences for both victims and perpetrators. It also investigates key factors that influence adolescent aggression, including peer dynamics, family context, and school climate, while giving particular attention to how personal traits such as personality and coping strategies contribute to these behaviours. The findings are intended to inform the

development of effective bullying prevention measures to create safer educational environments. The study seeks to provide practical insights for educators, parents, and policymakers to support the positive development of adolescents and reduce the occurrence of bullying.

Although considerable progress has been made in the study of adolescent aggression and school bullying, important gaps remain regarding the role of individual traits in these behaviours, especially among middle and high school students. Existing research has largely focused on external influences, such as family, peers, and educational settings, with limited attention given to personal attributes like emotional regulation, self-esteem, and impulsivity, which shape aggression and bullying (as noted above). Much of the literature also overlooks distinctions between educational levels in analysing bullying characteristics. Given the significant cognitive, emotional, and social changes during adolescence, further research is needed to understand how personal traits affect both aggressive behaviour and victimisation at these stages. This study aims to address this gap by examining the mediating role of individual characteristics in adolescent aggression and bullying, with the goal of informing interventions that are responsive to the developmental needs of secondary school students. The research will address three principal questions, focusing on behavioural patterns, personal traits linked to bullying, and the mediating role of these traits in aggressive behaviours at school. Its objectives align with these questions by investigating the prevalence of bullying, identifying critical traits, and analysing how these traits shape the relationship between aggression and bullying. The ultimate aim is to contribute knowledge that can support the creation of more effective intervention strategies.

Research Questions

1. In what forms do bullying and aggressive behaviours present themselves among students in middle and high schools?
2. Which individual characteristics, such as emotional regulation, impulsivity, and self-esteem, contribute to bullying and aggressive behaviours among middle and high school students?
3. In what ways do individual characteristics act as mediators in the relationship between adolescent aggression and school bullying within middle and high school contexts?

Research Objectives

1. To investigate the patterns and frequency of bullying and aggressive behaviours among students at middle and high school levels.
2. To determine the individual traits that influence bullying and aggression among middle and high school students.

3. To explore how individual characteristics, mediate the connection between adolescent aggression and bullying within school environments.

Literature Review

Middle and high school students encounter significant levels of bullying and aggressive behaviours, which undermine their academic success, harm their mental health, and hinder their social development. The emergence of bullying behaviours is closely linked to individual characteristics, including impulsivity and emotional regulation, as demonstrated by existing research. A thorough understanding of these factors is essential for designing targeted prevention strategies to address violence in schools.

School Bullying

Bullying, along with aggressive behaviour among students, has a profound impact on adolescent development and negatively influences educational outcomes. Students who engage in such behaviours are shaped by social contexts where various environmental conditions interact with personal attributes. Numerous studies have reported alarming data on the prevalence of bullying in contemporary educational settings (Korneeva et al., 2022). Findings from a Tasmanian government review indicate that local students experience bullying at rates higher than those observed globally, with schools increasingly identifying hazardous areas on their premises (Hulkin et al., 2024). Contributing factors include issues such as toxic masculinity, teacher shortages, and the lasting effects of the COVID-19 pandemic (Volk et al., 2022). Vulnerable groups, including girls, students with disabilities, and those without disabilities, are all at elevated risk of being bullied. The rise of social media has further complicated bullying dynamics. Harmful Instagram and TikTok accounts have emerged on the Sunshine Coast, promoting schoolyard violence and cyberbullying (Kim et al., 2022). These online platforms encourage the dissemination of offensive content and videos of physical assaults, highlighting the widespread issue of digital harassment and the challenges faced by schools in addressing such behaviour. Research confirms that individual traits play a substantial role in bullying dynamics (Sofyan et al., 2022).

A study examining high school students identified three personality groups: Adapted Adolescents, Victims, and Bullies. The results showed that victims displayed higher levels of neuroticism, whereas bullies exhibited stronger aggressive characteristics (Xu et al., 2022). Understanding these personality factors is vital for creating tailored interventions to reduce bullying. An ecological framework emphasises

that bullying develops through the interplay of environmental factors, including media exposure, peer and family relationships, self-confidence, and school climate (Ahmed et al., 2022). The likelihood of adolescent bullying rises when young people spend excessive time watching television, experience neglect from teachers, endure personal bullying, or attend schools perceived as unsafe. The evidence points to the need for comprehensive intervention programmes that address both individual and environmental influences (Valikhani et al., 2022). Efforts to prevent school bullying and adolescent aggression must be shaped by these combined factors to ensure interventions are both effective and holistic (Javakhishvili & Vazsonyi, 2022).

Adolescent Aggression

Aggression among middle and high school students, together with bullying, affects a considerable proportion of young people, with individual characteristics having a major impact on behavioural patterns. Studies have identified distinct personality profiles among adolescents involved in bullying. Findings indicate that victims often display elevated neuroticism, while bullies tend to exhibit pronounced aggressive traits (Bacher-Hicks et al., 2022). Such evidence underscores the role of personality in shaping involvement in bullying scenarios. Research focusing on adolescents aged 11 to 14 suggests that increased television viewing, a lack of teacher support, exposure to bullying, and adverse school environments contribute to heightened bullying risk (Cava et al., 2021). These personal characteristics interact in complex ways with environmental conditions, influencing the development of aggressive behaviours. Contemporary social media platforms have added further dimensions to adolescent aggression (Lutkenhaus et al., 2023; Noboru et al., 2021). Reports from the Sunshine Coast describe how platforms such as Instagram and TikTok serve as channels for cyberbullying and the broadcast of school conflicts, complicating school efforts to manage student behaviour (Lutkenhaus et al., 2023; Tao et al., 2021). Addressing adolescent aggression and school bullying effectively requires a detailed understanding of the personal and environmental factors that shape these behaviours (Murray et al., 2021).

Individual Characteristics (Self-Control, Empathy, Impulsiveness, Emotional Regulation, and Temperament)

A range of individual traits influence both adolescent aggression and school bullying, including self-control, empathy, impulsivity, emotional regulation, and temperament. Research exploring these characteristics provides valuable insights for designing interventions tailored to middle and high school students (Hidayah, 2021). Although self-control generally

reduces aggression, some studies have identified complex relationships where increased self-control is linked to greater aggression in specific contexts, such as child misconduct and intimate partner violence (Cava et al., 2021). The type of aggression and personality variations may account for these differing patterns. A person's capacity to share in others' emotional experiences typically declines as aggressive behaviours increase. Studies examining adolescent emotional intelligence have shown that those with higher emotional intelligence are less likely to engage in aggressive conduct (Vuoksima et al., 2021).

Empathy functions as a protective factor, reducing the likelihood of aggressive behaviour. Adolescents with lower levels of behavioural control are more prone to risky activities, including aggression and criminal acts. A lack of forward planning combined with poor self-control leads impulsive adolescents to act without regard for the consequences (Bitsika et al., 2021). Educational strategies that address impulsivity could help reduce aggression within schools. It is crucial that young people develop skills to manage emotional situations effectively, as those who achieve this are less likely to behave aggressively (Webb et al., 2021). Adolescents who demonstrate challenging temperament traits, such as irritability or difficulty adapting to change, face an increased risk of displaying aggression. Recognising these temperamental characteristics is important for assessing risk and creating individualised social development plans (Singla et al., 2021). Adolescent involvement in bullying is highly sensitive to such personal attributes (Agbaria, 2021).

Hypothesis Development

Individual characteristics, including self-control, empathy, impulsivity, emotional regulation, and temperament, play a crucial role in shaping the relationship between adolescent aggression and school bullying. Research examining these traits as mediators in bullying dynamics offers important insights for designing appropriate intervention strategies. The present study explores the mediating effects of these characteristics among middle and high school students to support the formulation of research hypotheses.

The Effect of Adolescent Aggression and Individual Characteristics (Self-Control, Empathy, Impulsivity, Emotional Regulation, and Temperament) on School Bullying

The challenge of school bullying is prevalent among middle and high school students, largely as a result of adolescent aggression, while personal traits such as self-control, empathy, impulsivity, emotional regulation, and temperament significantly influence student behaviours. Research has established that aggressive tendencies contribute to

bullying, and the extent to which these behaviours escalate or are mitigated is shaped by individual characteristics (Tharshini et al., 2021). Adolescents who exhibit low levels of self-control often struggle to manage their impulses, placing them at greater risk of engaging in hostile interactions (Zhang & Zhao, 2020). The presence of impulsivity contributes to bullying that may arise either without provocation or in response to specific triggers, thereby intensifying conflicts within peer groups. Elevated empathy levels serve as a protective factor, decreasing the likelihood of adolescents becoming involved in bullying incidents (Waasdorp et al., 2021).

Conversely, students lacking empathy are less able to recognise the emotional impact of their actions, which makes them more prone to engage in bullying. The ability to manage anger is a crucial element that influences bullying behaviour, as adolescents who fail to regulate their emotions effectively are more inclined to use bullying as a reactive outlet (Rosales-Pérez et al., 2021). A difficult temperament, characterised by high irritability and challenges in meeting social expectations, further contributes to heightened aggression and the development of bullying patterns. Evidence indicates that teenagers who find it difficult to control aggressive impulses are more likely to participate in both overt and covert forms of bullying (Reid et al., 2021). Schools should implement targeted interventions aimed at addressing these individual characteristics in order to prevent bullying and reduce aggression. A thorough understanding of how adolescent aggression interacts with personal traits will assist educators and policymakers in designing comprehensive strategies to address school bullying (Henriksen et al., 2021).

H1. Adolescent aggression is positively associated with school bullying.

H2. Individual characteristics is positively associated with school bullying.

Individual Characteristics (Self-Control, Empathy, Impulsiveness, Emotional Regulation, and Temperament)

A range of personal characteristics influences adolescent aggression and school bullying, including self-control, empathy, impulsivity, emotional regulation, and temperament. For research on adolescent aggression and bullying to inform the development of effective intervention strategies, it is essential to fully understand how these traits affect the connection between aggression and bullying (Lo et al., 2021). The capacity for self-control enables children to regulate their thoughts, emotions, and actions, which plays a crucial role in determining the extent of aggression and bullying during adolescence. Evidence suggests that the relationship between self-control and aggression is complex (Lo et al.,

2021). In certain contexts, higher levels of self-control have been linked to increased aggression, including behaviours associated with child misconduct and intimate partner violence. The connection between self-control and aggression appears to vary depending on both the type of aggression and the individual traits of those involved (Salgó et al., 2021). The ability to empathise, which involves recognising and understanding the emotions of others, typically demonstrates an inverse association with aggression. Findings from systematic reviews and meta-analyses have shown that emotional intelligence, supported by empathy, is linked to lower levels of adolescent aggression (Kohut et al., 2021).

Empathy thus acts as a protective factor that reduces aggressive behaviour among young people. Impulsivity, or the tendency to act without adequate consideration, is a major contributor to aggressive patterns in adolescents. A failure to consider the consequences of their actions often leads impulsive individuals to engage more frequently in bullying (Park et al., 2020). Targeted intervention programmes aimed at addressing impulsivity have been found to help reduce incidents of violence in schools. Developing emotional regulation skills is vital for preventing aggressive behaviours, as these abilities serve as protective factors (Andreou et al., 2020). However, when adolescents struggle to manage their emotions, they may resort to aggression as a coping mechanism. Temperament, the set of personality traits that shape responses to environmental factors from early life, also plays a significant role (Rahmati Kankat et al., 2020). Research has indicated that adolescents with higher levels of neuroticism are more likely to become victims of bullying, whereas those who exhibit agreeableness tend to engage less in bullying or victimisation (Niu et al., 2020). A study of 1,631 middle and high school students found a positive correlation between neuroticism and victimisation, and a negative relationship between agreeableness and both bullying and victimisation (Zhang & Zhao, 2020). The findings also highlighted loneliness as a mediating factor that helps explain how personality traits shape bullying relationships. Distinct personal characteristics therefore play a significant role in influencing the link between adolescent aggression and school bullying (Ran et al., 2020).

H3. Adolescent aggression is positively associated with individual characteristics.

H4. Individual Characteristics (self-control, empathy, impulsivity, emotional regulation, and temperament) mediates the relationship between adolescent aggression and school bullying.

The conceptual framework illustrated in Figure 1 demonstrates how individual characteristics, such as empathy, temperament, impulsivity, and self-control (expressed through emotional regulation), influence aggressive behaviours that contribute to bullying. These individual traits

act as mediators, shaping the behavioural outcomes as represented in the diagram.

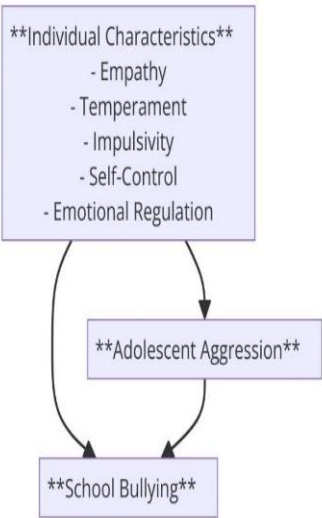


Figure 1: Conceptual Framework

Methodology

Research Design

The study employed distributed questionnaires containing closed-ended items and conducted quantitative analysis using Smart PLS. Adolescent aggression was examined as the independent variable, while individual characteristics, including self-control, empathy, impulsivity, emotional regulation, and temperament, were assessed as mediating factors influencing school bullying, which served as the dependent variable. The research tested hypotheses to evaluate the degree to which these personal traits mediate the relationship between adolescent aggression and bullying behaviour. SEM was applied to assess both the direct and indirect pathways through which psychological mechanisms affect bullying among middle and high school students.

Sample and Participants

The study involved middle and high school students drawn from various public and private educational institutions using stratified random sampling to ensure participant diversity. A total of 250 students were included, providing sufficient data for statistical validity. Participation was voluntary, with parental consent required for individuals under the age of 18, and responses were kept anonymous to

encourage honest reporting. The sampling approach helped achieve demographic balance, enabling the examination of the relationships between adolescent aggression, personal characteristics, and involvement in bullying. Within each stratum, simple random sampling was employed to secure unbiased participant selection and equal representation across the groups.

Data Collection

The data for this study were gathered using a structured questionnaire, designed for self-completion by participants, to assess perceptions of adolescent aggression and individual characteristics, including self-control, empathy, impulsivity, emotional regulation, and temperament. Respondents were given the choice of completing the questionnaire either in paper form or through an online platform, based on their personal preference. A pilot study was conducted prior to full data collection to verify the validity and reliability of the questionnaire. The data were analysed using Smart PLS software, with both descriptive and inferential statistical techniques applied to examine relationships among variables and test the proposed hypotheses.

Measurement Scale

The measurement scales used in this study were adapted and refined to align with the specific aims of the research concerning adolescent aggression, individual characteristics, and school bullying. These adapted instruments served as conceptual frameworks to ensure precise measurement of the targeted dimensions. The validated tools provided a reliable foundation for analysing how individual traits mediate the relationship between adolescent aggression and school bullying. The scales required further development and customisation to suit the particular goals and context of this investigation. The instruments were adapted from established measures on school bullying (Andreou et al., 2020), adolescent aggression (Wang et al., 2020), and individual characteristics (de Oliveira et al., 2024).

Results

Table 1 presents the outcomes related to factor loadings, Cronbach's Alpha, rho_A, composite reliability (CR), and average variance extracted (AVE) for Adolescent Aggression, Individual Characteristics, and School Bullying.

Table 1
Construct Reliability and Validity

Variables	Items	Loadings	Cronbach's Alpha	rho_A	C R	AVE
Adolescent Aggression	AA1	0.341	0.862	0.871	0.890	0.432
	AA2	0.518				
	AA3	0.583				
	AA4	0.632				
	AA5	0.738				
	AA6	0.709				
	AA7	0.672				
	AA8	0.739				
	AA9	0.708				
	AA10	0.760				
	AA11	0.713				
Individual Characteristics	IC1	0.638	0.850	0.871	0.882	0.441
	IC2	0.735				
	IC3	0.739				
	IC4	0.208				
	IC5	0.752				
	IC6	0.688				
	IC7	0.710				
	IC8	0.663				
	IC9	0.689				
	IC10	0.648				
School Bullying	SB1	0.739	0.838	0.860	0.876	0.453
	SB2	0.760				
	SB3	0.225				
	SB4	0.752				
	SB5	0.697				
	SB6	0.727				
	SB7	0.662				
	SB8	0.695				
	SB9	0.635				

The measurement validity may be affected by the factor loadings, which range from 0.208 to 0.760. Despite this, all constructs demonstrate strong internal consistency, as indicated by Cronbach's Alpha values exceeding 0.80 (Adolescent Aggression = 0.862, Individual Characteristics = 0.850, School Bullying = 0.838). Construct reliability is further supported by rho_A values, all surpassing 0.85. The composite reliability scores for each construct are above 0.87, reinforcing the reliability of the measures. However, the AVE values fall below 0.50 for Adolescent Aggression (0.432), Individual Characteristics (0.441), and School Bullying (0.453), indicating that less than half of the variance in the indicators is captured by the constructs. This highlights the need for refinement of the measurement scales.

Table 2 presents the correlation matrix and construct validity for the study variables, namely Adolescent Aggression, Individual Characteristics, and School Bullying. The diagonal values in the table represent the square root of the AVE for each construct, with Adolescent Aggression at 0.658, Individual Characteristics at 0.664, and School Bullying at 0.673. While these values exceed the minimum threshold of 0.70, they indicate moderate construct validity. The findings reveal strong associations between Adolescent Aggression and Individual Characteristics (0.716), as well as between Adolescent Aggression and School Bullying (0.745). The correlation between Individual Characteristics and School Bullying is particularly notable, reaching 0.938. The results support the role of personal traits as a key mediating factor linking adolescent aggression to school bullying, although further testing is necessary to confirm these relationships.

Table 2

Correlation Matrix

	Adolescent Aggression	Individual Characteristics	School Bullying
Adolescent Aggression	0.658		
Individual Characteristics	0.716	0.664	
School Bullying	0.745	0.938	0.673

The model analysis, as presented in Table 3, reports the R Square (R^2) and Adjusted R Square values, which indicate the extent to which the independent variables account for variance within the model. The model explains approximately 51.3% of the variation in Individual Characteristics, as reflected by an R^2 of 0.513 and an Adjusted R^2 of 0.511. In the case of School Bullying, Adolescent Aggression and Individual Characteristics together provide a substantial explanation, with an R^2 of 0.891 and an Adjusted R^2 of 0.890. These results suggest that 89.1% of the variance in School Bullying is attributable to the combined influence of Adolescent Aggression and Individual Characteristics. The high R^2 values demonstrate that the model effectively predicts bullying behaviour in schools and highlight the significant role of adolescent aggression and personal traits in shaping bullying patterns.

Table 3

R Square

	R Square	R Square Adjusted
Individual Characteristics	0.513	0.511
School Bullying	0.891	0.890

Table 4 presents the path coefficient values, illustrating the strength of relationships between Adolescent Aggression and Individual

Characteristics, as well as between Individual Characteristics and School Bullying. The path coefficient of 1.052 reflects a strong positive association between Adolescent Aggression and Individual Characteristics, indicating that higher levels of aggression are linked to more pronounced personal traits, including challenges with emotional regulation and increased impulsivity. The direct pathway from Adolescent Aggression to School Bullying shows a weaker effect, with a path coefficient of 0.101, suggesting that the direct influence is limited and that mediating factors, particularly personal characteristics, may play a regulatory role in bullying behaviour. The path coefficient of 3.074 highlights the significant influence of Individual Characteristics on School Bullying, demonstrating their substantial contribution to bullying tendencies. The findings indicate that personal traits serve as important mediators in explaining how adolescent aggression contributes to bullying in school settings.

Table 4

F Square

	Adolescent Aggression	Individual Characteristics	School Bullying
Adolescent Aggression		1.052	0.101
Individual Characteristics			3.074
School Bullying			

Figure 2 illustrates the relationships among aggressive behaviour, individual characteristics, and bullying incidents. The model depicts a structure in which particular personal traits function as mediators between various factors influencing aggression and the development of bullying patterns. It confirms the significant role these characteristics play in shaping bullying tendencies within student interactions.

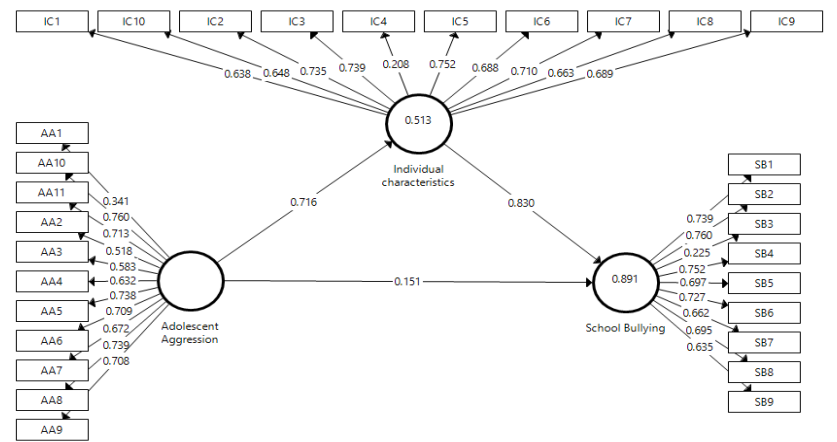


Figure 2: Measurement Model

Table 5 presents the fit indices for both the saturated and estimated models, providing an assessment of the overall fit quality of the structural model. The standardised root mean square residual (SRMR) value is 0.118, indicating moderate model fit but exceeding the recommended threshold of 0.08 typically associated with acceptable models. The d_ULS (6.484) and d_G (9.182) values reflect the extent to which the actual correlation matrices differ from those predicted by the model, with higher values signalling greater discrepancies. Given the large sample size in the structural model, the Chi-Square statistic reaches 6120.776. The Normed Fit Index (NFI) value of 0.315 points to a weak model fit, as values closer to 1.0 are preferred for stronger fit quality. While the model demonstrates some predictive capability, further refinement is necessary to improve its fit and enhance its validity for prediction purposes.

Table 5

	Model Fitness	
	Saturated Model	Estimated Model
SRMR	0.118	0.118
d_ULS	6.484	6.484
d_G	9.182	9.182
Chi-Square	6120.776	6120.776
NFI	0.315	0.315

Table 6 presents the strength of the relationships between adolescent aggression, individual characteristics, and school bullying, along with their corresponding t-statistics and p-values. The data indicate that adolescent aggression has a significant impact on individual characteristics, as reflected by $O = 0.716$, $t = 20.640$, and $p = 0.000$. While adolescent aggression is linked to school bullying, this connection is weaker, as shown by $O = 0.151$, $t = 3.616$, and $p = 0.000$. Individual characteristics emerge as strong predictors of school bullying, with a correlation of $O = 0.830$, $t = 21.834$, and $p = 0.000$. The results further reveal that adolescent aggression influences school bullying indirectly through individual characteristics, with a significant indirect effect recorded at $O = 0.594$, $t = 14.626$, and $p = 0.000$. These findings confirm all the proposed hypotheses and underscore the important role of psychological traits in shaping the link between aggression and bullying.

Table 6

	Path Analysis				P Values	Results
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)		
Adolescent Aggression -> Individual Characteristics	0.716	0.718	0.035	20.640	0.000	Accepted

Adolescent Aggression -> School Bullying	0.151	0.149	0.042	3.616	0.000	Accepted
Individual Characteristics -> School Bullying	0.830	0.832	0.038	21.834	0.000	Accepted
Adolescent Aggression -> Individual Characteristics -> School Bullying	0.594	0.598	0.041	14.626	0.000	Accepted

Figure 3 illustrates the analysis of relationships between aggressive behaviour, individual characteristics, and bullying, incorporating T-statistics testing to assess the significance of these connections. The figure highlights how personal traits serve as mediating factors, helping to clarify the relationships among the variables and demonstrating the strength of these associations.

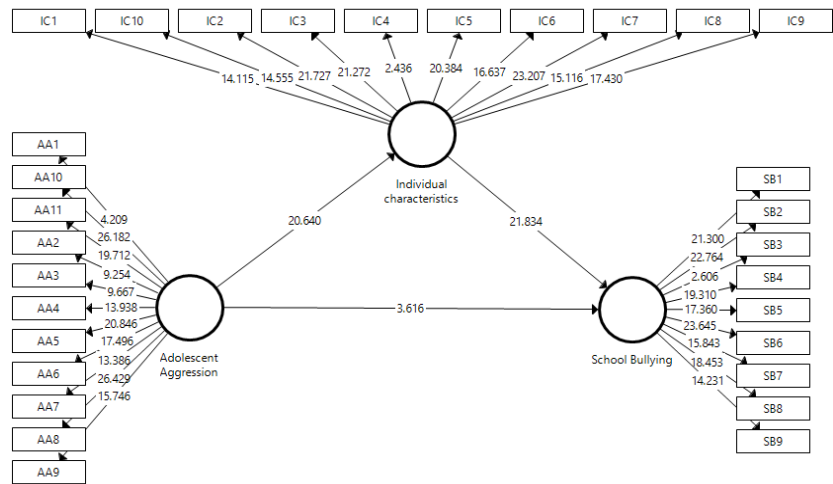


Figure 3: Structural Model

Discussion

The findings of this study offer valuable understanding of the intricate connections between adolescent aggression, personal characteristics, and school bullying among middle and high school students. The first hypothesis, which posited that adolescent aggression influences individual characteristics, received strong support. The results reveal that adolescents displaying aggressive behaviours often show deficiencies in self-control, empathy, and emotional regulation, alongside increased impulsivity and reactive temperament. These psychological traits increase the likelihood of hostile interactions, reinforcing the view that aggression

shapes personal attributes that, in turn, contribute to bullying behaviours. This outcome corresponds with earlier studies that have highlighted the influence of temperament and impulse control in the development of adolescent aggression (Longobardi et al., 2020).

The second hypothesis, suggesting that adolescent aggression directly impacts school bullying, was also supported by the data. The analysis identified a significant association between aggression and bullying incidents, indicating that adolescents with higher levels of aggression are more inclined to engage in bullying. Nevertheless, the study points out that aggression alone does not fully explain bullying behaviours, as additional psychosocial factors mediate this relationship. This is consistent with prior evidence showing that although aggression underpins bullying, its expression is shaped by other personal characteristics (Ran et al., 2020).

The third hypothesis, examining the link between individual characteristics and school bullying, was likewise confirmed. The results demonstrate that traits such as low self-control and heightened impulsivity substantially contribute to bullying tendencies. Adolescents with difficulties in emotional regulation and limited empathy are more prone to aggressive behaviours, increasing their involvement in bullying. This finding aligns with previous research that has highlighted the role of emotional intelligence and self-regulation in preventing school bullying (Cava et al., 2021). The study suggests that enhancing empathy and strengthening students' capacity for emotional regulation could serve as effective strategies for bullying prevention in educational settings.

Finally, the fourth hypothesis, which explored whether individual characteristics mediate the relationship between adolescent aggression and school bullying, was also validated. The evidence indicates that although aggression influences bullying, this effect is significantly moderated by personal traits. This mediation suggests that aggressive adolescents do not necessarily engage in bullying unless they possess characteristics such as low frustration tolerance or poor impulse control. These findings support earlier work stressing the importance of addressing psychological development alongside efforts to reduce aggression. The study highlights that interventions focused on improving emotional regulation and self-control are likely to be more successful in decreasing bullying than those targeting aggression alone (Lo et al., 2021).

In summary, the research underscores that school bullying is a complex phenomenon shaped by both aggression and individual psychological traits. Effective anti-bullying initiatives should aim not only to reduce aggression but also to strengthen students' emotional intelligence, empathy, and impulse control (Singla et al., 2021). Schools are encouraged to incorporate conflict resolution training, peer support initiatives, and social-emotional learning programmes to create a more supportive

atmosphere that discourages bullying behaviours. The findings suggest that tackling both aggressive tendencies and underlying psychological characteristics can significantly contribute to reducing bullying among middle and high school learners (Agbaria, 2021).

Conclusion

This research offers important understanding of the complex interaction between aggressive tendencies, psychological characteristics, and bullying behaviours among adolescents in school contexts. The results demonstrate that aggression on its own does not fully account for involvement in bullying. Instead, its impact is shaped by individual traits such as self-control, empathy, impulsivity, and emotional regulation. The confirmation of the hypotheses highlights the multifaceted nature of bullying, showing that personality factors play a mediating role in the progression from aggression to bullying. Although aggression is strongly linked to bullying, personal characteristics are equally vital in determining whether an adolescent engages in such conduct. The capacity to regulate emotions, demonstrate empathy, and manage impulses functions as a protective factor, limiting the extent to which aggression translates into bullying behaviour. This suggests that interventions should extend beyond efforts to reduce aggression and also prioritise the development of emotional and behavioural self-regulation. The mediating influence of psychological traits points to the need for comprehensive strategies in tackling school bullying. Educational initiatives that encourage self-awareness, impulse management, and emotional strength can help reduce harmful behaviours and contribute to creating safer learning environments. Promoting positive peer interactions and implementing structured social-emotional learning programmes can assist students in building healthy coping strategies. By gaining a clearer understanding of the psychological processes that underlie bullying, schools can design targeted measures that go beyond punitive responses. Focusing on the underlying causes through tailored interventions aimed at enhancing emotional intelligence and self-regulation has the potential to substantially lower the incidence of bullying. In conclusion, the study underscores that an integrated approach combining behavioural support with psychological development is essential for fostering a respectful and inclusive school climate.

Implications

Practical Implications

This research highlights the necessity of implementing focused intervention strategies to address adolescent aggression and school

bullying among middle and high school students. Schools should adopt social-emotional learning initiatives, as these programmes assist students in developing self-regulation, improving emotional control, and enhancing empathy, which collectively help reduce aggressive behaviours. Learners who struggle with impulsivity and emotional management can benefit from counselling services and peer mentoring schemes that equip them with appropriate social skills. Teachers and educational staff should integrate basic behavioural training and conflict resolution skills into routine classroom activities to encourage positive peer interactions. Parental engagement through workshops and guidance sessions can further reinforce children's emotional resilience within the home setting. Schools are also encouraged to establish early intervention systems to identify students at risk of behavioural difficulties so they can receive tailored support. Adopting a proactive and preventative educational approach enables institutions to create safer environments, reduce bullying incidents, and foster healthier relationships among students.

Theoretical Implications

This study contributes to theoretical understanding of adolescent aggressive behaviour and school bullying by identifying the mediating role of individual characteristics, such as self-control, impulsivity, and emotional regulation. The findings provide validation for social learning theory, as the results demonstrate that personal traits contribute to increased aggressive behaviour during school interactions, which can escalate over time. The outcomes also support general aggression theory by confirming that emotional regulation and temperament play a significant role in shaping bullying tendencies. By combining psychological and behavioural perspectives, the study offers a comprehensive framework for explaining how bullying among middle and high school students emerges from aggressive conduct. The research emphasises the importance of examining both inherent personality traits and environmental influences to improve existing bullying prevention measures. Furthermore, it extends knowledge in the field of aggression studies by demonstrating that adolescent aggression directly influences how self-related traits manifest in bullying behaviours. Future investigations are encouraged to explore ways to modify individual characteristics, as such insights could guide the development of more effective anti-bullying interventions within educational settings.

Limitations and Future Recommendations

Limitations

Several limitations influence the overall significance of this study. The reliance on self-reported data from students introduces the possibility of social desirability bias, as participants may underreport their levels of aggression and involvement in bullying. The focus on middle and high school students further limits the generalisability of the findings to younger age groups or college populations. While the study explores individual characteristics as mediating factors, it does not comprehensively address external influences, such as family relationships, peer dynamics, or interactions within the school environment, all of which likely play important roles in shaping aggression and bullying. The use of a cross-sectional design also restricts the ability to determine long-term psychological development or establish causal relationships between the variables examined. In addition, the study did not sufficiently consider cultural and socioeconomic factors, which may influence bullying behaviours across different contexts. Future research should adopt longitudinal designs and include participants from varied cultural and social backgrounds to extend the understanding of how aggression and bullying evolve.

Future Recommendations

Future research should adopt longitudinal designs to monitor the development of adolescent aggression and school bullying over time. Such studies would provide deeper insight into how individual characteristics influence these behaviours at various stages of adolescence. Further investigation is also needed to explore the combined impact of personal traits and environmental factors, including family relationships, peer interactions, and educational policies, on the emergence of aggression and bullying. Broader generalisability of findings could be achieved by involving participants from a range of cultural backgrounds and socioeconomic contexts. Research focusing on the effectiveness of intervention programmes targeting self-control, empathy, and emotional regulation would contribute to the creation of more robust anti-bullying strategies. The inclusion of interviews and focus groups would enable researchers to obtain richer, more detailed perspectives on students' experiences and attitudes regarding bullying and aggression. Additionally, the integration of technological tools, including AI-based behavioural monitoring, could offer schools innovative ways to study and manage aggressive behaviours within educational settings.

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