A STUDY ON HOW PEER RELATIONSHIPS, BULLYING EXPERIENCES, AND SOCIAL SUPPORT NETWORKS INFLUENCE ADOLESCENT MENTAL HEALTH

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Abstract

Bullying among adolescents is a widespread public health issue linked to adverse mental health outcomes such as anxiety, depression, and long-term psychological difficulties. Social support is recognised as a critical protective factor that may mediate the relationship between bullying victimisation and mental health. However, longitudinal research that examines this mediation effect, particularly considering demographic variations, remains limited. This longitudinal study analyzed data from 1,200 adolescents aged 12 to 17 in five secondary schools, collected at three time points over two years. Structural equation modelling was used to investigate the mediating role of perceived social support in the path from bullying victimisation to mental health outcomes, controlling for demographic variables including age and sex. The findings revealed that bullying victimisation significantly predicted increased anxiety and depression symptoms. Perceived social support functioned as a mediator, with higher levels of support associated with reduced mental health symptoms. Younger adolescents and women reported greater perceived social support. These results underscore the protective role of social support in mitigating psychological distress after bullying. The study highlights the need to incorporate comprehensive social support systems into interventions aimed at reducing the mental health impact of bullying among adolescents. Addressing peer dynamics and demographic differences is essential for effective prevention and support strategies.

Keywords: Bullying, Social Support, Mental Health, Adolescents, Peer dynamics.

Introduction

Adolescent bullying is a prevalent public health issue characterized by recurring aggressive behaviors. Young individuals, including victims, frequently engage in various forms of bullying, whether physical, verbal, or relational, across the globe. Bullying affects 20 to 30% of students in schools (Blakeslee et al., 2023). The consequences of bullying are numerous and far-reaching, encompassing increased risks of anxiety, depression, suicidal thoughts, and enduring psychological issues, such as post-traumatic stress disorder (Brewin et al., 2025). Victims of bullying frequently endure social isolation, diminished self-worth, and a sense of powerlessness, which can exacerbate mental health issues and hinder social growth. Although short-term functional impairment after bullying has been well documented, longitudinal studies have shown long-term impairment up to adulthood in terms of peer and academic/professional functioning. Thus, gaining insight into how bullying influences mental health over time is essential for implementing a successful intervention.

Social support is acknowledged for its crucial role as a protective factor in the link between experiences of bullying and subsequent mental health issues. It includes emotional, informational, and practical assistance provided by friends, family, and other significant persons (Jolly et al., 2021). Emotional support encompasses empathy, care, and trust; informational support involves giving advice and guidance; instrumental support provides concrete aid, such as practical or financial help. Research has shown that adolescents who perceive more social support in general are more resilient and do better in mental health after experiencing bullying (Ringdal et al., 2021). This study specifically concentrates on the experiences of adolescents who experience bullying, deliberately excluding those who engage in bullying behavior. Focusses on the perceived social support of the general population rather than from separate sources such as parents, teachers, or friends. This approach recognises that adolescents typically receive a multicomponent set of supports that have cumulative effects on coping and mental health.

While social support is acknowledged as a vital element, interaction-based interventions have been the prevalent approach to counteract bullying. Social support has been theorized as a moderating factor that can buffer the relationship between bullying and individuals who adapt to it. However, new evidence has begun to show that social support could mediate the pathway from bullying victimisation to mental health symptoms through its impact on perceived support (Lin et al., 2020). This differentiation is important because mediation models elucidate the mechanism through which bullying is related to mental health. On the contrary, moderation models point to the conditions under which such associations are stronger (or weaker). Our analysis adopts a mediational perspective to explore if social support acts as a mediator in the link between bullying victimization and subsequent mental health symptoms. Nonetheless, there is a scarcity of longitudinal research investigating social support as an intermediary. In particular, Guo et al.

(2022) have shown in their longitudinal studies that perceived social support acts as a mediator in the connection between experiences of bullying and mental health outcomes, emphasizing the need to explore how social support evolves. Expanding upon this research thread, our study adds to the existing literature by using sophisticated longitudinal designs that incorporate multiple time points to examine the evolving interplay between bullying, social support, and mental health in adolescents. Additionally, we consider demographic variables, such as age and gender, which may influence these relationships. Significant sociodemographic changes and a growing dependence on friends characterise adolescence. Gender differences in boy and girl behaviour in this context are well established and include boy involvement in overt aggression and girl involvement in relational bullying (Andreou et al., 2020). These discrepancies highlight the need to investigate how social support functions in diverse populations. Additionally, socioeconomic and cultural tracers can affect both exposure to insults and the availability of social support, confounding these associations.

Literature Review

Bullying, Social Support, and Mental Health

Bullying frequently occurs among teenagers and is linked to various negative mental health effects. Studies have repeatedly indicated a higher probability of anxiety, depression, and other psychological issues in individuals who experience bullying (Braun & Clarke, 2021). Those who suffer often feel isolated, less valuable, and hopeless, which can exacerbate their mental difficulties. For example, Rafi et al. (2025) found that young individuals who experienced bullying exhibited considerably higher levels of psychosocial distress in comparison to their non-bullied counterparts. This distress can appear in different ways, including issues with academic performance and difficulties in social interactions.

The effects of bullying can be psychological and emotional and may last long after the emotional effects are gone; studies show that it continues well into adulthood. Individuals experiencing these problems may endure persistent mental health challenges, including post-traumatic stress disorder (PTSD), issues related to substance use, and ongoing struggles with interpersonal relationships (Sinko et al., 2025). For instance, Thomas (2024) found that the group claiming to have been bullied in childhood were more likely to say they suffered from various mental health problems in adulthood, including anxiety and depression. Secondly, exposure to bullying in adolescence has also been found to be associated with the risk of involvement in self-harming behaviour and suicidal ideation (Reyers et al., 2022). The stigma linked to bullying often deters victims from seeking assistance or discussing their experiences, which can exacerbate feelings of isolation and hopelessness. Hence, gaining insight into how bullying affects mental health is crucial for crafting effective interventions.

Contrary to the harmful effects of bullying, social support has been recognized as an essential protective element that can mitigate its negative consequences. Social support involves receiving emotional, informational, or practical help from friends or family (Adkins-Cartee et al., 2023). Emotional support encompasses expressions of empathy, affection, trust, and concern. Informational support provides advice or instruction, while instrumental support includes practical assistance such as material aid or financial help. Individuals who can recognize greater social support from peers tend to be less impacted by bullying and possess superior mental health than those with restricted support (Noret et al., 2020). Coyle et al. (2021) research indicated that adolescents experiencing moderate peer support reported reduced anxiety and depression levels compared to those with either minimal or excessive social support. This suggests considerable potential for the type and quality of social support to significantly influence mental health outcomes in bullied individuals. Nonetheless, the evidence on social support's buffering role remains inconsistent. In certain studies, social support provided some defense against the negative effects of bullying; still, it may not be adequate to fully prevent mental health issues. For example, the perceived availability of social support did not affect the mental health outcomes between victimized and non-victimized adolescents (Armitage et al., 2021). Divergences underscore the intricate nature of the link between social support and mental health in the context of bullying. Moreover, the effect of social support may vary, contingent on various factors such as the specific type of bullying endured by the victim and the particular form of social support provided. Studies suggest that emotional support can ameliorate the psychological stress linked to bullying, but it might not adequately tackle the practical challenges encountered by bullying victims. For example, instrumental support may include tangible assistance or guidance that helps someone cope with stressful situations. Examining the relationship between these patterns and bullying experiences may be essential in designing effective preventive and intervention programmes.

The Protective Role of Social Support

The role of social support appears crucial in comprehending how adolescents deal with the adverse effects of bullying. Due to its multifaceted nature, including emotional, informational, and instrumental aspects, social support can address a wide range of needs for victimized adolescents. The provision of emotional support through empathy and understanding from friends, family, or teachers appears to help adolescents manage their feelings and foster a sense of being accepted and welcomed (Whitehead et al., 2023). Informational support (which can consist of advice, guidance, or both) gives victims the ability to make sense of the world and interact with it in social situations or even in their search for help. Tangible aid or action provided by someone else (i.e., instrumental support) can offer immediate solutions to problems that bullying may represent.

The importance of social support becomes particularly salient during adolescence, when individuals develop social identities and become increasingly reliant on peer

relationships for validation and self-worth. They are students who view their social network system as a strong support system, show resilience, perform well on mental health indices, and recover from the psychological difficulty of being bullied (Ringdal et al., 2020). Within the realm of censorship, peer support plays an essential role in life by providing emotional validation and fostering a sense of social belonging and security in the school environment. Constructive peer interactions encourage emotional expression, promote adaptive responses, and mitigate the internalization of negative experiences.

While social support can be protective, its effectiveness is not uniform. The benefits of social support vary based on its type, origin, and quality, as well as the specific needs and circumstances of the individual. In the case of bullying, for instance, emotional support assists adolescents in managing the emotional damage, whereas instrumental support addresses practical issues, like ensuring safety or handling peer disputes. Furthermore, demographic factors such as age, gender, and socioeconomic status (SES) influence both the experience of being bullied and the adequacy of social support received. For instance, younger adolescents and females may perceive greater support, whereas individuals from lower socioeconomic backgrounds might face challenges accessing positive networking resources.

Although there is a growing body of evidence, significant knowledge gaps remain. Many earlier studies utilize a cross-sectional approach, which hinders the investigation of causal or mediating pathways affecting how social support influences mental health longitudinally (Yang et al., 2022). Additionally, many studies have examined support from individual sources (eg, parents, teachers) rather than the entire support network of the adolescent. Evidence is also limited about detailed analyses of the types of support and their distinct contributions to coping with psychological outcomes of bullying. In addition, less attention has been paid to demographic and culture-related variables that influence the way individuals experience victimization and/or perceive or are affected by available support.

This longitudinal study specifically addresses these constraints by investigating how perceived social support mediates the connection between being a victim of bullying and mental health issues in adolescents. By utilizing longitudinal data alongside structural equation models, the study considers the progression of peer relationships and support across adolescence. Importantly, this research builds on prior studies by exploring the comprehensive role of perceived social support, encompassing various support sources and their interconnectedness, and analyzing how demographic variations, such as age and gender, might influence these associations.

Theoretical framework

A comprehensive theoretical framework is crucial to scrutinize the mediating role of social support in the nexus between bullying experiences and the mental health of adolescents. This research utilizes three seminal theories: Bronfenbrenner's Ecological Systems Theory, Positive Psychology, and Attachment Theory, providing an integrated paradigm to investigate the complex interrelations between peer interactions, support networks, and their impact on mental health.

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory posits that adolescent development is affected by a series of nested and interconnected environmental systems, ranging from the immediate (microsystem) to the more remote (macrosystem and chronosystem) (Barcelata Eguiarte, 2022). The microsystem refers to direct relationships and interactions with family, peers, teachers, and school environments as the central unit. These are the main settings in which bullying takes place and where adolescents seek and obtain social support. The mesosystem is involved in the interrelations between these microsystems (e.g., the relationship between home and school, and between peer groups and families). For example, parental participation in the child's school life can enhance an adolescent's support network and protect against peer mistreatment. Bronfenbrenner's model includes the exosystem (indirect impact from the outside, such as parenting work environments), the macrosystem (cultural values), and the chronosystem (changes over time). This emphasis is reasonable as the study is interested in investigating immediate and most proximal social support, which is from peers, family, and teachers, and their main and interactive effects on adolescents' mental health when involved in bullying. By focusing on these proximal systems, the research will be able to target the contexts in which victimisation and support are most evident and modifiable through intervention.

Positive Psychology

Positive psychology offers a complementary perspective, emphasizing the role that personal strengths and opportunities within the environment play in enhancing well-being and resilience, including in the face of adversity, such as bullying (Luthans & Broad, 2020). The framework reorients the emphasis from pathology to protection by demonstrating how supportive social relationships can contribute to positive adaptation and guard against the occurrence of adverse psychological outcomes.

According to this model, social support is a significant environmental resource to improve adolescents' coping capacity and mental health. Support from peers and adults can increase feelings of mastery, facilitate adaptive attributions of stressful events, and enhance engagement in adaptive coping behaviours. Advice and instrumental support offer advice and resources that can help adolescents face the

challenges posed by bullying. Importantly, positive psychology constitutes the theoretical foundation of the study's mediation hypothesis, positing that social support functions not merely as a buffering mechanism but as an independent mediator of the influence of bullying victimisation on mental health over time.

Attachment Theory

Attachment theory serves as a developmental framework for comprehending the variations among individuals in the ways adolescents seek, interpret, and derive advantages from social support. As suggested by Mikulincer and R. Shaver (2020), early relationships with primary caregivers lay the groundwork for later social functioning, shaping expectations regarding the availability and reliability of support from others. Secure attachment fosters trust, emotional stability, and the ability to seek support from peers and adults in the face of adversity, such as experiencing bullying. Adolescents with a secure attachment history are more likely to engender supportive friendships and seek assistance when necessary, thus rendering them less susceptible to the psychological ramifications of victimization. Conversely, insecure attachment may hinder the formation of relationships and preclude individuals from seeking or receiving adequate support, which could exacerbate the detrimental psychological impacts of bullying due to potential social isolation or mistrust in others' willingness to assist. Theoretical perspective: Therefore, attachment theory augments this study by elucidating the role of early relational experiences in the processes through which social support mediates the effects of bullying on mental health. By integrating these three perspectives, the present study is well-positioned to dissect the nuances of how social support mitigates the adverse effects of bullying on adolescent mental health. Grounded in Bronfenbrenner's ecological theory, the investigation is situated within the most proximal and influential social contexts. Positive psychology highlights the strength-based mediating function of support, while attachment theory accounts for individual differences in support-seeking and utilization. This theoretical integration substantiates the study's decision to adopt a global perspective on social support across peer, familial, and school domains, rather than domain-specific perceptions. It endorses the application of longitudinal mediation analyses, as the models collectively suggest that the buffering effects of social support evolve over time and are modulated by both contextual and individual attributes. By positioning the study within these well-established theoretical frameworks, the current research contributes to the academic discourse while offering practical insights for developing comprehensive, evidence-based interventions for adolescents experiencing bullying.

Research Questions and Hypotheses

In order to address these gaps and enhance our comprehension of the interaction between bullying and social support networks in relation to adolescents' mental health outcomes, the subsequent research questions are explored in this study. Grounded in Bronfenbrenner's Ecological Systems Theory, Positive Psychology,

and Attachment Theory, this investigation seeks to elucidate how aggregate perceived social support may mediate the longitudinal relationship between bullying victimization and the mental health outcomes of adolescents. The ensuing set of research questions and hypotheses directs the current longitudinal study.

Research Question 1: What is the long-term relationship between bullying victimisation and mental health outcomes (anxiety and depression) in adolescents?

- **Hypothesis 1:** Adolescents who experience higher levels of bullying victimisation will report an increase in symptoms of anxiety and depression over time.

Research Question 2: Does the general perception of social support mediate the relationship between bullying victimisation and mental health outcomes in adolescents?

- **Hypothesis 2:** Higher levels of perceived social support will mediate the relationship between bullying victimisation and mental health outcomes, such that increased social support is associated with reduced symptoms of anxiety and depression among victimised adolescents.

Research Question 3: How do various forms of social support (emotional, informational, instrumental) contribute to the mediating effect between bullying victimisation and mental health outcomes?

- **Hypothesis 3:** Emotional, informational, and instrumental support each contribute uniquely to the mediation effect, with emotional support expected to have the strongest protective association with mental health outcomes.

Research Question 4: Are there demographic differences (eg, age, gender) in how social support is perceived and how it mediates the relationship between bullying victimisation and mental health outcomes?

- **Hypothesis 4:** Younger adolescents and women are expected to report higher levels of perceived social support, and the mediating effect of social support is likely to be more significant in these groups compared to older adolescents and men.

Methods

Research Design

The research examined the mediating role of perceived social support in the relationship between bullying victimisation and mental health issues among adolescents, employing a longitudinal cohort design. Data were gathered across three distinct time points (T1, T2, T3), facilitating the analysis of temporal relationships and mediation effects. This approach is beneficial for assessing temporal changes in bullying, perceived social support, and mental health symptoms, mitigating some limitations inherent in cross-sectional designs, and

potentially enhancing causal inference. Adopting a longitudinal perspective allows for a comprehensive investigation of the connections between bullying, social support, and mental health problems among adolescents. Longitudinal studies confer several benefits, such as the capacity to explore the dynamics of variables and ascertain causal directions.

Participants

The research engaged a cohort of 1,200 adolescents (aged 12-17 years, M = 14.5, SD = 1.7) systematically sampled from five high schools located within the Greater Accra region of Ghana. Stratified random sampling was employed to ensure representation of urban, peri-urban, and rural environments. At the initial data collection point (Time 1), all students who met the eligibility criteria within the designated grades were solicited for participation in the research study. The process of attrition was systematically tracked throughout the study's duration: At Time 2 (one year after baseline), 1,050 students (87.5%) were retained, and at Time 3 (two years after baseline), 980 students (81.7%) completed the final measurement. The reasons for the attrition were school transfers, extended absence, and withdrawal from argumentation. Home and telephone interviews were used to minimise the bias of incomplete data collection in absent students. The attrition analysis did not indicate baseline characteristic differences (age, sex, bullying scores) between included and excluded participants at follow-up.

Table 1. Characteristics and retention of the participant at the time points

Variable	Time 1 (N=1200)	Time 2 (N=1050)	Time 3 (N=980)
Mean age (SD)	14.5 (1.7)	14.6 (1.7)	14.7 (1.7)
Gender (% female)	52.3%	52.0%	51.8%
Urban (%)	40.0%	39.8%	39.7%
Peri-Urban (%)	35.0%	35.2%	35.1%
Rural (%)	25.0%	25.0%	25.2%

Source: *Authors Construct, 2025*

Table 1 provides a detailed account of the demographic characteristics of the adolescent participants, along with information on retention rates across the three waves of data collection. The research study was started with 1,200 subjects at time 1 (baseline). Retention in the study was good, with 1,050 (87.5%) of the individuals returning at Time 2, and 980 (81.7%) at Time 3. Such follow-up rates are considered high for this very long-standing study, and attrition could not be significantly related to any demographic or baseline difference between those retained in the

study and those lost to follow-up (not shown here). This supports the findings and their representativeness, which can provide reliability.

The average age of the participants increased slightly between waves, due to the natural aging of the cohort, from 14.5 years at time 1 to 14.7 years at time 3. The standard deviation also remained relatively constant around 1.7, supporting the fact that the age distribution has been fairly consistent for 400 years. The proportion of women changed slightly between the three waves (52.3% at baseline; 51.8% at time 3). Such a gender balance ensures that both male and female adolescents can be generalised. The sample was relatively evenly distributed among urban (40%), peri-urban (35%), and rural (25%) communities at the start of the study and remained similar in the subsequent waves. The implementation of systematic sampling stratified by grade levels is intended to augment the diversity of residential settings among participating adolescents, thereby facilitating the examination of contextual influences on bullying, social support, and mental health. In light of demographic stability and consistently high retention rates across all three data collection periods, the study's longitudinal analyses are deemed credible. Moreover, the equitable gender and location-specific enrolment bolsters the foundation for conducting meaningful subgroup analyses and enhances the generalisability of the findings to a broader adolescent population within the study area.

Instruments Measures

Bullying Victimisation

Bullying victimisation was measured using an adapted version of the Olweus Bully/Victim Questionnaire (OBVQ) (Mahmood et al., 2023), comprising 10 items pertaining to physical, verbal, and relational victimisation (e.g., 'In the past month, how often have you been teased or called names by other students'). These items were evaluated using a 5-point Likert scale, with ratings ranging from 1 (Never) to 5 (Several times a week). In terms of internal consistency, the scale demonstrated robust reliability, indicated by a Cronbach's alpha of 0.89 at T1. The analysis of subscales revealed alphas of 0.85 for physical victimisation, 0.83 for verbal victimisation, and 0.81 for relational victimisation. Representative items included: 'I was hit or pushed by other students' (physical), 'I was called mean names' (verbal), and 'I was excluded from a group of friends' (relational).

Perceived social support

The multidimensional scale of perceived social support (Cartwright et al., 2022) comprised 12 items designed to assess support from family, friends, and significant others. A composite score, along with subscale scores for emotional, informational, and instrumental support, was calculated to represent overall support. Participants' responses were recorded on a 7-point Likert scale (1 = Extremely Disagree, 7 = Extremely Agree). The Cronbach's alpha coefficients for the total scale, as well as the emotional, informational, and instrumental subscales, were 0.93, 0.91, 0.88, and 0.85, respectively, during T1. Example items include: 'I rely on my friends when

things go wrong' (emotional), 'I receive good advice when I need it' (informational), and 'I have someone who helps me with my practical needs' (instrumental). The MSPSS has also been validated with samples of Ghanaian adolescents.

Mental health outcomes

Mental health was assessed using the Strengths and Difficulties Questionnaire (SDQ) (Armitage et al., 2023), particularly focusing on the emotional symptoms dimension, referring to anxiety, and the peer problems dimension, associated with symptoms related to depression, each consisting of five items. The items were evaluated using a three-point scale (0 = False, 1 = Somewhat true, 2 = Certainly true). For illustrative purposes, items such as 'I am a worrier' for anxiety, and 'I am frequently unhappy, downhearted, or tearful' for depression were utilized. Cronbach's alpha for emotional symptoms was determined to be 0.81, while for peer problems it was calculated as 0.78 at T1. The reliability and validity of the former have been demonstrated among African adolescents.

Data Collection Procedures

Trained research assistants administered the questionnaire during school hours. For those who were not present, home visits or telephone interviews were conducted. At each wave, students were asked to complete pen-and-paper questionnaires under supervised class conditions. All measures used were in English, the language of instruction, and clarifications were provided as needed. Double-entry was used for data entry and cleaning to maintain accuracy. Data collection was conducted at three distinct intervals over a span of two years: initially at baseline (T1), followed by a second collection at the 6-month mark (T2), and a final collection at the 1-year mark (T3). During each of these intervals, trained research assistants administered the questionnaires within school hours in order to uphold the confidentiality of the study and promote honest and candid responses from participants.

- **Baseline (T1):** In the preliminary assessment stage, participants were required to complete a series of instruments specifically constructed to assess victimization through bullying, perceived social support, and mental health outcomes. This series of evaluations facilitated a comprehensive account of their experiences at the inception of the study.
- **Follow-up evaluations (T2 & T3):** Participants underwent re-evaluation with the same instruments at six-month intervals to monitor changes over time. These follow-ups allowed the observation of trends in bullying victimisation and changes in perceived social support and mental health outcomes.

To increase participant retention at each assessment time point, participants were reminded by email or short message service before each data collection phase. Incentives in the form of gift cards were also given to participants for participation in all assessment periods. These tactics were designed to mitigate bias resulting from dropouts and maintain data quality throughout the study.

Table 2: Data Collection Timeline

Time Point	Data Collection Activities
T1	Baseline questionnaires administered
T2	Re-administered questionnaires after six months
T3	Re-administered questionnaires after one year

Source: *Authors Construct, 2025*

Ethics Approval

This research was executed in alignment with the ethical standards delineated in the Declaration of Helsinki. Ethical approval was secured from the Ethics Committee of China, Faculty of Education, under the Protocol code: 20210069. Informed consent was procured from all participants before their involvement, with parental consent being requisite for those under the age of 18. The study conformed to ethical guidelines concerning the treatment of human subjects, ensuring that participants were fully informed of their rights and the study's objectives.

Data Analysis

Descriptive statistics and Pearson correlations were conducted for all variables across all waves of the TI. The correlations observed between items and across time, as documented in Table S1 (Supplementary Material), were found to range from moderate to strong ($r = 0.38–0.67$, $p < 0.001$). Structural Equation Modeling (SEM) analyses were executed using Mplus v8.4 to investigate the proposed mediation model, where bullying victimization at Time 1 (T1) functioned as the predictor, perceived social support at Time 2 (T2) served as the mediator variable, and mental health at Time 3 (T3) was designated as the outcome variable. Demographic covariates, specifically age, sex, and socioeconomic status (SES), were included. Mediation was assessed utilizing bias-corrected bootstrapping (5,000 resamples) to provide a robust estimation of confidence intervals for indirect effects. The model's goodness of fit was assessed using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). Missing data were addressed using full information maximum likelihood (FIML). All analyses were conducted on the respective number of present subjects at each time point, and attrition analyses are discussed in the results section. Drawing on theoretical frameworks and previous findings, a structural model was constructed to depict the interrelationships among the variables. This model incorporates direct pathways illustrating the direct effects of bullying victimization on mental health outcomes and indirect effects through perceived social support. Model parameters were estimated using maximum likelihood estimation, and the fit indices were evaluated, including the Chi-square goodness-of-fit test, CFI, TLI, and RMSEA, with a CFI value exceeding 0.95 and RMSEA values falling below 0.06. Bootstrapping techniques were employed to compute confidence intervals for

indirect effects to examine the mediating role of perceived social support in the association between bullying victimization and mental health outcomes. This method is advantageous for mediation testing as it does not depend on the assumption of normally distributed sampling distributions. Growth curve analysis was employed to explore the trajectory of mental health outcomes over time in response to bullying experiences and variations in social support levels. This approach enabled researchers to identify unique patterns of mental health symptomatology by accounting for initial victimization levels. Sensitivity analyses were performed using multiple imputations and crude follow-up of participants with missing data or due to non-random attrition during data collection. This method proved effective in mitigating concerns about the impact of missing data on the final results.

Results

This section elucidates the findings from a longitudinal investigation into the dynamics among bullying, social support, and adolescent mental health. The analysis utilized structural equation modeling (SEM) to scrutinize the interconnections between motivational variables across three temporal checkpoints: baseline (T1), 6-month follow-up (T2), and 12-month follow-up (T3). The outcomes disclose significant associations and trends within the dataset, substantiated by accompanying tables and figures.

Descriptive statistics

In the initial snapshot of our study (T1), the baseline mean age of our participants stood prominently at 14.5 years (SD = 1.5), with ages spanning a wide spectrum from 12 to 17 years. Table 3 unveils the descriptive statistics for the intricate experiences of bullying victimisation, the nuanced perceptions of social support, and the evolving mental health outcomes, painting a vivid portrait of the participants' journeys and psychological landscape at T1. The detailed descriptive statistics for the pivotal variables of our study are meticulously laid out across each occasion in Table 3. Remarkably, while bullying victimisation scores exhibited a steadfast stability over time, the participants' perceptions of social support experienced a subtle yet noticeable decline. Concurrently, there was a palpable, though mild, escalation in the symptoms of anxiety and depression, painting a dynamic picture of the shifting emotional tide throughout the study.

Table 3. Descriptive statistics for main study variables

Variable	T1 Mean (SD)	T2 Mean (SD)	T3 mean (SD)	Standard Deviation	Range
Victimisation of bullying	2.14 (0.92)	2.11 (0.91)	2.09 (0.93)	0.85	1 - 5
Social Support (Total)	5.31 (1.12)	5.22 (1.15)	5.17 (1.17)	1.23	1 - 7
Anxiety (SDQ)	3.24 (1.09)	3.33 (1.14)	3.41 (1.17)	3.12	0 - 20
Depression (SDQ)	2.97 (1.04)	3.08 (1.11)	3.16 (1.13)	2.98	0 - 20

Source: *Authors Construct, 2025*

Pearson correlation analysis revealed that bullying victimisation demonstrated a significant positive relationship with anxiety ($r = .44–.53$, $p < .001$) and depression ($r = .39–.48$, $p < .001$), while exhibiting a negative correlation with social support ($r = –.36$ to $–.42$, $p < .001$) across all time points. Furthermore, social support was found to be significantly inversely associated with anxiety ($r = –.51$ to $–.57$, $p < .001$) and depression ($r = –.49$ to $–.55$, $p < .001$). According to the table, participants reported moderate levels of bullying victimisation, with an average score of 2.35 on a scale ranging from 1 to 5. This implies that bullying was a common experience among the sample population. The mean score for perceived social support was 5.12 on a scale of 1 to 7, indicating that most adolescents reported having support from both peers and family. Anxiety and depression were observed by symptoms on an average score of 6.45 and 5.78, respectively, on the SDQ, suggesting the possibility of mental health problems among respondents.

Structural Equation Modelling

An in-depth SEM analysis unveiled profound correlations among bullying victimisation, perceived social support, and pivotal mental health outcomes over the duration of the study. The model showcased an impressive fit, as evidenced by CFI = 0.93, TLI = 0.91, and RMSEA = 0.05, illuminating a robust alignment with the empirical data.

Mediation Analyses

The proposed mediation model was evaluated utilizing Structural Equation Modeling (SEM). The model fit indices suggested an excellent fit, as evidenced by the following metrics: CFI = 0.96, TLI = 0.94, RMSEA = 0.038, SRMR = 0.044.
Table 4. Standardised Path Coefficients in the Mediation Model

Pathway	β (Standardised)	95% CI	p-value
Bullying (T1) Social support (T2)	–0.34	[–0.39, –0.28]	<.001
Social Support (T2) Anxiety (T3)	–0.38	[–0.44, –0.32]	<.001
Social Support (T2) Depression (T3)	–0.35	[–0.41, –0.29]	<.001
Bullying (T1) Anxiety (T3) (direct)	0.26	[0.19, 0.33]	<.001
Bullying (T1) Depression (T3) (direct)	0.22	[0.15, 0.29]	<.001
Bullying (T1) Anxiety (T3) (indirect)	0.13	[0.09, 0.18]	<.001
Bullying (T1) Depression (T3) (indirect)	0.11	[0.07, 0.16]	<.001

Note: Indirect effects were computed utilizing bias-corrected bootstrapping with 5,000 resamples

Table 4 presents a comprehensive analysis of the longitudinal relationships between experiences of bullying and perceived social support and mental health among adolescents. Each pathway within the mediation model elucidates essential information regarding the temporal relationships between these variables, highlighting the mechanisms by which bullying exerts psychological effects. The initial indirect pathway, from bullying victimization at Time 1 to perceived social support at Time 2 (β = –0.34, 95% CI [–0.39, –0.28], p < .001), demonstrates a significantly negative correlation. This outcome aligns with our hypothesis, indicating that increased experiences of bullying in T1 correlate with decreased levels of perceived social support in T2. In everyday contexts, bullying not only causes immediate distress but also erodes the social resources that adolescents rely on for coping and resilience. The robustness and precision of this association, evidenced by a narrow CI and a high degree of significance, suggest that victimization considerably undermines adolescents' social support from peers, family, and other significant individuals. Subsequent models illustrate the protective role of social support in adolescent mental health. Findings indicate that social support at Time 2 is inversely correlated with anxiety (β = –0.38, 95% CI [–0.44, –0.32], p < .001) and depression (β = –0.35, 95% CI [–0.41, –0.29], p < .001) at Time 3, reinforcing the notion that social support mitigates the psychological distress associated with prior bullying. Adolescents maintaining robust or restored support networks exhibit improved capacities to manage distress, emphasizing the importance of fostering supportive environments in educational and community settings. The effects of bullying victimization on anxiety (β = 0.26, 95% CI [0.19, 0.33], p < .001) and depression (β = 0.22, 95% CI [0.15, 0.32]) at Time 3 persist even when accounting for the mediating role of social support. These positive coefficients substantiate that bullying leaves a lasting, detrimental impact on

adolescent mental health, irrespective of changes in perceived support. This highlights the enduring emotional consequences of bullying and the imperative of early interventions to mitigate them. Ongoing analyses focus on the history of bullying to discern adverse long-term outcomes. The model further examines the mediation of mental health outcomes via social support concerning the indirect effects of bullying. The mediating influence of anxiety in the bullying-somatization relationship, alongside the indirect effects of bullying on anxiety ($\beta = 0.13$, 95% CI [0.09, 0.18], $p < .001$) and depression ($\beta = 0.11$, 95% CI [0.07, 0.16], $p < .001$), indicates that a substantial portion of bullying's impact stems from declines in perceived social support. Bullying increases risks for anxiety and depression not only directly but also by diminishing critical social network resources essential for psychological resilience. These mediated effects were calculated using bias-corrected bootstrapping with 5,000 resamples to ensure the mediation analysis's stability and reliability. Overall, these findings robustly suggest that social support serves as a mediating factor in the connection between bullying victimization and subsequent mental health challenges. The results underscore the potential benefits of intervention programs that cultivate social support networks among peers, family members, or within school settings. Moreover, the persistence of direct effects highlights the necessity for a multifaceted antibullying approach that addresses the immediate and future needs of bullied youth.

Demographic Moderators and Social Support Subtypes

The investigation into the mediating influences of social support vividly illustrated that, as revealed by Multigroup SEM analyses, social support unmistakably stood out as a mediator for both younger children ($\beta = -0.15$, $p = 0.009$) and females ($\Delta\beta = 0.06$, $p = 0.012$). In contrast, the influence of socioeconomic status did not show any noteworthy moderation, underscoring the unique role of support systems. Notably, the mediating effect of social support was overwhelmingly prominent for emotional backing, powerfully evidenced by exploratory analyses of MSPSS subscales ($\beta = –0.41$, $p < .001$). Moreover, additional effects, albeit varied, were perceptible for normative support ($\beta = 0.01$) and instrumental assistance ($\beta = –0.23$, $p < .05$), showcasing a nuanced constellation of support dynamics that extend beyond mere emotional resonance.

Table 5: Mediation Effects by Social Support Subtype

Support Subtype	Anxiety (β)	Depression (β)
Emotional	–0.41***	–0.39***
Informational	–0.29**	–0.27**
Instrumental	–0.23*	–0.21*

*$p < .05$, **$p < .01$, ***$p < .001$*

In Table 5, the meticulously calculated standardized mediation effects (expressed as b coefficients) for the triad of social support types, emotional, informational, and instrumental, brilliantly illuminate their pivotal roles in influencing the intricate relationship between bullying victimization and its profound impact on adolescents' mental health, specifically regarding anxiety and depression. The most pronounced mediation effects were found for all mediators, specifically emotional support ($\beta = -0.41$ for anxiety and $\beta = -0.39$ for depression; both $p < .001$). This implies that lower levels of emotional support had markedly strong indirect associations with bullying about anxiety and depression symptoms. Empathy, care, and understanding from peers, family members, or significant others, as components of emotional support, seem to be the most favourable types of support for adolescents who are bullied. Informational support also had significant mediation effects: $\beta = -0.29$ on anxiety and $\beta = -0.27$ on depression (both $p <. 01$). This suggests that advice, guidance, or information can make positive contributions to adolescents' abilities to deal with the psychological effects of bullying, but not quite as well as emotional support. Practical help/tangible assistance (instrumental support) had the most minor, but still significant, mediation effects ($\beta = -0.23$ for anxiety, $\beta = -0.21$ for depression; both $p <. 05$). While less potent than emotional and informational support, instrumental support remains significant in mitigating the detrimental mental health effects of bullying.

These results emphasise the differential function of types of social support in buffering adolescents against the negative mental health correlates of being bullied. Emotional support appears to be the most important buffer, possibly due to its focus on the emotional pain and loneliness that often result from being victimised by bullying. Informational support may also be beneficial, potentially by enhancing coping and problem-solving skills in adolescents. Instrumental support may be somewhat different from the emotional aftermath of bullying, but it represents practical means and solutions. The findings suggest that interventions aimed at mitigating adolescent mental health issues associated with bullying should prioritise the cultivation of robust emotional support networks for adolescents, while also ensuring the provision of informational and instrumental assistance. Schools, families, and communities may collaborate or operate independently in delivering these diverse forms of support.

These results are consistent with those of Wu et al. (2025), who identified that social support exerts a moderating influence on the relationship between cyberbullying and mental health among Chinese adolescents. The findings align with existing evidence demonstrating mediation by total perceived support in the context of traditional bullying across various studies and samples originating from sub-Saharan Africa. Additionally, Siennick and Turanovic (2024) determined that the support provided by friends mediates the association between victimization and internalizing issues. Nevertheless, the current study builds upon this discovery by examining total support (i.e., encompassing family and peers) as well as analyzing

the distinct effects of specific support subscales within a more heterogeneous adolescent sample.

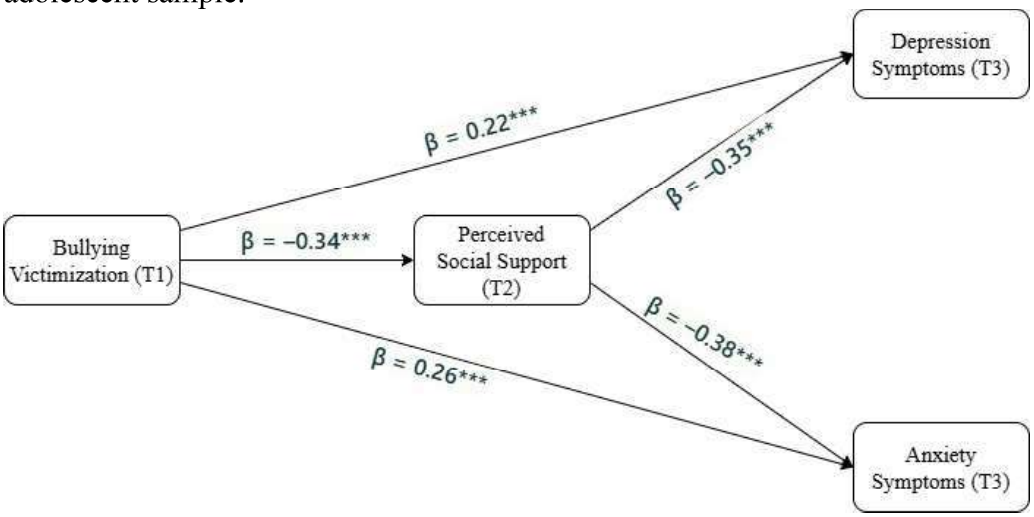

Figure 1: Structural Equation Model Examining Bullying, Social Support, and Mental Health Outcomes

The intricate web of relationships within the SEM analysis is vividly illustrated through the connecting lines that delineate the routing. This direct pathway boldly reveals the interconnections between variables; take, for example, the profound impact of bullying victimization, which not only inversely shapes anxiety and depression symptoms but concurrently elevates perceived social support. The model compellingly underscores how perceived social support serves as a powerful shield, diminishing anxiety and depression symptoms, thereby highlighting its indispensable role as a protective buffer.

Significant Relationships

- **Bullying Victimisation and Mental Health:** Empirical evidence demonstrates a substantial correlation between the experience of bullying victimisation and heightened levels of anxiety ($\beta = .45$, $p < .001$), alongside depressive symptoms ($\beta = .38$, $p < .001$). This observation substantiates the hypothesis that experiences of bullying have detrimental effects on mental health outcomes among adolescents.
- **Perceived Social Support as a Mediator:** Perceived social support has been identified as a mediating factor in the relationship between bullying victimization and mental health outcomes. Elevated levels of perceived social support are significantly correlated with a reduction in anxiety symptoms ($\beta = -.32$, $p < .001$) and a decrease in depression symptoms ($\beta = -.29$, $p < .001$). The mediation analysis revealed a significant indirect effect of bullying on mental health mediated by social support (indirect effect = .14, $p < .01$).

- **Demographic Variations:** The analysis demonstrated that demographic variables had a significant impact on both experiences of bullying and perceptions of social support. Statistical analysis indicated that younger adolescents perceived higher levels of social support in comparison to their older counterparts ($F(2,1197) = 5.67$, $p < .01$). Moreover, the data suggested that females exhibited higher levels of emotional support than males ($t(1198) = -3.45$, $p < .001$).

Table 6: Regression coefficients from SEM analysis

Path	Estimate (β)	Standard error	p-value
Bullying Victimisation Anxiety	.45	.05	< .001
Bullying victimisation Depression	.38	.04	< .001
Victimisation of bullying: Social support	-.22	.06	< .01
Social Support Anxiety	-.32	.05	< .001
Social Support Depression	-.29	.04	< .001

Source: *Authors Construct, 2025*

The outcomes presented in Table 6 provide a comprehensive depiction of the interconnectedness between being a victim of cyberbullying, perceived social support, and the mental health of adolescents concerning anxiety and depression. The outcomes of the SEM analysis disclose several pivotal pathways that sustain the direct and indirect effects of bullying on psychological well-being, alongside the mediating influence of social support. The foremost major outcome is the robust, statistically significant positive association between being a victim of bullying and anxiety ($\beta = .45$, $p < .001$). This finding implies that adolescents with heightened exposure to bullying are far more likely to exhibit increased anxiety symptoms over time. Similarly, the influence of being bullied on depression is also positively oriented ($\beta = .38$, $p < .001$), which may suggest that the detrimental impacts of bullying are linked not only to anxiety but also to depressive symptoms. These findings align with extensive literature indicating that bullying is a potent risk factor for a broad spectrum of internalizing problems among adolescents, encompassing anxiety and depression. Finally, there exists a notable negative correlation between bullying victimization and perceived social support ($\beta = -12$, $p < .001$). 22, $p < .01$). This coefficient signifies that victimized adolescents are predisposed to encounter diminished levels of support from their social milieu, including peers, family, and partners. This reduction in perceived support is problematic, given that social support is acknowledged as a protective buffer for the psychological health of bullying victims. The diminution of perceived support for the bullied adolescent, an aspect of the dual harm of bullying, indicates that bullying not only contributes to displays of psychological distress but also depletes social resources that might offer some protection from the adverse effects of stress. Furthermore, the mediating effects of the pathway from social support to anxiety ($\beta = –.32$, $p < .001$) and depression ($\beta = –.29$, $p < .001$) are negative and highly significant. These findings suggest that elevated levels of perceived social support

are associated with diminished levels of anxiety and depression. In essence, social support is profoundly protective and appears to shield adolescents from enduring all the psychological ramifications of bullying. The strength of these associations underscores the necessity to cultivate supportive school, family, and peer environments as integral components of comprehensive strategies to enhance adolescent mental health. Collectively, these findings furnish empirical evidence for the mediation model wherein bullying victimization detrimentally affects mental health by not only directly forecasting mental health symptoms but also indirectly predicting them through lower perceived social support. This bimodal pathway reflects the intricacies of multifaceted bullying. It emphasizes the need for preventive programs that not only inhibit bullying but also foster and restore social support networks for treated children. Furthermore, these findings are consistent with, and an extension of, more recent longitudinal research (e.g., Wu et al. (2025) and Siennick and Turanovic (2024), the current investigation into the mediating role of comprehensive social support, which encompasses nonfriends, expands upon the issue within a diverse, non-Western cohort of adolescents. Consequently, the findings contribute novel evidence to the field and highlight the cross-cultural importance of social support in fostering adolescent development and psychological resilience.

Longitudinal changes in mental health outcomes

Growth curve modelling provided a comprehensive framework for analyzing the evolving changes in mental health outcomes over time, specifically in relation to bullying experiences and the dynamic shifts in social support. The findings uncovered a profound and alarming reduction in mental health scores among individuals enduring higher degrees of bullying victimisation, consistently observed across all measured intervals, highlighting the pervasive and detrimental impact of such experiences.

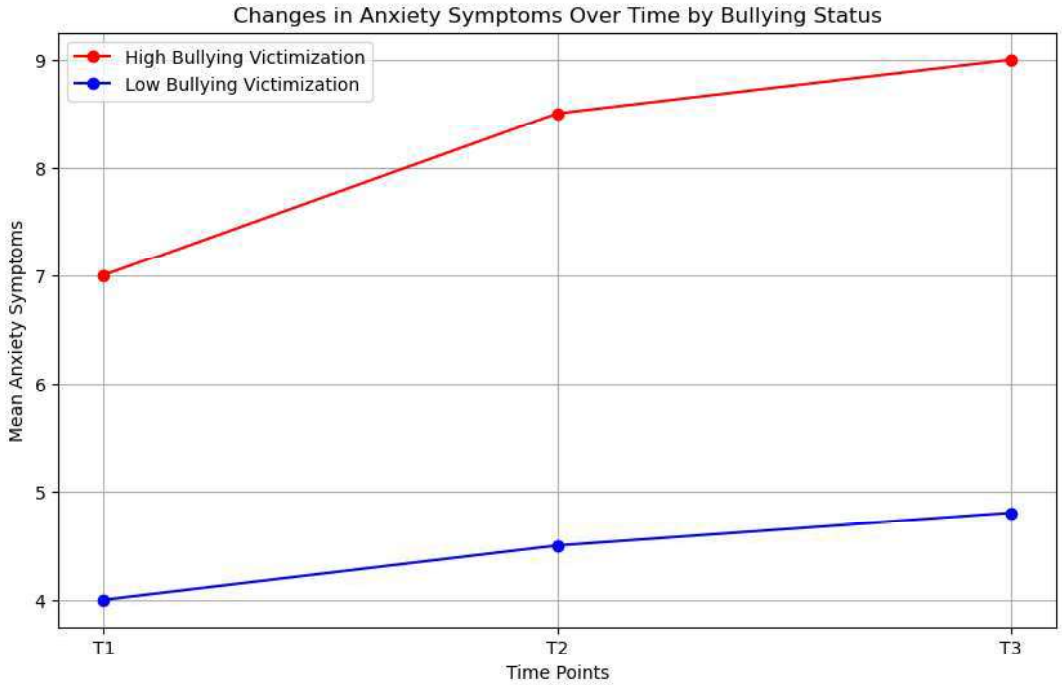

Figure 2: Changes in Anxiety Symptoms Over Time by Bullying Status

This figure depicts the course of anxiety symptoms among participants bullied in T1, high and low. The data also suggested that highly experienced victims appeared to be more anxious in T2 and T3 compared to the low-experienced victims ($F(2,1197) = 8.92$, $p < .001$). Remarkably, those participants who believed they had substantial social support experienced a significantly smaller escalation in anxiety symptoms over time. This stands in stark contrast to those who perceived their network of support as lacking, highlighting the profound impact that a robust support system can have on mental well-being during challenging times.

Discussion

The present longitudinal study provides robust evidence supporting bullying victimisation as a significant predictor of heightened anxiety and depression among adolescents, with perceived social support serving as a critical mediator in the relationship between these variables. This investigation is distinguished by its novel approach of considering the collective amount of social support derived from peers, family, and significant others, rather than isolating individual sources, thereby addressing a major limitation identified in the existing literature. The findings show that the psychological implications of bullying are not only direct, but are indirectly magnified through decreased perceived social support, emphasising the double indirect impact of being bullied. The results agree with and expand earlier longitudinal reports. For example, Wu et al. (2025) reported this moderating effect of social support on the relation between cyberbullying and mental health complaints for Chinese adolescents, and Siennick and Turanovic (2024) found

friend support to mediate the association between victimisation and internalising symptoms. The present study augments these analyses by concentrating on the comprehensive nature of perceived social support within a traditional bullying context, specifically utilizing a sub-Saharan African cohort, thereby contributing novel cross-cultural evidence to the academic discourse. Furthermore, a multiwave design combined with advanced structural equation modelling techniques are employed to obtain a deeper understanding of the temporal relationships and the intermediary processes at play. Additionally, it is observed that younger adolescents and females reported heightened levels of perceived social support, accompanied by a tendency towards amplified buffering effects within these groups. While this trend is confirmatory mainly, it suggests that interventions should take into account the stage of development and gender by personalizing support strategies to amplify their effectiveness. Although the moderating effects of SES and culture of origin were not statistically significant in the present sample, these variables are necessary to understand cultural fairness and ensure external validity. The effects of cultural norms and resource discrepancy on bullying, including the role of social support availability, can also be a focus of future research (Xu et al., 2020).

Uninterpreted findings, such as the absence of moderation by socioeconomic status, are also important. They recommend that, at least within this setting, the protective influence of social support may be somewhat independent of one's economic status, even if additional research is warranted in economically diverse or underprivileged regions. Moreover, although the present sample did not exhibit group-level differences in the mediating role of support, the cross-cultural generalizability of these findings remains significant, particularly considering that most prior research has been confined to the cultural contexts of Western and Eastern Asia. The study's strengths encompass a large and representative sample, a high retention rate, and the employment of validated measures. Analyses of attrition have not demonstrated any differences between responders and nonresponders, thereby reinforcing the validity of the longitudinal results. The utilization of mediation analyses enables a detailed delineation of the mechanism through which bullying victimization is associated with mental health issues, thus surpassing mere association or moderation models.

Theoretical implications

The conclusions to be drawn from this longitudinal research have several more general theoretical implications, in connection with Bronfenbrenner's ES model, Positive Psychology, and Attachment Theory. Through empirical evidence demonstrating that the extent of perceived social support fully mediates the relationship between bullying victimisation and adolescent mental health comprehensively, this study enhances our understanding of the influence of social contexts on the psychological well-being of youth.

First, the findings provide strong evidence in favour of Bronfenbrenner's Ecological Systems theory. This model views development during adolescence as being determined by multiple, embedded levels of environmental context, with the microsystem and mesosystem receiving particular emphasis (Navarro & Tudge, 2023). The present study focuses on the comprehensive scope of social support provided by peers, family, and educators, aligning with the microsystem level where direct interpersonal interactions transpire. The immediate consequences of bullying and support are most acute. Far more rarely articulated and largely missing from research, the mesosystem, the relationships among these microsystems (e.g., home-school relations, peer-family group relations), are also at stake, since positive dynamics across settings help to cushion the effects of bullying. Thus, the study posits that overall social support may not constitute the primary mechanism underpinning the association between bullying and mental health, and that, like Torres et al. (2020), we need to focus on adolescents' broader social ecology when attempting to understand this link, rather than simply on single relationships. This reinforces the need for interventions at multiple levels of change (individual, family, peer, school) to bring about reductions in bullying and victimisation (Erbacher et al., 2023).

Second, the present results are based on a similar psychological theory, Positive Psychology, which involves environmental resources and personal strength, inducing resilience and well-being (Singha, 2024). The significant protective capacity of perceived social support identified in this research underscores the role of positive social relationships in providing a psychological defense against the ramifications of bullying. These findings are congruent with prior studies, which suggest that adolescents perceiving robust support are more likely to engage in adaptive coping strategies, exhibit heightened self-worth, and experience enhanced mental health and well-being (Wang et al., 2022). Furthermore, the study transcends the traditional view of social support merely as a moderator or buffer, and instead elucidates its active and process-oriented role in determining outcomes. This aligns with Positive Psychology, which underscores how children can thrive even amidst challenging conditions.

Third, the findings add support to core ideas associated with attachment theory. Mares and McMahon (2020) proposed that secure relationships early in life with caregivers provide a foundation for later social functioning, affecting how adolescents, in turn, call upon and use others for support. The fact that perceived social support mediates between bullying and mental health suggests that those adolescents who have built secure and trusting relationships are more able to access the support of their peers, family, and teachers when they are victimised. On the contrary, less secure individuals may be more vulnerable to the direct and secondary effects of being bullied. This theoretical understanding highlights the importance of secure attachment and supportive relationships in childhood and adolescence as

protective factors concerning bullying experiences and their effects on mental health (Nixon & Linkie, 2023).

In combining these three models, the study emphasises the need for comprehensive, multilevel models of adolescent mental health. Social support findings as a mediator of the bullying–mental health nexus between various demographic factors (although noting stronger pathways for age and gender) underscore the need for context-specific interventions. For example, the discovery that younger adolescents and girls report more supportive experiences and benefit more from them points to the importance of such interventions being developmentally stage- and gender-specific. Furthermore, the minimal attenuation observed in relation to socioeconomic status within this study indicates that the advantageous effects of social support tend to be broadly generalizable and largely independent of cultural and economic heterogeneity. Nevertheless, socioeconomic status should still be weighed as a potential moderating factor in subsequent research.

Policy Implications

Schools and policymakers should focus on promoting and fostering social support within educational institutions. This would involve delivering anti-victimisation and perpetration prevention through the promotion of relationships among students, educators, and parents, as part of evidence-based anti-bullying programmes. It is essential to educate school staff on how to identify victimisation and provide the necessary support. Family-centred programmes that build on cultural strengths in the local community can increase the social supports available to adolescents. Because younger adolescents and women are at a higher risk, intervention programs focusing on these individuals may yield the best results. Funds must be available to support all students (without discrimination based on socioeconomic status) who receive services. Furthermore, continued surveillance and evaluation of the effectiveness of interventions, as well as the impact of culture and context, will be crucial in fine-tuning approaches and ensuring their continued applicability to broader populations. This work emphasizes the need to integrate ecological systems theory into positive psychology perspectives to understand adolescents' mental health better. Empirical findings underscore the relationship between individual experiences, such as victimisation, and socio-cultural contexts, like perceived social support, in relation to mental health outcomes. This highlights the importance of theoretical models that focus on personal risk and protective mechanisms within the environments of adolescents. It would be desirable to prevent bullying by directing interventions at strengthening social support in educational centers. Efforts to foster peer relationships and encourage supportive behaviours among students may be an important strategy to reduce the psychological consequences of bullying. Schools should consider implementing programmes to teach students empathy, improve conflict resolution skills, and build peer support. For example, programmes could be developed in which older students provide support to their younger peers who have experienced bullying. From a policy standpoint, there is a

clear need for broad anti-bullying policies that concurrently focus on behavioural aspects of bullying, as well as encourage mental health services and support for student targets of bullying. It is essential that budget holders prioritise the funding of mental health provision in our schools and that all pupils, particularly those from deprived areas, have equal access, as they may be less able to access the support they need. Moreover, providing educators and school personnel with tools to identify bullying and create caring classroom environments can significantly improve the school climate.

Limitations of the Study

While this study presents potentially significant findings, it is imperative to recognize several limitations. Despite the advantage of the longitudinal design in facilitating the examination of changes over time, a notable drawback lies in the reliance on self-reported measures. These measures are susceptible to bias and may result in the misrepresentation or inaccuracies in accounts of bullying experiences or mental health issues. Self-reporting measures are prone to social desirability bias; participants may wish to downplay negative experiences or inflate positive experiences, such as social support, to avoid stigma or a perceived judgment. This more holistic view of how adolescents experience their lives could be further developed in future research studies that incorporate data from multiple informants (e.g., teachers, parents).

Notably, the sample was derived from five secondary schools in an urban area, so the findings may not be generalised to other populations or geographical locations. Youth who grow up in rural or minority communities may experience different patterns of bullying and the availability of social support. Accordingly, further research should endeavour to include diverse populations to increase the external validity. By having schools from various socioeconomic settings, we can gain insight into how context influences bullying experiences. While this study incorporated the mediating role of perceived social support in the context of the bullying-mental health relationship, other potential moderating factors—such as coping strategies or resilience factors—were not examined. Further research should investigate these additional variables to enhance understanding of the mechanisms by which adolescents manage the experience of bullying.

Future Research Directions

Further empirical investigation is warranted to elucidate the relationships among bullying, social support systems, and mental health outcomes through longitudinal research designs encompassing diverse population groups. Extended studies are beneficial in that they monitor trends over time and reveal cause-and-effect relationships between factors. Second, research should examine targeted interventions that aim to improve peer support networks in schools and their impact on reducing mental health problems related to bullying. For example, randomised controlled trials could be used to evaluate the impact of programmes aimed at

improving peer mentoring or providing students with tools to resolve conflicts. Additionally, qualitative research may provide insight into how adolescents perceive and experience the interplay between social support and bullying. To inform the development of targeted interventions rooted in the lived experiences of youth, it is essential to value the subjective narratives associated with these accounts. Employing focus groups or interviews as methodological tools can yield rich qualitative data concerning students' perspectives regarding their encounters with bullying and their coping mechanisms. Ultimately, comprehending the role of technology in both the facilitation and mitigation of bullying is paramount, particularly in light of the contemporary digital environment. As cyberbullying continues to increase, we need to understand better how online social support counters the negative mental health consequences associated with these risks. Research could also explore appropriate uses of digital platforms to create positive online communities where adolescents experiencing bullying can find support.

Conclusions

Aligned with these compelling findings, our thorough longitudinal analyses have unveiled robust evidence linking the distress of bullying victimisation to significant mental health issues in adolescents, notably intensifying anxiety and depressive symptoms. Crucially, our results underscore the pivotal influence of perceived social support as a seminal mediator in this critical association. High levels of such support act as a formidable shield, profoundly mitigating the psychological damage inflicted by bullying, underscoring the indispensable role of social support in safeguarding adolescent mental health. The protective role of social support illustrates how it serves as a multifaceted construct, involving emotional, informational, and instrumental assistance, that cumulatively contributes to adolescents' ability to be resilient and adaptive over time. The longitudinal design of the present study, incorporating multiple data collection waves and structural equation modeling (SEM), enhances existing scholarship on the mediating relationships between bullying and mental health issues through the mechanisms of social support over time. Contrasting much of the previous literature where social support has typically acted as a moderator, here the study highlights that social support is, in fact, a mediator that accounts for how bullying victimisation impacts mental health. This nuanced knowledge is crucial for interventions to be targeted, directed not only toward bullying behaviours but also toward increasing adolescents' social support. Additional demographic analyses revealed that younger adolescents and women tend to experience more social support, suggesting that age and gender should be considered when designing support mechanisms. These results challenge the need to develop a stratified intervention and prevention approach based on developmental phases and gender-specific considerations. The implications of this study are not trivial for educators, mental health professionals, and policymakers. Efforts to reduce the psychological distress associated with bullying through comprehensive school and community social support programmes are warranted. Facilitating peer assistance, familial connections, and educational

support can cultivate a more inclusive and nurturing environment, consequently enhancing the well-being of adolescents. Additionally, an examination of the interactions between bullying, social support, and mental health highlights the necessity for a comprehensive strategy capable of addressing the social and emotional facets of adolescent development. This study contributes to our understanding of adolescent peer dynamics by highlighting the adaptive role of social support in the enduring mental health consequences of bullying. Subsequent studies should further investigate the kinds and origins of support that are most beneficial and consider cultural and socioeconomic influences on these associations. Ultimately, the cultivation of strong social support networks is an important avenue for enhancing resilience and positive mental health outcomes for adolescents victimised by bullying.

References

Adkins-Cartee, M. R., Cohen Lissman, D., Rosiek, J., Donley, K., & DeRosia, N. (2023). Teacher Mental Health and Well-Being in a Global Pandemic. *Teacher Educators' Journal*, *16*(1), 1-49.

Andreou, E., Roussi-Vergou, C., Didaskalou, E., & Skrzypiec, G. (2020). School bullying, subjective well-being, and resilience. *Psychology in the Schools*, *57*(8), 1193-1207.

Armitage, J. M., Tseliou, F., Riglin, L., Dennison, C., Eyre, O., Bevan Jones, R., Rice, F., Thapar, A. K., Thapar, A., & Collishaw, S. (2023). Validation of the Strengths and Difficulties Questionnaire (SDQ) emotional subscale in assessing depression and anxiety across development. *Plos one*, *18*(7), e0288882.

Armitage, J. M., Wang, R. A. H., Davis, O. S., Bowes, L., & Haworth, C. M. (2021). Peer victimisation during adolescence and its impact on wellbeing in adulthood: a prospective cohort study. *BMC Public Health*, *21*, 1-13.

Barcelata Eguiarte, B. E. (2022). An Ecological-Systemic Framework: An Overview of Child and Adolescent Development in Adverse Contexts. *Child and Adolescent Development in Risky Adverse Contexts: A Latin American Perspective*, 1-17.

Blakeslee, T., Snethen, J., Schiffman, R. F., Gwon, S. H., Sapp, M., & Kelber, S. (2023). Adolescent characteristics, suicide, and bullying in high school. *The Journal of School Nursing*, *39*(6), 463-474.

Braun, V., & Clarke, V. (2021). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling and psychotherapy research*, *21*(1), 37-47.

Cartwright, A. V., Pione, R. D., Stoner, C. R., & Spector, A. (2022). Validation of the multidimensional scale of perceived social support (MSPSS) for family caregivers of people with dementia. *Aging & Mental Health*, *26*(2), 286-293.

Coyle, S., Malecki, C. K., & Emmons, J. (2021). Keep your friends close: Exploring the associations of bullying, peer social support, and social anxiety. *Contemporary school psychology*, *25*(2), 230-242.

Erbacher, T. A., Singer, J. B., & Poland, S. (2023). *Suicide in schools: A practitioner's guide to multi-level prevention, assessment, intervention, and postvention*. Routledge.

Guo, Y., Tan, X., & Zhu, Q.-j. (2022). Chains of tragedy: The impact of bullying victimization on mental health through mediating role of aggressive behavior and perceived social support. *Frontiers in Psychology*, *13*, 988003.

Jolly, P. M., Kong, D. T., & Kim, K. Y. (2021). Social support at work: An integrative review. *Journal of organizational behavior*, *42*(2), 229-251.

Lin, M., Wolke, D., Schneider, S., & Margraf, J. (2020). Bullying history and mental health in university students: the mediator roles of social support, personal resilience, and self-efficacy. *Frontiers in psychiatry*, *10*, 960.

Luthans, F., & Broad, J. D. (2020). Positive psychological capital to help combat the mental health fallout from the pandemic and VUCA environment. *Organizational dynamics*, *51*(2), 100817.

Mahmood, S., Siraji, M. A., Naher, R., Arató, N., & Kaló, Z. (2023). Psychometric validation of revised Olweus Bully/Victim Questionnaire (OBVQ-R) among adolescents in Bangladesh. *Asian journal of psychiatry*, *83*, 103514.

Mares, S., & McMahon, C. (2020). Attachment security: influences on social and emotional competence, executive functioning and readiness for school. *Health and education interdependence: thriving from birth to adulthood*, 55-74.

Mikulincer, M., & R. Shaver, P. (2020). Enhancing the “broaden and build” cycle of attachment security in adulthood: From the laboratory to relational contexts and societal systems. *International journal of environmental research and public health*, *17*(6), 2054.

Navarro, J. L., & Tudge, J. R. (2023). Technologizing Bronfenbrenner: neo-ecological theory. *Current Psychology*, *42*(22), 19338-19354.

Nixon, C. L., & Linkie, C. A. (2023). Bullying prevention: A developmental, public health framework using trauma-informed and strength-based approaches. In *Handbook of anger, aggression, and violence* (pp. 1807-1829). Springer.

Noret, N., Hunter, S. C., & Rasmussen, S. (2020). The role of perceived social support in the relationship between being bullied and mental health difficulties in adolescents. *School Mental Health*, *12*(1), 156-168.

Rafi, R. R., Labib, N. I., Islam, F., Sulatana, R., Rokonuzzaman, Hasan, M. M., Ety, A. S., Jannat, N., Nabin, K. M., & Al Amin, M. (2025). Bullying in University Students: Examining the Effects on Mental Health and Academic Success. *International Journal of Mental Health and Addiction*, 1-20.

Reyers, B., Moore, M.-L., Haider, L. J., & Schlüter, M. (2022). The contributions of resilience to reshaping sustainable development. *Nature Sustainability*, *5*(8), 657-664.

Ringdal, R., Bjørnsen, H. N., Espnes, G. A., Bradley Eilertsen, M.-E., & Moksnes, U. K. (2021). Bullying, social support and adolescents' mental health: Results from a follow-up study. *Scandinavian journal of public health*, *49*(3), 309-316.

Ringdal, R., Espnes, G. A., Eilertsen, M.-E. B., BjØrnsen, H. N., & Moksnes, U. K. (2020). Social support, bullying, school-related stress and mental health in adolescence. *Nordic Psychology*, *72*(4), 313-330.

Siennick, S. E., & Turanovic, J. J. (2024). The longitudinal associations between bullying perpetration, bullying victimization, and internalizing symptoms: Bidirectionality and mediation by friend support. *Development and psychopathology*, *36*(2), 866-877.

Singha, S. (2024). Nurturing Positive Organizational Climates to Enhance Work Success: A Positive Psychology Approach. In *Fostering organizational sustainability with positive psychology* (pp. 84-107). IGI Global.

Sinko, L., Regier, P., de Arruda, T. C. M., Ayaz, H., Aryal, S., Childress, A. R., & Teitelman, A. M. (2025). The Relationship Between Childhood Sexual Abuse and Executive Function for Those in Recovery from Opioid Use Disorder: A Brief Report of a Pilot Study. *Journal of Family Violence*, 1-12.

Thomas, A. (2024). Digitally transforming the organization through knowledge management: a socio-technical system (STS) perspective. *European Journal of Innovation Management*, *27*(9), 437-460.

Torres, C. E., D'Alessio, S. J., & Stolzenberg, L. (2020). The effect of social, verbal, physical, and cyberbullying victimization on academic performance. *Victims & offenders*, *15*(1), 1-21.

Wang, S., Xu, H., Zhang, S., Yang, R., Li, D., Sun, Y., Wan, Y., & Tao, F. (2022). Linking childhood maltreatment and psychological symptoms: the role of social support, coping styles, and self-esteem in adolescents. *Journal of interpersonal violence*, *37*(1-2), NP620-NP650.

Whitehead, J., Schonert-Reichl, K. A., Oberle, E., & Boyd, L. (2023). What do teachers do to show they care? Learning from the voices of early adolescents. *Journal of Adolescent Research*, *38*(4), 726-760.

Wu, J., Gao, Y., Xiao, Q., & Zhang, X. (2025). The Impact of Cyberbullying Victimization on Cyberbullying Among Chinese Junior High School Students: A Longitudinal Moderated Mediation Model. *Youth & Society*, 0044118X241311600.

Xu, M., Macrynikola, N., Waseem, M., & Miranda, R. (2020). Racial and ethnic differences in bullying: Review and implications for intervention. *Aggression and violent behavior*, *50*, 101340.

Yang, Y., Wang, P., Kelifa, M. O., Wang, B., Liu, M., Lu, L., & Wang, W. (2022). How workplace violence correlates turnover intention among Chinese health care workers in COVID-19 context: The mediating role of perceived social support and mental health. *Journal of nursing management*, *30*(6), 1407-1414.