Bullying in middle school, peer attachment, psychological resilience, and school adjustment: A moderated mediation model

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Abstract

Purpose: This study aims to investigate the relationship between junior high school students' experiences of bullying and their adjustment to school. Specifically, it examines whether peer attachment mediates the relationship between bullying and school adjustment, as well as whether psychological resilience mediates the effects of bullying on peer attachment. Data will be collected through convenient sampling from students aged 12-16 at the 16th Middle School in Yuxi City, Yunnan Province, with a total of 179 self-report questionnaires being administered. The data will be analyzed using multiple regression analysis and path analysis. The ultimate goal is to assist students who have experienced bullying in better adjusting to their school environment by fostering robust peer relationships and enhancing psychological resilience.

Keywords: bullying in middle school, peer attachment, psychological resilience, school adjustment

JEL Classification Code:

1. Introduction

1.1 Research background

With the advent of the information society, incidents of school bullying have increasingly come into public focus, becoming a significant social issue that garners concern from the government, society, and the general populace. In 2018, the OECD initiated an International Student Assessment project that surveyed students around the age of 15 in various countries and regions worldwide. This survey aimed to evaluate both the prevalence and frequency of bullying behaviors as a means to assess school climate (Payet & Franchi, 2010). According to statistics from participating countries, an average of 23% of students experience school violence at least once a month (Zhou, 2023).

As both an enduring and emerging universal social issue, school bullying has long posed challenges for countries around the globe. The prevalence, insidious nature, and complex dynamics of school bullying threaten a significant number of children worldwide. In 1982, three boys in Norway tragically took their own lives as a result of bullying, prompting the Norwegian government to take action. They commissioned Professor Dan Olweus, a distinguished psychologist, to conduct the world's first comprehensive survey and intervention on school bullying from 1983 to 1985. The findings were so alarming that Professor Olweus introduced and defined the term "bullying at school."Professor Zhang Wenxin, a leading expert in China on research related to school bullying, has undertaken more extensive and systematic studies. His surveys involving over 20,000 primary and secondary students conducted in 1998 and again in 2020 reveal that approximately 19% to 24.3% of these students have experienced involvement in incidents of bullying. Among them, about 14.9% to 20.4% reported being victims of bullying by others; conversely, between 0.7% and 2.5% identified themselves as perpetrators; while approximately 1.6% to 2.2% occupied both roles as bullies who were also bullied.It is evident that school bullying possesses a high degree of concealment: adults often remain unaware; perpetrators frequently deny their actions; children are reluctant to speak out; and peers hesitate to offer assistance.

School adjustment refers to students' ability to adapt effectively to their educational environment and atmosphere

while adhering to established rules and regulations. It also encompasses learning essential academic and interpersonal skills within this context (Lin et al., 2003). Chinese scholars assert that the influence of school systems on adolescents' physical and mental development differs significantly from that exerted by family systems; thus, effective school adaptation plays a crucial role in both immediate and long-term developmental outcomes for these individuals (Lin, 2002). Hamre and Pianta emphasize that school adjustment serves as an important indicator for assessing students' mental health—an aspect vital for their healthy development—and it can even impact an individual's life trajectory (Hamre & Pianta, 2001). The extent to which students can successfully adjust to their schools is not only linked with improvements in academic performance but also affects their integration into new environments as well as influencing individual socialization processes.Chinese scholar Huang Mingming (2022) identified that school adaptation serves as a mediating factor between school bullying and adolescent behavioral problems. Specifically, a higher level of school adjustment correlates with a greater sense of belonging to the school among students, which consequently reduces their involvement in bullying incidents. Jing Shijie and Chen Yuying (2020) argue that within the context of schools, the extent of routine adaptation increases alongside positive attitudes toward the institution. This relationship manifests specifically in a diminished likelihood of individuals experiencing bullying, highlighting the significant connection between school adaptation and instances of being bullied at school.

Peer attachment plays a crucial role in an individual's adjustment to both school and social environments. As adolescents mature, their primary attachment figures shift from parents to peers, with peer relationships becoming increasingly significant. The quality of these peer interactions is closely linked to an individual's ability to adapt within the school setting. Research indicates that strong peer attachments can alleviate feelings of loneliness among students, facilitate societal understanding, and foster personal skill development (Jiang & Shen, 2019; Ju & Liu, 2011).Within the school context, it is evident that while some students exhibit effective adjustment behaviors, others struggle with maladjustment. This disparity raises important questions regarding its underlying causes. With the rise of positive psychology, psychological resilience has emerged as a key factor promoting positive adaptation in individuals and has garnered increasing attention from researchers. Zhang et al. (2017) demonstrated a strong correlation between psychological resilience and individual adaptation outcomes, highlighting its beneficial impact on overall adjustment processes. Furthermore, Song and Wei (2010) identified friendship, care, support, and high expectations among peers as external protective factors contributing to psychological resilience; they noted that communication between individuals and their peers can enhance this resilience.

Additionally, prior studies have shown that group-assisted intervention programs designed around enhancing peer relationships are effective in addressing communication challenges faced by individuals within the school environment. Such interventions not only strengthen connections among students but also promote closer peer relationships—ultimately facilitating better individual adaptation within educational settings (Ma, 2020; Yang, 2021).

1.2 Problem Statement

Peer attachment is a significant indicator of students' peer relationships. Research indicates that peer attachment profoundly influences students' psychological resilience, and there exists a notable correlation between peer attachment and school adaptation. Building on this foundation, the present study further investigates the relationship among peer attachment, psychological resilience, and school adaptation in junior high school students who have experienced bullying.

The primary objective of this study is to examine the mediating role of peer attachment in the context of bullying and school adjustment among middle school students. Additionally, we aim to explore whether mental toughness can mediate the impact of bullying on peer attachment when compared to the direct effects of bullying experiences on peer attachment.

1.3 Research Purpose

The primary aim of this study was to investigate the mediating role of peer attachment in the relationship between bullying and school adaptation. Additionally, this research sought to examine whether the psychological resilience of middle school students moderates the relationship between traditional school bullying and their adaptation to school.

1.4 Research Objectives

i) To analyze the impact of experiences with bullying on school adjustment.
ii) To assess the mediating effect of peer attachment on the relationship between bullying and school adaptation.
iii) To evaluate the moderating effect of psychological resilience on the association between traditional school bullying and peer attachment.

1.5 Research Significance

In contemporary society, incidents of school bullying continue to generate significant social news, and television dramas addressing this issue attract global attention. A notable example occurred in 2024 when the tragic murder of three junior high school students in Handan, Hebei Province, China, became a focal point across major news platforms. This situation has brought school bullying back into the spotlight of public discourse in China. The public reaction has been one of shock and sorrow regarding the violence perpetrated against teenagers. In this instance, factors such as the young age of the offender, the severity of the abusive actions, and the escalation of circumstances have elicited extensive concern and discussion within Chinese society. Numerous parents are expressing anxiety over how bullying may impact their children's school experiences and are seeking ways to assist their children in adjusting to these challenges. Concurrently, educators are investigating whether adolescents can leverage peer relationships during this critical developmental stage to facilitate a smoother reintegration into school life following incidents of bullying.Additionally, Chinese media have engaged in conversations about whether enhancing children's mental resilience—particularly during a period when instances of bullying are prevalent—could bolster their ability to cope with its repercussions.There exists a growing consensus worldwide regarding the detrimental effects of school bullying; thus, it is essential to explore strategies from the perspective of those who have been bullied. Specifically, understanding how to protect the mental well-being of children who have experienced bullying and facilitating their ability to maintain a healthy academic life are critical areas for investigation.

The findings from this study may provide valuable insights for secondary school educators on effectively supporting bullied students as they navigate their educational journeys while safeguarding their mental health.

1.6 Operation Definition Term

bullying

According to UNESCO's definition of school bullying, it refers to aggressive behaviors that disrupt normal peer relationships during the typical educational phase. A higher bullying scale indicates a greater frequency of actual incidents of bullying.

Peer Attachment

As defined by Pan (2020), adolescent peer attachment pertains to the emotional bonds that adolescents form with significant individuals, such as their peers. Higher scores in the dimensions of peer trust and peer communication on the attachment scale reflect better quality in participants' peer attachments. Conversely, a higher score in the dimension of peer alienation signifies poorer quality in these attachments.

Mental Toughness

In this study, psychological resilience is conceptualized as an individual's ability to overcome challenges and obstacles when faced with adverse situations. This process involves stimulating one's inner potential, integrating various internal and external resources, and ultimately achieving positive outcomes (Zhu, 2003). A higher score on the mental resilience scale corresponds to a greater level of mental resilience among participants.

School Adjustment

This paper adopts Liu Wanlun's (2004) definition of school adjustment, which encompasses left-behind junior high school students' academic performance, interpersonal interactions, participation in school activities, and emotional trends within the school environment. A higher total score on the school adjustment scale indicates better overall adaptation among participants.

2 Literature Review

The objective of this study is to investigate the mediating effect of peer attachment on the experiences of bullying and school adjustment among middle school students. Additionally, this research will examine whether psychological resilience can moderate the impact of bullying experiences on peer attachment in this demographic. Chapter 2 presents a literature review that encompasses theories aimed at elucidating peer attachment, psychological resilience, school adjustment, and the bullying experiences faced by secondary school students. While numerous theories exist to explain these variables, this section will focus exclusively on those most widely recognized and accepted by researchers and psychologists.

2.1 A Theoretical Perspective on Psychological Resilience

Western scholars have conducted significant explanatory studies surrounding the concept of mental toughness. Currently, three primary theoretical models are extensively utilized: Garmezy's model of mental toughness, Kumpfer's framework for mental toughness, and Richardson's process model of mental toughness. These models are briefly outlined

below.

Garmezy's theoretical model of mental toughness, initially proposed in his research, encompasses three primary components: the compensation model, the challenge model, and the conditional model. The compensation model posits that in crisis situations, both protective factors and risk factors inherent to an individual significantly influence their level of adaptation to challenging circumstances. Specifically, during adversity, intrinsic protective factors contribute positively to predicting an individual's development, whereas risk factors exert a negative impact (Xi Juzhe, 2006). For instance, among left-behind junior middle school students undergoing physical and mental development, elements such as cold parenting attitudes, strained teacher-student relationships, and poor peer interactions serve as risk factors. These risks interact with protective influences like parental care, teacher support, and welcoming peers to affect individuals' outcomes. Furthermore, this model emphasizes the positive predictive capacity of protective factors on an individual's mental toughness.The challenge model asserts that there exists an inverted U-shaped relationship between individual risk factors and well-adapted behaviors. Both excessively high and low levels of risk are detrimental to fostering healthy physical and mental development; conversely, moderate levels of risk can enhance individuals' adaptability to external environments while facilitating positive growth (Luthar et al., 2003). For example, moderate academic pressure may enable students to achieve improved academic performance.Lastly, the conditional model—also referred to as the protective model— suggests that individuals' protective factors are likely to mitigate the adverse effects generated by risk factors (Cicchetti et al., 2000).For instance, the internal positive traits of left-behind middle school students, such as optimism and self-confidence, can significantly influence their ability to navigate challenging situations. This support enables these students to achieve better development even in adverse conditions. Consequently, Garmezy's theoretical model of mental toughness primarily focuses on the intervention mechanisms that enhance children's resilience when facing adversity; however, whether this model applies similarly to adolescents warrants further investigation (Gaudi, 2019).

Kumpfer, a Western researcher, synthesized previous theories of mental toughness within an ecological framework. This model is commonly referred to as the "person-process-environment" model. It posits that when individuals encounter difficult circumstances, their internal protective factors positively influence their problem-solving abilities while risk factors exert a negative impact—similar to Garmezy's compensation model for mental toughness. Furthermore, Kumpfer's theory asserts that an individual's cognition, emotions, spirit, behavior, and physical state collectively constitute the five elements of mental toughness. As individuals continuously adapt to their external environments, their levels of mental toughness are dynamically balanced and enhanced (Kumpfer, 1999). Chinese researcher Xi (2008) argues that Kumpfer's framework for mental resilience effectively integrates environmental influences with individual internal factors. Additionally, this model systematically elucidates the interaction mechanisms between these two dimensions and offers a more comprehensive reference point for future studies on models of mental toughness.

Richardson's process model of mental toughness, when combined with previous approaches to process research in this area, reveals that some researchers argue against relying solely on a single psychological assessment for measuring mental toughness. Instead, they advocate viewing it as an ongoing individual process characterized by continuous change in response to increasingly challenging experiences and the accumulation of problem-solving skills. Building on this foundation, Richardson examined the journey from the emergence of difficult situations to an individual's adaptive outcomes and proposed a theoretical model of mental resilience. This theory underscores that both protective factors and risk factors present during adversity exert simultaneous influences on individuals facing challenges, ultimately leading them to adapt effectively to these difficult circumstances. Furthermore, when adversity exceeds an individual's capacity for adaptation, their level of psychological resilience may undergo significant development and transformation. In other words, following an initial state of equilibrium, an individual's internal cognitive structure will be reorganized and improved; this dynamic process evolves alongside negative life events (Richardson, 2002).In summary, insights drawn from theoretical models proposed by international researchers indicate that psychological resilience manifests both as a capability—evidenced by continual adaptation to adversity—and as a result of the ongoing interaction between internal self-cognition and external environmental factors. This interplay fosters the continuous integration and development of the individual. For left-behind middle school students specifically, this study posits that mental toughness serves not only as a product but also as a process; thus highlighting its positive influence on individuals' ability to adapt effectively in challenging situations.Based on this, the present study posits that enhancing the psychological resilience of left-behind junior high school students is beneficial for improving their adaptability to the school environment.

2.2 Theoretical Perspectives on Peer Attachment

Ethnologists, represented by Bowlby, assert that attachment is an instinctive behavioral response evolved in humans to adapt to changes in the external environment. This phenomenon results from long-term evolutionary processes. Bowlby posits that infants emit signals—such as crying, laughter, and gestures of attachment—when they are unable to care for themselves; these signals serve to attract adults who can fulfill their needs. In turn, adults respond to the cues provided by infants and young children, leading to a reciprocal interaction that fosters attachment (Li, 1987). The coping strategies

and internal working models established by children within parent-child relationships transition into peer relationships over time. The quality of the relationship between children and their parents is closely linked to how children relate with their peers; specifically, children often compensate for inadequate parent-child interactions by forming rich and emotionally fulfilling friendships. Securely attached children tend to develop positive and rapid connections with peers, perceiving interpersonal relationships as beneficial experiences (Dunn, 1993). Conversely, ambivalent children may place excessive demands on their friends; they often exhibit bossy or overly ingratiating behaviors when seeking attention or intimacy. These individuals experience anxiety regarding the normal fluctuations inherent in relationships and struggle with trust issues despite desiring friendship.Avoidant children demonstrate difficulties in understanding the dynamics of peer relationships; they possess limited awareness of reciprocity and mutual giving essential for satisfying interactions. Although they may yearn for closeness and acknowledgment from others, they lack the necessary skills to cultivate such experiences (Miorong Zhang, 2013).

With the progression of age, adolescents' attachment to their parents tends to diminish gradually, prompting them to seek new relationships (Yu & Zhou, 2002). Li and Wu (2009) discovered in their research on peer attachment that the level of peer attachment among adolescents remains relatively stable. Zou Xiaoqing's (2018) study involving middle school students in Fujian Province indicated a consistent upward trend in peer attachment levels as age increases. Peers play a crucial role in adolescent development; those with secure peer attachments experience a higher quality of life compared to their insecure counterparts. Furthermore, peer attachment is associated with various dimensions of physical and mental development as well as social adaptation among adolescents (Zhang et al., 2021).Zhang and Chen et al. (2018) highlighted that peer attachment significantly predicts the daily emotional experiences of high school students. Individuals with strong peer attachments are more likely to report positive daily emotional experiences, whereas those with weak attachments tend to have negative emotional outcomes. The importance of peer attachment is particularly pronounced for high school students' emotional well-being. Research has shown that individuals who possess high-quality peer attachments exhibit lower levels of loneliness (Zhang & Zhao 2017), while friends—serving as vital sources of social support for high school students—can alleviate feelings of depression (Lian et al., 2016). Regarding studies on the relationship between peer attachment and student adaptability, some scholars have noted that even when parental attachment is low, strong peer attachments can enhance adaptability (Deborah et al., 2000).

2.3 Perspectives on School Adaptation

The theoretical framework of psychoanalysis posits that the harmony among various components of personality, as well as the individual's alignment with the external reality in which they exist, fosters both personal development and psychological well-being. Adaptation necessitates that the ego harmonize its interactions with the id, superego, and external environment to fulfill instinctual needs without contravening the moral standards imposed by the superego. Freud asserted that human behavior is driven by mental energy derived from innate drives and instincts. Once these energies are activated, they can manifest in diverse forms.Psychoanalytic theory suggests that a harmonious and stable development of one's internal structure serves as a benchmark for effective social adaptation. In contrast, humanistic theories emphasize individual sociality's significance and highlight that personal growth and social adaptation aim to realize one's self-potential. The primary mechanism underlying social adaptation involves individuals fully developing their potential while proactively addressing challenges encountered within their environments, thereby modifying those environments to meet their needs.When conflicts arise between an individual's experiences and self-perception, feelings of threat towards one's identity may emerge, leading to anxiety. Subsequently, individuals may employ defense mechanisms—such as distortion or denial—to reconcile these experiences with their conscious self-concept. If such defenses prove successful, individuals encounter no significant barriers to adaptation; conversely, if defenses fail, psychological obstacles may impede adaptive processes (Yang, 2010).According to the cognitive school of thought, psychology—encompassing intelligence and thinking—originates from the actions of the individual subject. The essence of these actions lies in the subject's adaptation to their environment. This process of adaptation through action serves as a fundamental driver for psychological development. Every mental response exhibited by an individual, whether directed towards external stimuli or internalized cognitive processes, constitutes an act of adaptation. The core principle of adaptation is achieving equilibrium between the organism and its surroundings. From a biological perspective, Piaget posits that adaptation involves modifying one's behavior in response to objective changes (Lin, 2018).

The environment represents one significant factor influencing middle school students' adaptability. Research conducted by Tan et al. (2022) indicates that rural primary and secondary school students' adjustment is affected by various risk factors present within their family dynamics, school settings, classroom environments, community contexts, and peer relationships. Generally speaking, higher levels of risk correlate with poorer school adaptability outcomes. Furthermore, positive peer interactions and strong teacher-student relationships can mitigate anxiety among students to some extent and foster better adjustment within educational settings. Additionally, the familial atmosphere and parental involvement in education significantly impact students' ability to adapt; those raised in nurturing family environments

with moderate educational engagement are more likely to thrive academically (Ning et al., 2022; Ren et al., 2023).

2.4 Theoretical Views on School Bullying

The Norwegian scholar D. Olweus was the first to define bullying as "the behavior of a person (or group) that causes or attempts to cause fear, discomfort, or harm to another individual, either directly (through actions such as pushing, bumping, kicking, or exerting control over others) or indirectly (via taunting, name-calling, threatening, or spreading rumors). This behavior occurs over an extended period of time" (Olweus, 1994). In 2004, British scholar Smith expanded upon Olweus's definition by incorporating his own perspective: "bullying is an intentional attack on a relatively weak individual that occurs repeatedly," thereby emphasizing the subjective intent of the bully (Smith, 2010). Additionally, Finnish researchers KumPulainen and colleagues posited that bullying is characterized by deliberate actions lacking justification; its primary aim is to inflict pain and distress upon another child (KumPulainen et al., 1998). It should be noted that there is no official definition of school bullying provided in the existing literature.Some scholars argue that bullying should be defined as a form of aggression primarily driven by power imbalances, characterized by the likelihood of repetition over time. This behavior typically manifests as physical, verbal, or psychological aggression aimed at instilling fear and distress in the victim, potentially leading to harm in severe cases (Denlke & Gordon, 2020). Conversely, other researchers have noted that school bullying specifically refers to harmful behaviors among students, which may present as either long-term or short-term attacks perpetrated by older or stronger individuals against those in lower grades or perceived as weaker (Huang, 2016).

At a minimum, any definition of bullying must encompass three key characteristics: intentional harm, repetition, and power inequality (Qiao & Wen, 2018). In China, the most comprehensive definition of school bullying is outlined in the "Strengthening the Comprehensive Treatment Plan for Primary and Secondary School Students Bullying" (hereinafter referred to as the "Plan"), which was jointly issued by eleven departments including the Ministry of Education in 2017.The definition of campus bullying in the "Program" refers to "incidents that occur both inside and outside the campus, involving interactions between students, where one party (individual or group) has bullied or insulted another party (individual or group) through physical means, verbal communication, or online platforms on a single occasion or multiple occasions." This marks the first time that China has systematically defined school bullying at the national level and included cyberbullying within this category. According to this definition, school bullying can be categorized into four specific forms: physical bullying, verbal bullying, relational bullying, and cyberbullying. The first three are classified as traditional forms of bullying (Yu & Wang, 2020).

Existing research on school bullying can be broadly divided into two main areas: First, empirical studies tend to focus on factors intrinsic to the bully themselves—such as callousness (Zhang et al., 2022)—as well as external environmental influences like parental marital conflict (Hong et al., 2022), which may contribute to bullying behavior. Second is research centered around interventions aimed at preventing and addressing school bullying; this includes approaches such as guidance from school social work professionals (Wang & Dou, 2021) and cognitive restructuring techniques designed to alter beliefs about school bullying (Han & Shi, 2021).

The social ecosystem theoretical framework (Xu, 2022) underscores the dynamic interactions between individuals and various environmental systems. Within this context, school and class serve as primary social ecological settings for school bullying, significantly influencing its occurrence. However, current research examining the impact of the school environment on bullying behavior often lacks a systematic approach that considers multiple levels—namely, the school level, class level, and individual student level. Most studies tend to focus on one or two levels of influencing factors in their analyses.

2.5 Empirical Review of the Relationship Between Variables

2.5.1 Peer Attachment and School Adjustment

Peer attachment is a significant factor influencing individual adaptation and development. Research indicates a correlation between students' peer relationships and their school adjustment (Qin & Qin, 2023; Chen et al., 2019). Strong peer attachment can mitigate feelings of loneliness in individuals. A study examining the peer attachment and school adjustment of 1,060 children of returning migrant workers alongside 1,565 children of left-behind farmers revealed a notable positive correlation between school adjustment and both peer trust and communication (Tan et al., 2014).

Wilkinson (2009) analyzed the predictive effects of friend attachment and peer attachment on the psychological adjustment of Australian high school students aged 13 to 19. The findings indicated that the quality of peer relationships and best friend attachments were predictors of positive attitudes toward school. Additionally, positive maternal attachment combined with strong peer relationships has been shown to forecast more favorable evaluations regarding attitudes toward the school environment (Lu & Liu, 2018).

Jian and Shen (2019) investigated the school adaptation among migrant children compared to urban children in grades

four and five. Their research found that migrant children's school adaptation could be positively predicted by their levels of peer attachment (Li, 2020). Studies focusing on left-behind children also indicate that their peer attachments are positively correlated with their school adaptation; however, as they age, there tends to be a decline in their learning adaptability (Zhou et al., 2021).Ju et al. (2011) examined the relationship between parental attachment, adolescent attachment, and social adaptation among middle school students from their first to third year of high school. The findings indicated that peer attachment possesses strong predictive power regarding interpersonal adaptability; positive peer relationships enable individuals to develop effective interpersonal skills, thereby facilitating better adaptation to the school environment.

2.5.2 School Bullying and School Adaptation

School bullying is a significant factor that adversely impacts adolescents' school adaptation. For instance, Wang (2007) found that adolescents experiencing more severe bullying exhibited significantly lower levels of school adjustment compared to the average level. Furthermore, Zhang (2016) investigated the relationship between school bullying and academic adjustment from an individual-centered perspective and discovered that various types of bullying could significantly predict adolescents' levels of school adjustment. Consequently, it can be inferred that school adaptation may serve as a mediating variable between experiences of bullying and problem behaviors in adolescents.

2.5.3 Peer Relationships and Psychological Resilience

Some researchers argue that maintaining a healthy psychological state contributes positively to the behavior exhibited by middle school students when exploring their psychological quality in relation to peer relationships. Additionally, enhanced emotional regulation abilities can assist middle school students in developing more effective problem-solving skills when confronted with challenges or setbacks, leading them to be more accepted by their peers (Liu et al., 2016).Studies have indicated that children with higher levels of resilience tend to foster closer relationships with adults, enjoy greater popularity among peers, and exhibit superior interpersonal skills compared to those lacking mental resilience (Lsel & Bliesener, 1994; Masten & Reed, 2002). Flores, Cicchetti, and Rogosch (2005) emphasize that strong interpersonal relationships enhance mental resilience. They note that children who perceive support from parents, peers, and teachers are more likely to develop high-quality mental resilience. Divya, Christine, and Sang (2006) assert that both parent-child relationships and peer connections serve as critical foundations for the development of individual psychological resilience.Chen Huihui, Liu Qiaolan, and Hu Bingshuang (2011) conducted an analysis examining the association between social support, peer relationships, and the mental toughness of left-behind junior middle school students. Their findings revealed a close relationship between peer interactions and the cultivation of mental toughness; indeed, higher quality peer relations correlate with enhanced levels of individual mental toughness. Zhang Shanshan et al. (2021) discovered in their research a significant negative correlation between psychological resilience and resistance to peer influence. Additionally, they identified that both psychological resilience and resistance to peer influence served as mediators in understanding the dynamics between parent-child attachment and internalization issues.
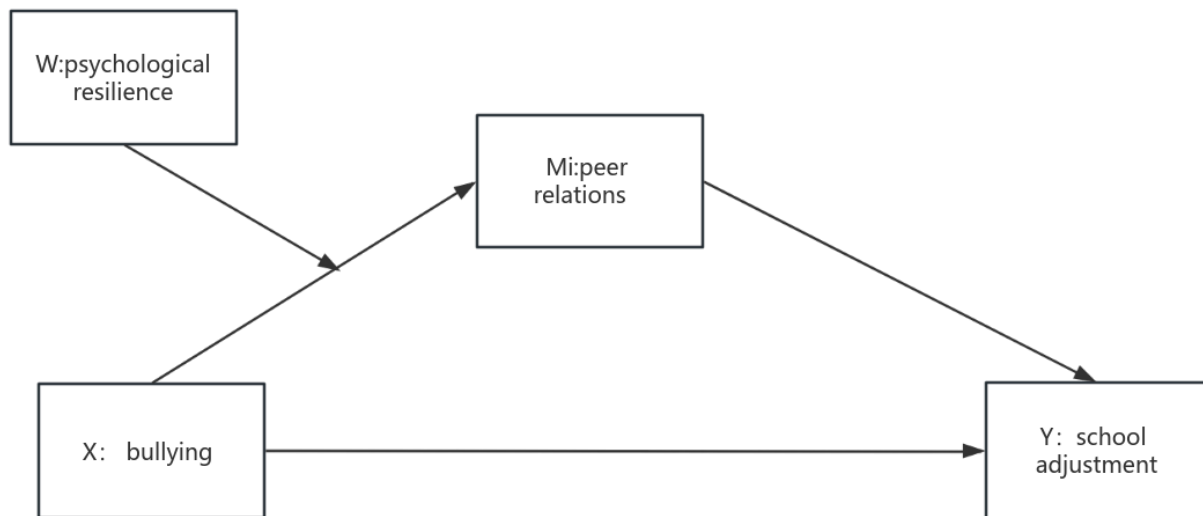
2.5.4 School Bullying and Peer Attachment

The findings indicate that the bullying experience scores of students in grades 5 to 9 are higher than those of general high school and vocational high school students, with male students reporting a greater incidence than female students. Both father attachment, mother attachment, and peer attachment were found to be negatively correlated with experiences of bullying. Notably, both peer attachment and father attachment emerged as significant predictors of bullying experiences. In conclusion, students in grades 5 to 9 are particularly vulnerable to school bullying; furthermore, peer attachment and father attachment can serve as predictive factors for such experiences (Kanazawa et al., 2020).

2.5.5 Summary of Relevant Literature

This literature review concludes that an individual's experience with school bullying can predict their level of school adjustment. Additionally, peer attachment significantly influences this adjustment process. There exists a notable correlation between peer relationships and school adaptation; likewise, psychological resilience is also related to school adaptation and plays a crucial role therein. Although research on the relationship between peer relationships and school adaptation among junior high school students is limited, it is evident that the quality of these relationships subtly impacts both parties' physical and psychological resilience levels—thereby affecting individual capabilities for adapting within the educational environment.

Moreover, while previous studies have examined the effects of bullying, peer relationships, and psychological resilience on school adjustment independently or in pairs, there remains a relative scarcity in research exploring the interrelations among all four factors simultaneously. The potential mediating or moderating effects warrant further investigation for comprehensive understanding.

2.6 Conceptual framework

Figure 1: Research Problem

The purpose of this study is to investigate the mediating effect of peer attachment on the relationship between bullying experiences and school adjustment, as well as to examine whether psychological resilience moderates the relationship between bullying experiences and peer attachment. This study aims to address three research questions:

1. How does the bullying experience of junior high school students affect their school adjustment?

2. Does peer attachment serve as a mediator in the relationship between junior high school students' bullying experiences and their school adjustment?

3. Does psychological resilience moderate the impact of bullying experiences on school adjustment among junior high school students?

2.7 Research Hypotheses

H1: The bullying experience of junior high school students negatively impacts their level of school adjustment; specifically, an increase in the frequency of bullying experiences correlates with a decrease in levels of school adjustment.

H2: Junior high school students' bullying experiences exert an indirect influence on their adaptation to school through peer attachment; for instance, higher frequencies of bullying are associated with lower levels of peer attachment, which subsequently leads to diminished levels of school adaptation.

H3: Psychological resilience moderates the relationship between bullying experiences and peer attachment among middle school students, such that higher levels of psychological resilience weaken this relationship.

3 Methodology

This chapter will describe in detail the research methodology that will be applied in the conduct of this study, with each section to be presented in the following order: (1) research design, (2) participants of the study, (3) research instruments, (4) data collection procedure, and (5) data analysis.

3.1 Research Design

The current study will be a quantitative research utilizing descriptive and extrinsic statistical methods to analyze data obtained from a self-reported questionnaire that will be distributed to the target population, which will consist of students from the 16th Middle School in Yuxi City, Yunnan Province. The questionnaires will be administered and interpreted by researchers with the consent of the schools to ensure the validity and cost-effectiveness of the data. This study will employ path analysis through multiple regression analysis with the assistance of process macro. Specifically, it will examine (1) the mediating effect of peer attachment on the relationship between bullying experience and school adjustment among junior high school students, and (2) the moderating effect of middle school students' mental toughness on the relationship between junior high school students' bullying experience and their peer attachment.

3.2 Participants of the Study

This study will select students from the first, second, and third years of school as participants. Convenient sampling will be used to invite students from the 16th Middle School in Hongta District, Yuxi City, Yunnan Province to participate in the questionnaire through offline face-to-face distribution.

3.3 Research Instrument

The study will target middle school students aged 12-16 years as participants.

3.4 Data Collection Procedure

The statistical program G*Power 3 will be utilized to determine the optimal sample size. The significance level will be set at 0.05, the power at 0.80, and the effect size at 0.15 (small predictor). The minimum calculated sample size will be 77 participants; however, the sample size will be increased to 179 in order to enhance the capacity of the analysis and provide a more robust representation of the population.

3.5 Data Analysis

The research tool utilized in this study will be a self-report questionnaire consisting of five parts.

3.5.1 Part One: Demographic Information

Participants will be required to respond to a series of questions aimed at gathering information about them, including their age, gender, living situation, school life experience, and grade level attended.

3.5.2 Part Two: Child Bullying Questionnaire

This study will utilize the child bullying questionnaire (junior high school edition) developed by Olweus and revised by Zhang Wenxin et al. (Zhang Wenxin, Wu Jianfen, Jones, 1999),The focus of this research scale is on students' experiences with bullying. This scale is designed for junior high school students from Grade One onwards and has been adapted by Chinese scholars to reflect the social realities in China. Consequently, it is more suitable for measuring the subjects of study addressed in this article. which is designed for junior high school students in the first grade and above. Six items will be used to assess the prevalence of bullying among junior high school students. Examples of items will include: "Some classmates hit and kicked me" for physical bullying; "People give me ugly nicknames, scold me or make fun of and satirize me" for verbal bullying; and "Other classmates deliberately excluded me from certain activities, excluded me from their friends, or made their friends ignore me completely" for relational bullying. The questionnaire will employ a 5-point scale where 1 indicates "it has not occurred this semester," 2 indicates "it has only occurred once or twice," 3 indicates "it occurs two or three times a month," 4 indicates "about once a week," and 5 indicates "several times a week." A higher score will reflect more frequent experiences of being bullied. The internal consistency coefficient of this scale will range from 0.61-0.82. Therefore, the child bullying questionnaire revised by Zhang Wenxin et al. (junior and middle school version) will demonstrate high reliability and will be suitable for use in this study.

3.5.3 Part Three: School Life Adjustment Scale

Cui Na (2008) will develop the LASS (School Life Adjustment Scale) based on five dimensions, The primary focus of this scale is on school adaptation. Developed by Chinese scholars to reflect the specific conditions faced by Chinese students, this scale offers a more precise measurement of the degree of school adaptation among this population.including peer relationship, teacher-student relationship, routine adjustment, school emotion and attitude, and academic adjustment. The scale will consist of a total of 27 questions. Examples of items will include: "My classmates don't like me" and "Many classmates have problems with me" for peer relationship; "I try to avoid contact with old people" for teacher-student relationship. A 5-point Likert scoring system will be used (1 = completely inconsistent, 2 = relatively inconsistent, 3 = uncertain, 4 = relatively consistent, 5 = very consistent). All questions will be scored in reverse except for items 3, 5, 14, 16, and 23. A higher total score will indicate better school adjustment within the subject group. According to relevant studies, this scale will also be applicable to primary school students in grade five or six as well as high school students. The internal consistency coefficient of this scale is reported to be at a high level of reliability at 0.88, indicating that the questionnaire will have good validity and can be effectively utilized in research studies.

3.5.4 Part Four: Adolescent Mental Toughness Scale

As the focus of this research is on Chinese junior high school students, the Adolescent Mental Resilience Scale (RSCA), developed by scholars Hu Yueqin and Gan Yiqun, has been selected as a suitable research tool based on both the specific requirements of this study and the applicability of the questionnaire. This scale is designed for students ranging from the first grade of junior middle school to the third grade of senior high school, with an average age of 16.5 years, which aligns well with the target demographic for this investigation. The primary emphasis of this scale is on mental toughness. The Adolescent Resilience Scale (RSCA) will consist of five main dimensions: interpersonal assistance, individual goal focus, emotional regulation control, family atmosphere support, and individual positive cognition. Example items will include: "I have a clear purpose in my life" and "I generally feel more mature and experienced after setbacks" for goals focus; "Failure always makes me feel discouraged" and "Failure and setbacks make me doubt my abilities" for emotional regulation control. The scale will utilize a 5-point Likert scoring system, with reverse scoring questions on items 1, 2, 5, 6, 9, 12, 16, 17, 21, 26, and 27. A higher score will indicate a higher level of mental toughness. The internal consistency coefficient of the scale will range from 0.78 to 0.83.

3.5.5 Part Five: Peer Attachment Scale

The peer relationship will be assessed using the Peer Attachment Scale developed by Yingli Zhang et al. (2011), adapted from the Inventory of Parent and Peer Attachment (IPPA) originally created by Greenberg et al. This self-reported scale will measure adolescents' relationships with their parents and peers, consisting of three subscales: father attachment, mother attachment, and peer attachment. This study exclusively employs the peer attachment scale, which specifically focuses on the construct of peer attachment. The scale is designed for junior high school students in their first through third years. It has been adapted by Chinese scholars to align with the unique characteristics of Chinese students, making it particularly suitable for measuring the subjects of this research. Comprising 25 questions, the scale will employ a 5-point scoring method to evaluate three dimensions of peer trust, peer communication, and peer alienation. Sample items will include: "My friends understand how I feel" for the peer trust dimension; "I want to know what my friends think about things I'm interested in" for the peer communication dimension; and "I feel overwhelmed discussing issues with my friends about me" for the peer alienation dimension. A higher score on the dimensions of peer trust and communication will indicate better quality of peer attachment, while a higher score on the alienation dimension will suggest poorer quality of attachment. The questionnaire will demonstrate reliability across numerous studies and is generally applicable. In this particular study, the internal consistency coefficient will range from 0.66 to 0.94. The reliability of both the peer trust and communication dimensions will be found to be good, while that of the alienation dimension will fall within an acceptable range. Overall, the scale will demonstrate good reliability and validity, and can be effectively used in this study.

3.6 Data Collection Procedure

The researchers will conduct face-to-face interviews with the students of Yuxi No. 16 Middle School in Yunnan Province who agree to participate in the study. They will explain each item in the questionnaire to ensure that the participating students can clearly understand all aspects of the survey, including informed consent and the questionnaire itself.

3.7 Data Analysis

The data analysis will be conducted through the following statistical method using SPSS.

3.8 Descriptive Statistics

Descriptive statistics will be employed to formulate the frequency and percentage distribution of the demographic data of the respondents. The means and standard deviations of the scores of this survey will then be calculated and presented in the following chapter.

3.9 Path Analysis

The hypothesis will be tested, and path analysis as well as process analysis will be conducted using multiple regression analysis. Additionally, macro analysis will be adopted (Hayes, 2013) to analyze the mediating role of peer attachment in the relationship between junior middle school students' bullying experience and school adaptation. The path model diagram and the statistical diagram will be given below (Hayes,2013).
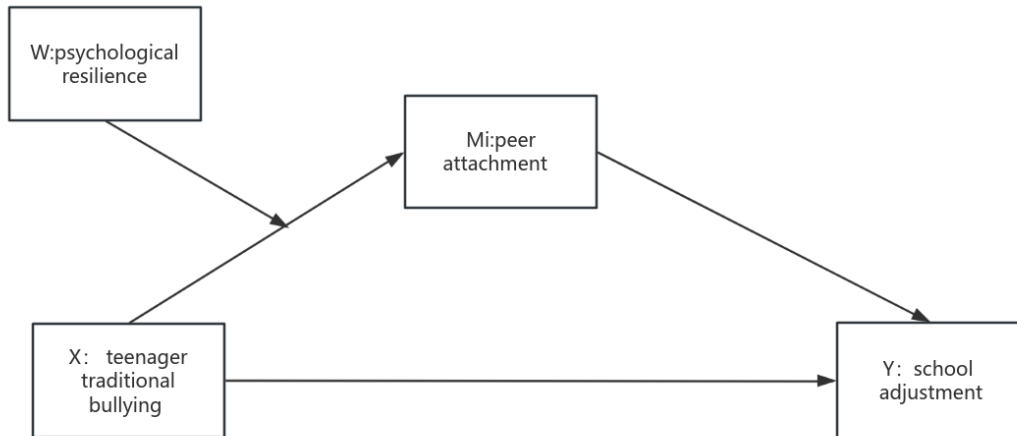
Figure 2: Research Conceptual Framework, X will represent the bullying experience of junior high school students, Y will stand for school adjustment, Mi will symbolize peer attachment, and W will denote psychological resilience
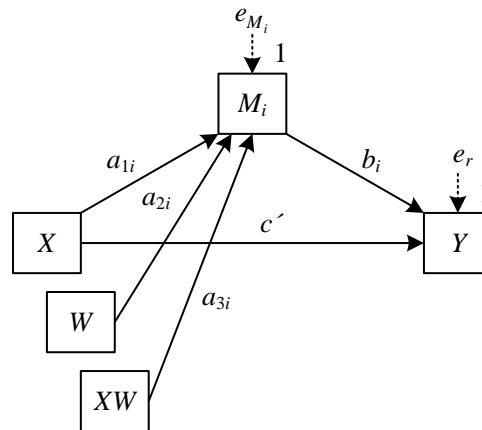
Figure 3: Path analysis of the mediating effects of peer attachment on the relationship between bullying experience and school adjustment

References

Olweus, D. (1978). *Agression in the schools: Bullies and whipping boys*. Hermisphere,.

Austin, S., & Joseph, S. (1996). Assessment of bully/victim problems in 8 to 11 year‑olds. *British Journal of Educational Psychology, 66*(4), 447-456. https://doi.org/10.1111/j.2044-8279.1996.tb01211.x

Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development, 66*(5), 1312-1329. https://doi.org/10.1111/j.1467-8624.1995.tb00937.x

Björkqvist, K., Ekman, K., & Lagerspetz, K. (1982). Bullies and victims: Their ego picture, ideal ego picture and normative ego picture. *Scandinavian Journal of Psychology, 23*(1), 307-313. https://doi.org/10.1111/j.1467-9450.1982.tb00445.x

Boulton, M. J., & Smith, P. K. (1994). Bully/victim problems in middle‑school children: Stability, self‑perceived competence, peer perceptions and peer acceptance. *British Journal of Developmental Psychology, 12*(3), 315-329. https://doi.org/10.1111/j.2044-835X.1994.tb00637.x

Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nuture reconceptualized in developmental perspective: A bioecological model. *Psychological Review, 101*(4), 568-586. https://doi.org/10.1037/0033-295X.101.4.568

Brown, L. R., McGrath, P. L., & Stokes, B. (1976). Twenty-two dimensions of the population problem. *Population reports. Series J, Family Planning Programs*, (11), 177-202.

Chen, H., & Zhang, H. (2007). The relationship between middle school students' personality construction and school adaptation. *Journal of Psychology*, (1), 129-134.

Chen, L. (2020). *Research on the relationship between Peer Relationship and Campus Psychological Violence and its Intervention* (Unpublished Master's Thesis). Hebei Normal University.

Chen, X., Rubin, K. H., Li, D., Li, Z., & Li, B. (1992). Research on Social behavior and Social acceptability of Chinese and Western children. *Psychological Science*, (2), 3-9+66. https://doi.org/10.16719/j.cnki.1671-6981.1992.02.001

Chen, Y., Li, Y., Xiao, S., Deng, Q., Gao, Y., & Gao, F. (2019). The relationship between interpersonal relationship and school adjustment in junior high school students: a multi-mediating model test. *Chinese Special Education*, (4), 83-89.

Chen, Y., Xiao, S., Li, Y., Deng, Q., Gao, Y., & Gao, F. (2019). The relationship between shyness and school adjustment in middle school students: a mediated model of regulation. *Chinese Journal of Clinical Psychology, 27*(4), 790-794+799. https://doi.org/10.16128/j.cnki.1005-3611.2019.04.031

Chi, G., Chen, H., & Wang, S. (2007). Epidemiological investigation and influencing factors of school violence in middle schools. *Journal of Disease Control*, (3), 250-252.

Dai, B., & Peng, M. (2021). The relationship between peer friendship quality and social adaptability of left-behind children: a moderated mediation model. *Psychological Science, 44*(6), 1361-1368. https://doi.org/10.16719/j.cnki.1671-6981.20210611

Hu, Y., & Gan, Y. (2008). Development and validity verification of adolescent resilience scale. *Acta Psychologica Sinica*, (8), 902-912.

Israelashvili, M. (1997). School adjustment, school membership and adolescents' future expectations. *Journal of Adolescence, 20*(5), 525-535. https://doi.org/10.1006/jado.1997.0107

Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1997). Classroom peer acceptance, friendship, and victimization: Distinct relational systems that contribute uniquely to children's school adjustment?. *Child Development, 68*(6), 1181-1197. https://doi.org/10.2307/1132300

Maunder, R., & Monks, C. P. (2019). Friendships in middle childhood: Links to peer and school identification, and general self‑worth. *British Journal of Developmental Psychology, 37*(2), 211-229. https://doi.org/10.1111/bjdp.12268

O'Moore, M., & Kirkham, C. (2001). Self‑esteem and its relationship to bullying behaviour. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression, 27*(4), 269-283. https://doi.org/10.1002/ab.1010

Peng, C. (2017). *Research on School Bullying of Junior High School students* (Unpublished Master's Thesis). Central China Normal University,

Qin, G., & Qin, Y. (2023). The effect of physical exercise on school adaptability of adolescents: the chain mediating role of peer relationship and interest in physical education. *Chinese Journal of Health Psychology, 31*(8), 1223-1228. https://doi.org/10.13342/j.cnki.cjhp.2023.08.021

Stephenson, P., & Smith, D. (1989). Bullying in the Junior School. In D. P. Tattum & D. A. Lane (Eds.), *Bul- lying in Schools* (pp.45-57), Routledge.

Wainright, J. L., & Patterson, C. J. (2008). Peer relations among adolescents with female same-sex parents. *Developmental Psychology, 44*(1), 117-126.

Wang, X., & Jiang, C. (1999). Manual of Mental Health Rating Scale. *Journal of Mental Health*, (1), 12-15.

Wang, Y., Zou, H., Hou, K., Wang, M., Tang, Y., & Pan, B. (2016). The Relationship between Parent-child attachment, peer attachment and adolescents' negative Emotion: a moderated mediation model. *Psychological Development and Education, 32*(2), 226-235. https://doi.org/10.16187/j.cnki.issn1001-4918.2016.02.12

Wilkinson, R. B. (2010). Best friend attachment versus peer attachment in the prediction of adolescent psychological adjustment. *Journal of Adolescence, 33*(5), 709-717. https://doi.org/10.1016/j.adolescence.2009.10.013

Wilkinson, R. B., & Goh, D. Y. L. (2014). Structural, age, and sex differences for a short form of the inventory of parent and peer attachment: The IPPA-45. *Journal of Relationships Research, 5*, e5. https://doi.org/10.1017/jrr.2014.5

Xu, S. (2019). The Relationship between Parents' Attachment, Security and Bullying Behavior in Middle School Students. *Journal of Jinzhong University, 36*(1), 68-73.

Zhang, G., Wang, J., Liang, Z., & Deng, H. (2017). The relationship between psychological resilience and school adaptation in junior high school students. *Psychological Development and Education,33*(1),11-20. https://doi.org/10.16187/j.cnki.issn1001-

4918.2017.01.02

Zhang, W., & Wu, J. (1999). Olweus, Revision of the Chinese version of the Child Bullying Questionnaire. *Psychological Development and Education*, (2), 8-12+38.

Zhang, Y., Zhang, Y., Zhang, Y., Wang, J., & Huang, C. (2011). Reliability and validity of the revised Chinese version of adolescent attachment questionnaire in junior high school students. *Chinese Journal of Mental Health, 25*(1), 66-70.

Appendices
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Appendix 1: Chinese version of child bullying questionnaire

Note: Please "think back over the past year" and determine whether you have encountered any of these behaviors based on the actual situation. Select the option that is most realistic and tick "√" below.

	Never encountered	1-2 times	a month 2-3 times	Once a week	Several times a week
1. My classmates call me nasty names, scold me or make fun of me					
2. Other students deliberately excluded me from certain activities, excluded me from their friends, or made his (their) friends ignore me completely					
3. Some classmates hit, kicked, pushed, bumped or threatened me					
4. Some classmates spread some rumors about me and try to make others dislike me					
5. People force me to ask for money or take/damage my things					
6. Some classmates called me ugly names because I spoke with a different accent from them					
7. I (we) call someone a nasty name, call him or her names or make fun of him or her					
8. I (we) deliberately exclude a classmate from certain activities, exclude him/her from my (our) friends, or make my (our) friends ignore him/her entirely					
9. I (we) intentionally hit, kicked, pushed, bumped, or threatened a classmate					
10. I (we) spread some rumors about a classmate and tried to make others dislike him/her					
11. I (we) forcibly ask someone for money or take/damage his/her things					
12. I (we) gave a classmate a nasty nickname because he/she spoke with a different accent than I (we) did					

Appendix 2: Secondary school adjustment questionnaire

	Completely inconsistent	Relatively inconsistent	indeterminacy	Relatively fit	Fit perfectly
1. I am often absent-minded when studying	1	2	3	4	5
2. I try to avoid contact with teachers	1	2	3	4	5
3. I will take the initiative to plan my study plan and time	1	2	3	4	5
4. At school, I was very unruly and was often punished	1	2	3	4	5
5. I will finish homework very carefully	1	2	3	4	5

6. I don't think the teacher understands me	1	2	3	4	5
7. I often find reasons not to go to school	1	2	3	4	5
8. My classmates don't like me	1	2	3	4	5
9. I was lonely at school	1	2	3	4	5
10. Some school rules make me feel uncomfortable	1	2	3	4	5
11. I'm not interested in studying	1	2	3	4	5
12. When I meet a teacher, I will avoid	1	2	3	4	5
13. Many students have problems with me	1	2	3	4	5
14. At school, I feel good	1	2	3	4	5
15. I hate going to school	1	2	3	4	5
16. Learning gives me a sense of accomplishment	1	2	3	4	5
17. At school, no classmates play with me	1	2	3	4	5
18. In school, I feel depressed	1	2	3	4	5
19. I wish I could get out of school if I could.	1	2	3	4	5
20. I often disobey the classroom discipline	1	2	3	4	5
21. I would rather not learn than ask the teacher for advice	1	2	3	4	5
22. In class, I have no friends to talk to	1	2	3	4	5
23. I am satisfied with my school life.	1	2	3	4	5
24. I often break discipline	1	2	3	4	5
25. I'm afraid of teachers	1	2	3	4	5
26. My classmates are not friendly to me	1	2	3	4	5
27. School is a place I hate	1	2	3	4	5

Appendix 3: Peer relationship scale

	That's not true at all	That's rarely the case.	Sometimes it is.	As is often the case	Always like this
1.I like to hear from my friends on issues that matter to me.	1	2	3	4	5
2.When I'm sad about something, my friends can tell	1	2	3	4	5
3.When we discuss things, my friends can value my opinions	1	2	3	4	5
4.Discussing my troubles with friends would make me feel ashamed and stupid	1	2	3	4	5
5.I wish my friends weren't like this one, two, three, four, five	1	2	3	4	5
6.My friends understand me.	1	2	3	4	5

7.My friends encouraged me to discuss my difficulties	1	2	3	4	5
8.My friends accept me as I am	1	2	3	4	5
9.I feel the need to keep in touch with my friends frequently	1	2	3	4	5
10.My friends don't understand what I'm going through these days.	1	2	3	4	5
11.When I'm with my friends, I still feel isolated	1	2	3	4	5
12.My friends are the people I talk to.	1	2	3	4	5
13.I think my friends are good	1	2	3	4	5
14.My friend doesn't communicate easily	1	2	3	4	5
15.When I'm angry about something, my friends try to understand me	1	2	3	4	5
16.My friends help me understand myself better	1	2	3	4	5
17.My friends are concerned about how I'm doing.	1	2	3	4	5
18.I'm angry with my friends.	1	2	3	4	5
19.When I need to get rid of something, I can rely on my friends	1	2	3	4	5
20.I trust my friends	1	2	3	4	5
21.My friends respect my feelings	1	2	3	4	5
22.I'm unhappy more than my friends know.	1	2	3	4	5
23.It's like my friends can irritate me for no reason.	1	2	3	4	5
24.I can tell my troubles and troubles to my friends	1	2	3	4	5
25.If my friend knew something was bothering me, he would ask me for details.	1	2	3	4	5

.

Appendix 4: Adolescent resilience Scale

	Completely inconsistent	Relatively inconsistent	indeterminacy	Relatively fit	Fit perfectly
Failure always discourages me.	1	2	3	4	5
2. I have a hard time controlling my unhappiness.					
3. I have a clear purpose in my life.					
4. I usually emerge from setbacks more mature and experienced.					
5. Failures and setbacks make me doubt my abilities.					
6. When I encounter unpleasant things, I can't find the right person to talk to.					
7. I have a friend of the same age who can tell my difficulties to him/her.					
8. My parents respect my opinion.					
9. When I am in trouble and need help, I don't know who to turn to.					
10. I think the process helps people grow more than the result.					
11. When faced with difficulties, I usually make a plan and a solution.					
12. I'm used to keeping things bottled up instead of talking to others.					
13. I think adversity is motivating.					
14. Adversity is sometimes an aid to growth.					
My parents always like to interfere with my thoughts.					

Note:

16. No one listens to what I say at home					
17. My parents lack confidence and moral support for me.					
18. When I am in trouble, I will take the initiative to talk to others.					
19.My parents never judge me.					
20. When faced with difficulties, I concentrate all my energies.					
21. It usually takes me a long time to forget unpleasant things.					
22.My parents always encourage me to do my best.					
23. I can adjust my mood very well in a short time.					
24. I set goals for myself to push myself forward.					
25. I think everything has a positive side.					
26. You don't want to talk to others when you're in a bad mood.					
27. I have a lot of mood swings and I tend to have big ups and downs.					

Many teenagers will encounter some setbacks and difficulties in their growth. The following 27 sentences describe some of these situations. Please tick "√" in the corresponding box according to how well you agree with these sentences when facing these setbacks and adversities.