

A Conceptual Analysis of the Influence Of Peer and Teacher-Student Relationships on Problem Behaviours among High School Students in Lanzhou, China: The Mediating Role of Self-Esteem

Xiao Huaixuan, Wong Siew Ping and Sun Zhenghui

Abstract – With the advancement of mental health education in China, increasing attention has been directed toward students' psychological well-being. Among adolescents, high school students represent a distinct subgroup characterized by a relatively high prevalence of problem behaviours. Consequently, their mental health issues have garnered significant attention from various sectors of society. A substantial body of research has established a strong association between adolescent problem behaviours and interpersonal relationships. However, studies specifically focusing on high school students remain relatively limited. This study aims to examine the influence of teacher-student relationships and peer relationships on high school students' problem behaviours, with a particular focus on the mediating role of self-esteem. A probability sampling method will be employed, utilizing the Krejcie and Morgan sample size formula to determine an appropriate sample size. A total of 400 high school students will be selected for participation in a questionnaire-based survey. Data collection will be conducted using validated psychometric instruments, including the Teacher-Student Relationship Scale, Peer Attachment Scale, Self-Esteem Scale, Self-Rating Anxiety Scale (SAS), Externalizing Problem Questionnaire, and Self-Rating Depression Scale (SDS). Through this investigation, the study seeks to elucidate the mechanisms through which teacher-student and peer relationships contribute to problem behaviours in high school students, while also exploring the mediating function of self-esteem.

Keywords – peer relationship; teacher-student relationship; self-esteem; problem behaviours

I. INTRODUCTION

Adolescence is a critical period of development characterized by profound physical, emotional, and social changes (Smith, Johnson, & Lee, 2020). During this stage, individuals are often exposed to increasing demands from academic, familial, and social environments, which can generate significant psychological and behavioural challenges (Wang et al., 2019). The accumulation of these pressures has been associated with a heightened risk of problem behaviours, including both internalizing issues such as anxiety and depression (Liu et al., 2018; Wei et al., 2021), and externalizing behaviours such as truancy, substance use, and aggression (Kim & Park, 2021; Van der Linden et al., 2022; Zhang et al., 2020; Xi, 2020). In this study, problem

behaviours refer to a broad range of maladaptive behaviours that hinder adolescents' psychological, social, or academic adjustment. These include both internalizing problems (such as anxiety, depression, and withdrawal) and externalizing problems (such as aggression, defiance, and rule-breaking behaviour), as commonly defined in developmental and educational psychology (Achenbach & Rescorla, 2001). Such behaviours are often influenced by multiple ecological factors, including family dynamics, peer interactions, school climate, and individual psychological characteristics such as self-esteem.

According to Bronfenbrenner's ecological systems theory and developmental contextualism, adolescents develop within multiple interacting systems that influence behaviour and adjustment. Among these, the school environment—particularly peer and teacher-student relationships—plays a pivotal role in shaping behavioural outcomes, especially as students spend increasing amounts of time on campus due to age and residential schooling arrangements.

Given this context, the present study conceptually examines how peer and teacher-student relationships influence problem behaviours among high school students in Lanzhou, China. Furthermore, it investigates the mediating role of self-esteem in this process. Understanding these relational and psychological dynamics is essential for identifying mechanisms through which school-based interactions affect adolescent behaviour and for informing the development of targeted interventions to promote positive youth development.

II. PROBLEM STATEMENT

Adolescents live within dynamic ecological systems, constantly interacting with and being shaped by their environments. Among these, school and family are the primary microsystems that significantly influence adolescent development (Eccles & Roeser, 2016; Wang & Benner, 2020). During this developmental stage, individuals undergo profound changes in self-awareness, physiological functioning, and social cognition, which increase their vulnerability to emotional and behavioural challenges (Bronfenbrenner, 1979). Notably, high school represents a period when problem behaviours—such as truancy, substance use, and aggression—tend to peak (Zhang et al., 2021; Wang & Dishion, 2020).

Amid increasing societal complexity and psychosocial demands, adolescents are experiencing rising levels of psychological distress. Many young people today face persistent issues such as emotional instability, low self-

Xiao Huai Xuan, City University Malaysia, Malaysia (Email: 714710457@qq.com).
Wong Siew Ping, City University Malaysia, Malaysia (Email: wong.siewping@city.edu.my)
Sun Zheng Hui, City University Malaysia, Malaysia (Email: dream8759@126.com).

esteem, social withdrawal, and limited psychological resilience (Fan, 2019; Liu et al., 2022). In China, where approximately 367 million individuals—about 28% of the population—are young people, this mental health crisis among adolescents is particularly concerning. Youth, as the most dynamic and creative segment of society, are expected to contribute meaningfully to school and community life. Yet, growing mental health concerns are impeding their academic performance, personal development, and future potential.

Scholars have attributed adolescent mental health problems to a combination of psychological, physiological, and social factors, and have examined influences ranging from school mental health education systems to broader sociocultural dynamics (Wang & Eccles, 2020; Zhang et al., 2021; Twenge et al., 2021; Patalay & Fitzsimons, 2021). Despite these efforts, there remains a need to further explore how specific relational contexts within schools contribute to these issues. In particular, peer and teacher-student relationships—immediate and formative aspects of the school environment—warrant closer examination.

Given that these relationships are among the first social interactions adolescents experience outside the family, they play a critical role in shaping self-perception, emotional well-being, and behavioural patterns. The present study focuses on understanding how the quality of peer and teacher-student relationships influences problem behaviours among high school students in Lanzhou, China, with specific attention to the mediating role of self-esteem. Unpacking these relational dynamics is essential to informing effective school-based mental health interventions and supporting adolescents' healthy development.

III. LITERATURE REVIEW

High school students, typically aged between 15 and 18, are in a stage of advanced secondary education characterized by increasing physiological maturity. This period—late adolescence—is a critical phase of development encompassing significant changes in physical, psychological, and social domains. Academically, students are often focused on preparing for higher education or future careers, while simultaneously undergoing processes of personal value formation and social role identification (Steinberg, 2017).

According to Erikson's (1968) theory of psychosocial development, high school students are in the developmental stage of "identity versus role confusion," where the primary task is the formation of a coherent self-identity. Physiologically, late adolescence is marked by the complete development of secondary sexual characteristics and increased hormonal stability (Blakemore, 2018). These biological changes may affect adolescents' emotional regulation abilities, as hormonal fluctuations have been linked to heightened emotional sensitivity and distress (Steinberg, 2017). Thus, the interplay of physiological, psychological, and social changes makes this developmental stage particularly complex and diverse.

Problem behaviour in adolescence refers to actions that impair social adaptability and often violate social norms, causing harm to the individual, others, or society at large.

Zhang (1997) conceptualizes problem behaviour as the result of inadequate social integration during the socialization process. These behaviours not only encompass emotional disturbances but also include actions that disrupt social functioning or violate accepted codes of conduct.

Scholars have approached adolescent problem behaviours from two broad perspectives. One approach focuses on specific behavioural issues (e.g., speech disorders), while the other examines a broad spectrum of behaviours, typically categorized into two types: externalizing behaviours—such as aggression and rule-breaking—and internalizing behaviours—such as anxiety and depression. With the rise of positive psychology, researchers increasingly view problem behaviours as part of broader behavioural "syndromes," suggesting that visible behaviours are only one facet of a complex network of underlying issues. Moreover, studies show that various specific problem behaviours tend to be significantly interrelated (Seligman & Csikszentmihalyi, 2018; Zhang & Wang, 2020).

Adolescence, as a period of psychological maturation and identity formation, is also associated with heightened vulnerability to problem behaviours. Emotional volatility is common at this stage, as adolescents transition from psychological immaturity to maturity. They may experience elation over minor successes but also become discouraged by relatively minor setbacks (Steinberg, 2021; Wang & Eccles, 2020). Research indicates that personality traits, self-control, and emotional regulation are significant predictors of problem behaviour (Hughes et al., 2020). For instance, students with high impulsivity or emotional instability are more prone to externalizing behaviours, while those lacking social support are more susceptible to internalizing problems.

The causes and manifestations of problem behaviours among high school students are multidimensional and influenced by both individual and environmental factors. Among these, peer relationships and teacher-student relationships—two crucial components of the social environment—have been shown to significantly affect the development of adolescent problem behaviours.

Problem behaviours may sometimes escalate into criminal actions, although this progression is not inevitable. Under supportive conditions, problem behaviours may either diminish or normalize (Zhang & Xu, 2019). Studies have also shown that problem behaviours among high school students tend to increase with grade level, reflecting developmental and environmental pressures (Zhang, 2019; Liu & Chen, 2021). Gender differences further influence the prevalence and type of problem behaviours. In terms of externalizing behaviours, male students exhibit significantly higher levels than their female counterparts. He Yanyan (2018) suggests that biological factors, such as testosterone levels, contribute to higher aggression in boys. Additionally, societal expectations and gender-differentiated parenting practices may reinforce these patterns. Behaviours such as rule-breaking and aggression exhibited in early childhood, if left unaddressed, may develop into more persistent externalizing behaviours during adolescence.

Peer relationships refer to the social interactions and networks formed among individuals within peer groups. These relationships are a vital component of adolescents'

socialization processes, encompassing various aspects such as mutual attraction, emotional support, communication, and behavioural influence (Rubin et al., 2015). Peer interactions may be either positive—characterized by friendship, cooperation, and empathy—or negative, involving exclusion, conflict, and bullying (Wentzel et al., 2021). From a developmental psychology perspective, peer relationships serve as crucial sources of emotional fulfillment, social comparison, and social support, all of which significantly influence adolescents' self-identity, psychological well-being, and social competence (Bukowski et al., 2020).

Importantly, peer relationships are bidirectional in nature. On one hand, they provide opportunities for adolescents to engage in social learning and interpersonal communication. On the other hand, these relationships allow individuals to reflect on and modify their own emotional responses and behavioural patterns based on social feedback. The quality of peer relationships is typically evaluated through multiple dimensions, including the closeness of friendships, levels of peer acceptance or rejection, and one's perceived social status within the peer group (Newcomb & Bagwell, 2020). Numerous studies have demonstrated that high-quality peer relationships contribute positively to mental health and social functioning. In contrast, poor-quality peer relationships—particularly those involving rejection, isolation, or bullying—have been consistently associated with a heightened risk of both internalizing (e.g., anxiety, depression) and externalizing (e.g., aggression, rule-breaking) problem behaviours (Vaillancourt et al., 2019).

The influence of peer relationships on individual development is further supported by ecological systems theory, which posits that multiple environmental contexts, including peer groups, shape the developmental trajectory of individuals (Bronfenbrenner, 2011). Even in childhood, peer environments begin to influence the development of social skills, emotional regulation, behavioural expression, and attitudes. As individuals enter adolescence, the role of peers becomes even more prominent. High-quality peer relationships during this stage can foster resilience and help adolescents adopt more adaptive coping strategies when facing life's challenges (Wang & Eccles, 2020; Rubin et al., 2018).

Adolescence also marks a gradual shift in the primary source of social influence. As adolescents become more independent from their parents, school settings emerge as their central social environment, thereby amplifying the role of peer interactions. Compared to early childhood and adulthood, peer influence is particularly salient during adolescence due to the intensified need for acceptance and belonging (Blakemore, 2018). As such, peer relationships hold a uniquely significant place among the various interpersonal contexts that shape adolescent development, influencing both immediate social behaviour and long-term adjustment outcomes (Zhou et al., 2021).

Although positive parent-child relationships are generally beneficial for children's early social development, including the formation of peer relationships, the influence of family and peer relationships becomes more differentiated during adolescence. Specifically, family relationships tend to affect certain emotional dimensions, while peer relationships exert a more direct influence on others (Tian et

al., 2011). Empirical evidence indicates that peer relationships play a critical role in adolescents' emotional well-being. Studies have shown that positive peer interactions can mitigate emotional difficulties such as depression and anxiety (Prinstein & Giletta, 2018; Rancourt et al., 2020; Zhang, 2019; Yang, 2021). Conversely, adolescents who experience peer victimization or lack trust in their peers are more vulnerable to internalizing problems such as depression, as well as externalizing behaviours including aggression and social withdrawal. In contrast, high levels of peer acceptance are associated with reduced anxiety and enhanced psychological adjustment (Zimmer-Gembeck et al., 2021; Cotter & Smokowski, 2019; Yang et al., 2020).

In the Chinese context, the classroom represents a central social environment for adolescents, serving not only as a learning space but also as a key arena for social interaction. The interpersonal atmosphere among classmates thus constitutes an essential part of students' psychological and social environments (Zhang et al., 2018; Ren et al., 2020). While earlier research primarily focused on individual social status within peer groups (Sentse et al., 2017), dyadic friendships (Sentse & Laird, 2015), or the contagion effects of peers' problem behaviours (Lin et al., 2019; Hou et al., 2020), relatively less attention has been given to the broader classroom or school climate and its role in shaping adolescent behavioural outcomes. Nonetheless, emerging studies emphasize that adolescents are highly sensitive to interpersonal dynamics within classrooms, which can substantially influence their emotional and behavioural responses (Ryan & Patrick, 2020; Wang & Dishion, 2020).

These findings support the view that high-quality peer relationships can play a protective role against the development of internalizing and externalizing problems among adolescents. Specifically, poor peer relationships—characterized by low levels of perceived support—have been linked to a greater likelihood of externalizing behaviours such as defiance and aggression (Bao et al., 2020). Conversely, when adolescents perceive increased support from peers, the incidence of such behaviours tends to decline (Wang & Dishion, 2020). From the perspective of self-determination theory, adolescents require supportive interpersonal environments that satisfy basic psychological needs such as safety, belonging, and autonomy. When these needs are unmet in hostile or unsupportive peer environments, adolescents may experience psychological distress, leading to emotional and behavioural maladjustment (Ryan & Deci, 2017).

Furthermore, the stage-environment fit theory suggests that adolescent development is optimized when the school environment aligns with their evolving psychological and social needs. Field studies have shown that students who perceive a more cohesive and supportive classroom climate are less likely to be victims of aggression and are themselves less likely to exhibit aggressive behaviours (Zhang & Deng, 2021). In such positive peer contexts, adolescents demonstrate lower dependency on mobile phones, greater investment in learning, and fewer disciplinary infractions (Ryan & Patrick, 2020). Thus, it is reasonable to conclude that the quality of peer relationships is a key determinant in the emergence and reduction of both internalizing and externalizing problem behaviours among high school

students.

In the school context, the fundamental interpersonal relationship is often defined by the interaction between teachers and students. The teacher-student relationship encompasses behavioural, cognitive, and emotional exchanges (Wang & Wang, 2020), and plays a critical role in shaping students' overall school experience. This dynamic psychological connection, developed through continuous communication and interaction, reflects both parties' communication competence and social adaptability. Moreover, this relationship significantly influences students' physical and mental development, value formation, and academic outcomes (Tang, Yan, & Wang, 2021). Nel Noddings, former president of the American Association for the Philosophy of Education, emphasized the reciprocal nature of this relationship. She advocated for a reimagined teacher-student dynamic, one rooted in respect for students' individuality and emotional needs. According to Noddings, effective teaching involves not only the transmission of knowledge but also the integration of teachers into students' social worlds, facilitating a harmonious and supportive classroom environment that fosters students' holistic development.

As adolescents spend increasing amounts of time in school, relationships with both teachers and peers become central to their psychosocial development. Warm, trusting relationships with teachers, characterized by low levels of conflict, have been shown to promote school adaptation and reduce the likelihood of problem behaviours (Grant & S., 2001). Numerous studies across different cultural contexts have identified strong teacher-student relationships as a protective factor that supports students' adjustment and resilience in the school setting (Liu, 2020; Wang, Brinkworth, & Eccles, 2019; Liu et al., 2021). Teachers, in fact, often serve as key adult figures and authority figures outside the family, and their influence on adolescent development may surpass that of parents in certain domains (Dong & Chen, 2020; Martin et al., 2018).

Self-esteem—a person's affective evaluation of their own worth—is a critical psychological construct in adolescent development. Mruk (2019) highlighted that self-esteem influences an individual's self-concept, self-evaluation, and overall psychological functioning. During adolescence, a formative period for identity development, self-esteem becomes closely linked with personality development, emotional well-being, and behavioural adjustment. Research has consistently shown that higher levels of self-esteem are associated with fewer emotional and behavioural problems (Huang, 2020). Even in comparable environmental contexts, individual differences in self-esteem contribute to diverse developmental outcomes (Li & Zhang, 2021).

In response to the need for deeper understanding of how environmental factors affect adolescent problem behaviours, recent research has explored the interplay between interpersonal sensitivity and emotional issues such as depression and anxiety. According to Person-Context Interaction Theory, environmental factors—such as relationships with peers, teachers, and parents—interact with individual characteristics like self-esteem to influence adolescents' behaviours (Magnusson & Stattin, 2018). Self-esteem, as a central component of the self-system, serves as

both a buffer and a vulnerability factor. Adolescents with low self-esteem are more sensitive to criticism and rejection and are therefore more prone to negative emotional reactions and problematic behaviours, including anxiety, depression, and social withdrawal (Lei et al., 2020; Deng et al., 2021; Lin & Chih-Che, 2019; Lecompte et al., 2018; Wang, 2020). In contrast, positive peer relationships contribute to improved self-esteem and are associated with lower incidences of both internalizing and externalizing problems (Hu & Ai, 2020; Kim & Cicchetti, 2019). Research further suggests that self-esteem mediates the relationship between peer relationships and behavioural outcomes, with lower self-esteem serving as a conduit through which peer victimization leads to increased problem behaviours (Leeuwis et al., 2021; Babakhani, 2020).

Rosenberg's Social Bonding Theory (1965) posits that low self-esteem weakens individuals' sense of connectedness to society and reduces adherence to social norms, thereby increasing the likelihood of deviant behaviours. Similarly, theories of self-esteem and depression assert that low self-esteem is a key vulnerability factor for the development of depressive symptoms (Robins, 2003). Adolescents may engage in hostile or aggressive behaviours as a means of protecting themselves from feelings of shame or inadequacy following failure or criticism.

Gender differences are also evident in adolescent internalizing and externalizing behaviours. Research has shown that high school students exhibit gender-based disparities in levels of anxiety, depression, and aggression, as well as in self-esteem (Bender et al., 2020; Bachman et al., 2019). These differences may stem from divergent attribution styles, emotional responses, and levels of engagement in interpersonal relationships. Cultural factors also play a role. In the Chinese context, traditional preferences for sons can result in higher parental expectations for boys, accompanied by greater use of corporal punishment. These dynamic increases the risk of behavioural problems among boys compared to girls (Xing et al., 2021). Conversely, girls tend to be more affected by teachers' criticism, which can negatively influence their self-esteem (Wei, 2020). Furthermore, peer pressure is more likely to predict depression among girls, suggesting heightened sensitivity to interpersonal stressors (Conley, Rudolph, & Bryant, 2021). Overall, these gendered patterns highlight the need for differentiated approaches in addressing adolescent problem behaviours, taking into account both individual psychological traits and the broader social environment.

In summary, existing literature has established that adolescent problem behaviours are influenced by a constellation of interpersonal and intrapersonal factors. While family, peer, and teacher-student relationships each play unique and sometimes overlapping roles in shaping adolescent outcomes, recent studies emphasize the importance of peer and school-based environments during high school years. Furthermore, self-esteem has emerged as a critical psychological mechanism that mediates the impact of social relationships on behavioural and emotional adjustment. However, despite these insights, there remains a need for more integrated research that concurrently examines the interplay between peer relationships, teacher-student interactions, and self-esteem in predicting

internalizing and externalizing behaviours, particularly within specific cultural contexts such as China. Moreover, gender differences in how these variables interact warrant further exploration. This study aims to address these gaps by investigating the mediating role of self-esteem in the relationship between peer and teacher-student relationships and problem behaviours among high school students. Figure 1 presents the conceptual framework that underpins this study, developed based on the synthesis of the reviewed literature.

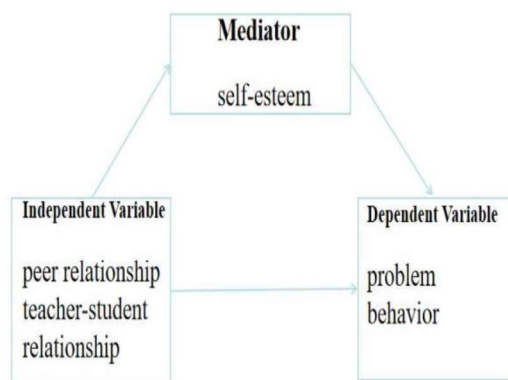


Figure 1. Conceptual Framework of the Study

IV. METHOD

This study adopts a quantitative research design to systematically investigate the impact of peer relationships and teacher-student relationships on high school students' problem behaviours, with a particular focus on the mediating role of self-esteem. Guided by clearly defined research objectives and questions, this study aims to understand the relationships among these core variables using scientific and statistically robust methods.

Data will be collected through self-reported questionnaires, requiring participants to respond according to their actual experiences to ensure accuracy. The questionnaire will be administered to a sample of high school students drawn from 67 schools in Lanzhou, Gansu Province, China, which collectively serve an estimated student population of 30,000 (Wu et al., 2020).

Using the sample size determination formula by Krejcie and Morgan (1970), a final sample size of 400 students has been determined. A stratified random sampling technique will be employed, stratifying the population by grade level and randomly selecting participants from each stratum. This approach enhances the representativeness of the sample and the generalizability of findings.

The questionnaire will serve as the primary instrument for data collection in this study and is carefully designed to ensure clarity, relevance, and alignment with the research objectives. It comprises four key sections. The first part collects demographic information from participants, including details such as gender and grade level. The second part measures the independent variables, specifically the quality of teacher-student relationships and peer relationships, using the Teacher-Student Relationship Scale and the Peer Attachment Scale. The third part assesses the mediating variable—students' level of self-esteem—using

the Self-Esteem Scale. The final part evaluates the dependent variable, problem behaviours, through instruments that capture both internalizing problems (such as anxiety and depression) and externalizing problems (such as aggression and rule-breaking), employing the Self-Rating Anxiety Scale (SAS), the Self-Rating Depression Scale (SDS), and the Externalizing Problem Questionnaire. A pilot study involving 30 students will be conducted to examine the reliability and practicality of the questionnaire. Feedback from this phase will inform final revisions to optimize the instrument prior to full-scale data collection.

Prior to data collection, written consent will be obtained from the participating schools and respondents. The research objectives and procedures will be clearly communicated to all respondents. Participation will be fully voluntary, and ethical standards—including informed consent, anonymity, and confidentiality—will be strictly upheld. Data collection will be conducted online and distributed via an online platform, with the researcher present to provide standardized instructions.

Data will be analyzed using both descriptive and inferential statistics. Descriptive methods (e.g., frequency distributions, percentages) will be used to describe demographic and key variable distributions. Inferential analyses will include one-sample t-tests, analysis of variance (ANOVA), and structural equation modeling (SEM). SEM, in particular, is well-suited for testing complex relationships and mediating effects, allowing for a comprehensive examination of how self-esteem mediates the influence of interpersonal relationships on problem behaviours (Bloomfield & Fisher, 2019).

This methodological design provides a rigorous approach for exploring the influence of teacher-student and peer relationships on high school students' problem behaviours, and the mediating role of self-esteem. The findings will not only contribute to the academic literature but also offer practical insights for educational policy and school-based interventions.

V. CONCLUSION

In conclusion, this study aims to deepen the understanding of how peer relationships and teacher-student relationships influence high school students' problem behaviours, with a particular focus on the mediating role of self-esteem. Grounded in Person-Context Interaction Theory and supported by existing empirical literature, the research highlights the complex interplay between environmental and individual factors in shaping adolescent behaviour. By adopting a quantitative approach and utilizing well-established measurement instruments, the study ensures a systematic and rigorous examination of the proposed relationships. The use of stratified random sampling and validated questionnaires enhances the reliability and generalizability of the findings. Ultimately, this research is expected to provide meaningful insights into adolescent development and offer valuable implications for educators, school counsellors, and policymakers seeking to foster positive school environments and promote students' psychological well-being.

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