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RESEARCH

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Parental rejection and adolescent problematic social media use: Role of interpersonal strengths and gender dyads

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Abstract

Objective: This study examined the role of interpersonal strengths in the association between parental rejection and adolescent problematic social media use (PSMU), with a particular focus on parent–child gender interplay.

Background: Existing literature has associated parental rejection with adolescent PSMU. However, the moderating mechanisms, particularly the potential gender effects, have not been well studied.

Method: Based on data from 1,874 Chinese adolescents aged from 11 to 19 years old (mean age = 14.78 ± 1.44 years; 56.46% female), structural equation modeling was conducted to examine the proposed model.

Results: (a) Both father and mother rejection were positively associated with adolescents' PSMU, whereas interpersonal strengths were negatively associated with PSMU; (b) in the full sample, interpersonal strengths significantly enhanced the association between father and mother rejection and PSMU; and (c) in gender subgroups, such an exacerbating effect of interpersonal strength was observed in mother–daughter, mother–son, and father–son (but not father–daughter) dyads.

Conclusion: Our findings reveal the complex role of interpersonal strengths as having a direct protective effect but exacerbating the adverse link between parental rejection and adolescent PSMU.

Implications: There is a need for a contextual understanding of positive psychological assets, such as interpersonal strengths, as a "double-edged sword" in parent–child relationship contexts. We call for more tailor-made practices

Author note: The data set is available from the corresponding author upon reasonable request.

(instead of a one-size-fits-all approach) for preventing and addressing adolescents' PSMU.

KEYWORDS

father rejection, gender differences, mother rejection, problematic social media use, reverse-buffering effect

INTRODUCTION

Problematic social media use (PSMU), also referred to as "social media addiction" or "social networking sites addiction," is characterized by excessive and uncontrollable preoccupation with social media, impairing psychosocial functioning and well-being (Andreassen et al., 2016). Although PSMU has not been included as a type of addictive disorder in diagnostic manuals such as the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013), it has garnered notable attention in research due to its increasing prevalence with the escalating ubiquity of mobile internet and the array of associated mental health issues, such as depression and anxiety (Keles et al., 2020). According to data from the Pew Research Center (2023), nearly one in five U.S. teens were "almost constantly" on social media apps or sites (e.g., TikTok and Snapchat). In a multinational survey, this figure even climbed to 43% in Sweden and 50% in Italy, with the lowest rate still reaching 17% in Switzerland (Boer et al., 2020; Boniel-Nissim et al., 2022). The high prevalence rate of intense social media use among youths was also observed in Asia, with rates of 29% in Singapore and 45% in China (Tang et al., 2017).

Parental rejection has been identified as an important risk factor for the development of adolescents' problematic technology use, including PSMU (Tom et al., 2023; M. Wang et al., 2022). To prevent PSMU among adolescents exposed to unfavorable environmental factors, such as rejecting parents, it is crucial to identify protective buffers that can counter such contextual risks. One approach is to identify and cultivate adolescents' internal coping resources, such as personal strengths or positive psychological attributes (Meyers et al., 2015; X. Zhu & Shek, 2023). High interpersonal strengths might assist adolescents in coping with parental rejection and prevent PSMU. However, there is sparse evidence of whether adolescent interpersonal strengths can serve as a buffer in the association between parental rejection and PSMU. In addition, parent gender, adolescent gender, and their interplay may also alter the link between parental rejection and adolescents' problematic technology use (Yao et al., 2014). Nevertheless, the potential gender differences regarding the link between parental rejection and PSMU and the moderating role of interpersonal strengths have not been well documented.

From a socioecological system perspective, individuals' adjustment and development are shaped by the interplay of multiple individual, interpersonal, and environmental factors (Bronfenbrenner, 1979; Eriksson et al., 2018). This research aims to examine how individual factors (i.e., adolescent interpersonal strengths and gender) interact with a family factor (i.e., parental rejection) in the proximal microsystem of child development to predict PSMU among Chinese adolescents. Our investigation and interpretation are situated within the Chinese context, which is characterized by cultural values such as filial piety and relational orientation as part of the distal macrosystem.

Parental rejection and PSMU

Adolescent development is a result of their interactions with surrounding systems, such as parents. Parental rejection refers to the absence or significant withdrawal of the warmth, affection, care,

comfort, concern, nurturance, support, or love that offspring optimally receive from their parents (Rohner & Rohner, 1980; J. Zhu et al., 2020). It can manifest in different forms, such as neglect, emotional unavailability, or aggression and hostility. According to the parental-acceptance--rejection theory, adolescents with rejecting parents usually suffer from unmet psychological needs for connection and emotional security (Rohner, 1980). Existing empirical findings have shown that parental rejection has long-lasting adverse effects on children's self-esteem, sense of belonging, and overall mental health (Rohner & Rohner, 1980; J. Zhu et al., 2020).

The compensatory internet use hypothesis proposes that individuals use the internet (e.g., social media) to counterbalance or escape from unfavorable conditions they encounter in real life, which may further develop into internet dependence and problematic use (Kardefelt-Winther, 2014; Zhou et al., 2024). For example, unfavorable social relationships serve as a key risk factor for problematic internet use (Kardefelt-Winther, 2014; Zhou et al., 2024). Likewise, rejection from parents may drive adolescents to excessively use the internet, particularly social media, to compensate for their unmet needs for belonging and connections and to escape negative emotions. According to the uses and gratifications theory, people seek out media to gratify their needs and wants emanating from the social environment, and one of the needs gratified by social media is the need for integration and social interaction (Larose et al., 2001; She et al., 2023). Therefore, adolescents who experience rejection in interacting with parents may resort to online socializing to compensate for their unmet social needs and deal with emotional distress. Based on the interaction of the person-affect-cognition-execution (I-PACE) model (Brand et al., 2019), the compensation obtained from social media can form an iterative process that reinforces intensive use, which could further result in PSMU.

In line with the above theoretical propositions, empirical studies have shown that negative parenting (e.g., rejection/neglect) is associated with an increased risk of problematic technology use among adolescents, including PSMU (Fardouly et al., 2018; Tom et al., 2023; M. Wang et al., 2022). For example, Fardouly et al. (2018) revealed that parental rejection can predict adolescents' increased time spent on social media. M. Wang et al. (2022) found that emotional neglect by parents is linked to higher levels of PSMU among Chinese adolescents. Furthermore, such an adverse association is typically mediated by adolescents' impaired psychological needs (Zhang et al., 2025) and emotional problems (e.g., depression and loneliness; Costantini et al., 2022; Mun & Lee, 2021; P. Wang et al., 2022). This indicates that parental rejection leads to adolescents' psychological distress, thereby increasing the risk of adolescents' PSMU as a maladaptive coping mechanism.

Previous studies have also explored moderation mechanisms in the link between unfavorable parenting practices and adolescent PSMU. For example, peer relationships (M. Wang et al., 2022), anxiety (Yue et al., 2022), and narcissism (P. Wang et al., 2022) have been identified as significant moderators. Surprisingly, there are few studies examining the moderating role of individuals' positive psychological assets that may serve as internal protective resources countering the impacts of unfavorable parenting on PSMU. One particular psychological asset is interpersonal strengths, which play a crucial role in determining how individuals interact with others and navigate interpersonal challenges, such as parental rejection (Klinkosz et al., 2021). This aligns with the socioecological system perspective, which emphasizes the interplay between individual and social factors in the development of individuals (Bronfenbrenner, 1979). However, to our knowledge, no study has examined the potential moderating effect of interpersonal strengths on the relationship between parental rejection and adolescent PSMU.

The role of interpersonal strengths

Interpersonal strengths are individual characteristics that benefit people's social lives, encompassing traits and abilities to approach, tend, and befriend others, such as empathy,

compassion, gratitude, and emphasis on relationships (Ho et al., 2016; L. Liu et al., 2018). There are varying conceptualizations of interpersonal strengths, such as interpersonal competencies and social skills, which emphasize different aspects, such as traits, behaviors, or specific tactics (Buhrmester et al., 1988; Ho et al., 2016; She et al., 2023). However, a common stand is that they represent individuals' desirable qualities that enable them to interact with others appropriately and to develop and maintain close social relationships. These qualities play a crucial role in adolescents' optimal socialization and well-being (Jose et al., 2012; Romppanen et al., 2021).

Adolescents with greater interpersonal strengths are more likely to achieve fulfillment in their basic psychological need for relatedness and social belongingness via their favorable social relationships, which promote mental health and serve continuous personal development and thriving (Deci & Ryan, 2000; Jose et al., 2012). This makes adolescents less inclined to engage in intense online socializing as a compensatory behavior to satisfy their social needs, reducing the risk of PSMU. Previous empirical studies showed that individuals with higher interpersonal strengths display lower levels of problematic internet use (Hsieh et al., 2019; Son, 2018) and PSMU (Satici et al., 2014; She et al., 2023). These findings indicate that interpersonal strengths can be a direct protective factor against adolescent internet-related behavior problems, including PSMU.

Apart from the direct protective effect against PSMU, interpersonal strengths may mitigate the association between interpersonal challenges (e.g., parental rejection) and adolescent PSMU. This conjecture is derived from the risk-buffering model, which suggests that personal assets can reduce the detrimental impacts of ecological risk factors on individuals' psychosocial and behavioral outcomes (Peng et al., 2019). Specifically, interpersonal strengths promote an agreeable manner in social interactions, such as considerateness and understanding (Buhrmester et al., 1988; Klinkosz et al., 2021), which can facilitate the resolution of interpersonal challenges (e.g., conflicts or rejection). In this regard, within the familial microsystem, adolescents possessing greater interpersonal strengths are likely to be more adept at effectively resolving parental rejecting behaviors, thus being less likely to rely on maladaptive coping mechanisms, such as excessive social media use. Meanwhile, interpersonal strengths may also foster close social bonds in extrafamilial microsystems, such as with peers and teachers at school or in community settings. Within the mesosystem (where familial and extrafamilial factors interact), these supportive relationships outside the family may help buffer the familial risk factors by assisting adolescents in coping with stressful life events (Lansford et al., 2003; Oktaviani & Hasanah, 2023), such as parental rejection. These mechanisms may reduce the likelihood of maladjustment (e.g., PSMU) among adolescents who are facing parental rejection.

Pieces of relevant empirical evidence support the above theoretical expectation. For example, J.-Y. Lee et al. (2019) showed that interpersonal competence could significantly reduce the positive link between loneliness and digital gaming disorder. However, direct empirical evidence of the buffering effect of interpersonal strengths on the link between parental rejection and PSMU is sparse.

In contrast to the risk-buffering model, the reverse risk-buffering model suggests certain psychological "assets" may increase individuals' susceptibility and thus magnify the association between the risk factor and the adverse outcome (Britton et al., 2012; Peng et al., 2019; Zhou et al., 2025). This notion aligns with the differential susceptibility model (Belsky et al., 2007), which posits that certain "orchid" traits make individuals more responsive to environmental influences, for both benefits and risks. Interpersonal strengths, characterized by empathy, compassion, gratitude, and a focus on relationships (Ho et al., 2016), typically foster engagement in and responsiveness to interpersonal contexts. This may help people thrive in positive relational contexts by promoting reciprocity and mutual support. However, when these strengths are met with parental rejection (a lack of mutuality), it may result in an unequal relationship where the

more engaged adolescents are underbenefited in the relationship. According to the equity theory, this can heighten the dissatisfaction among adolescents (Vogl-Bauer et al., 1999), thereby worsening the rejection consequences. Urano et al. (2020) provided indirect empirical evidence by showing a stronger association between cyberbullying victimization and mental health issues among adolescents with higher interpersonal competence.

Meanwhile, interpersonal strengths, characterized by a greater relational orientation and capabilities, may also facilitate online social interactions and foster online connections (Hwang, 2011). This may drive adolescents to rely even more on online social activities to compensate for their real-world relationship difficulties (e.g., rejection by parents). Evidence shows that lonely individuals with higher levels of interpersonal orientation are more vulnerable to PSMU (J. Lee et al., 2017).

In summary, although the direct protective effect of interpersonal strengths has been well documented, how interpersonal strengths may moderate the relationship between parental rejection and PSMU remains largely uncertain. This issue is important due to the competing theoretical possibilities.

Gender differences

A comprehensive understanding of parent–child dynamics requires consideration of the gender of both parents and children with particular reference to the four gendered dyads (i.e., father–son, father–daughter, mother–son, mother–daughter).

Regarding parental gender, previous research has revealed inconsistent paternal versus maternal effects on adolescents' internet-related issues. Mothers, as the primary caregivers, are often expected to play a more important role in the development of adolescents' maladaptive behaviors, including problematic internet use (e.g., J. Xu et al., 2014). However, Mumtaz et al. (2023) found that paternal rejection showed a stronger link with adolescents' problematic internet use than maternal rejection. Similarly, Zhou et al. (2024) found that the father–child relationship, compared to the mother–child relationship, plays a more salient role in adolescent problematic internet use. One possible explanation is that, although mothers generally engage more in caring and emotional support, fathers tend to engage more actively in adolescents' leisure activities, including internet use, thereby having a greater impact on adolescent internet-related behaviors (Zhou et al., 2024). This could be particularly true in contemporary China, where decades of socioeconomic development have brought more women from the household into the workforce, shifting the traditional role of fathers from sole "breadwinners" to more active participants in child-rearing (L. Xu et al., 2018). However, given the inconclusive picture, there is a need to further investigate paternal versus maternal effects by considering the role of adolescent gender, which may alter the association between parental rejection and PSMU.

Females are often more emotionally engaged in relationships and are inclined to use social interactions as a coping strategy (Kendler et al., 2005). This may predispose female adolescents to greater frustration when they encounter interpersonal challenges (She et al., 2023). Therefore, parental rejection, as a typical interpersonal challenge, may have a greater impact on female adolescents, potentially leading them to online connections for coping and thus heightening the PSMU risk. E. J. Lee and Kim (2018) provided indirect evidence, showing that unfavorable parent–child communications are significantly associated with excessive smartphone use among girls but not among boys.

In addition, interpersonal strengths, which facilitate optimal social interactions and connections, may be particularly beneficial for females who are more emotionally invested in relationships and tend to employ interpersonal coping strategies (She et al., 2023). Thus, interpersonal strengths may impose a stronger protective effect among female adolescents. Empirically, She et al. (2023) showed a stronger negative link between social skills and PSMU among females

than among males. Such a stronger protective effect may also effectively counteract the adverse impact of parental rejection on PSMU, thus exerting a greater buffering effect among female adolescents.

However, females often have greater affection needs and social–emotional sensitivity than do males (Bakken & Romig, 1992; Bloise & Johnson, 2007). Therefore, based on the aforementioned equity account of parent–adolescent relationship (Vogl-Bauer et al., 1999), female adolescents' affection needs might be even more strongly frustrated by the unequal relationship arising from the disparity between their high interpersonal strengths and parents' rejection, potentially resulting in more excessive online socializing as a maladaptive coping. This implies a more salient reverse-buffering effect of interpersonal strengths among female adolescents. Nevertheless, due to sparse empirical evidence in this area, it is challenging to draw a definitive conclusion.

Regarding the parent–child gender pairing in the link between parental factors and child problematic internet use, existing findings are equivocal. Some studies revealed a same-gender dyad pattern by showing more salient parental impacts on child adjustment outcomes, including problematic internet use, among same-gender children (Lam, 2020; S. Liu et al., 2024; Ying et al., 2025). This can be explained by the gender socialization perspective, which posits that children are more inclined to adopt the social roles modeled by their same-gender parents, with whom they tend to spend more time and have closer relationships (Bacikova-Sleskova et al., 2024). Rejection by the same-gender parents, thus, is likely to thwart this developmental need, potentially resulting in more severe psychological consequences and a heightened possibility for maladaptive compensation, such as PSMU.

In contrast to the same-gender dyad pattern, other findings suggest a stronger association between unfavorable parent–child dynamics (e.g., parental rejection) and problematic internet use in the opposite-gender dyads (i.e., father–daughter and mother–son dyads; Jia & Jia, 2016; Yao et al., 2014). So far, theoretical explanations for this phenomenon remain underdeveloped. One possibility for the father–daughter pattern draws on the distinct paternal role, where fathers often play a protective role for children, especially for daughters (see Reid, 2025, for details). A rejecting father directly violates this protective function, particularly amplifying the daughter's sense of insecurity and frustration, which could in turn lead to compensatory behaviors such as excessive social media use. Meanwhile, research has shown that adolescent sons have more conflicts with their mothers (Ge et al., 2023). A rejecting mother may intensify these conflicts, resulting in the son's greater emotional distress and increasing the likelihood of maladjustment like PSMU.

In summary, although there may be gender differences in the link between parental rejection and adolescent PSMU, parent–child gender dynamic patterns in this process remain largely inconclusive. In addition, the moderating effect of interpersonal strengths may also vary in different gendered dyads. To our best knowledge, however, no research has explored this possibility. Exploratory investigations into this matter will facilitate a better understanding of the intricacy of parent–child dynamics regarding gender pairing.

Relevance of the Chinese context

The Chinese cultural context is characterized by family-oriented values, such as filial piety (the obligation of children to show respect and obedience to their parents), strong family bonds, and interdependence. Family relationships are of paramount importance in Chinese people's lives (Ye et al., 2021). On the one hand, parental rejection in this context can be especially detrimental, as it disrupts family relationships and the parent–child bond. However, the child may still have to show filial piety to the rejecting parents due to the cultural expectation, which could be associated with higher internal dissonance, thus predisposing the child to maladjustment

(e.g., PSMU). On the other hand, however, the collectivistic culture in China also emphasizes the value of interpersonal strengths as a type of relational competence (F. F. Chen et al., 2012). As discussed above, the development of a high level of interpersonal strengths among adolescents may serve as a protective factor against parental rejection, thus reducing the risk of PSMU among Chinese adolescents. Nevertheless, given the conflicting theoretical possibilities and limited empirical evidence, especially in the Chinese context, direct investigations are greatly needed.

The present study

This study aimed to fill the abovementioned research gaps by addressing four research questions: (a) Is parental rejection associated with adolescent PSMU? (b) Is interpersonal strength related to adolescent PSMU? (c) Does interpersonal strength significantly moderate the association between parental rejection and adolescent PSMU? (d) Do parent gender and adolescent gender moderate the association between parental rejection and PSMU and alter the moderating effect of interpersonal strengths?

To answer these questions, we examined the relationships between fathers' and mothers' rejection and PSMU among Chinese adolescents, as well as the moderating role of interpersonal strengths among female and male adolescents. Supplemental Figure A1 illustrates the conceptual framework.

First, based on the aforementioned theoretical and empirical notions (Fardouly et al., 2018; Kardefelt-Winther, 2014; She et al., 2023), we expected the following:

> **Hypothesis 1.** Father rejection (Hypothesis 1a) and mother rejection (Hypothesis 1b) would be positively related to PSMU.

> **Hypothesis 2.** Interpersonal strengths would be negatively related to PSMU.

Second, we formed competing hypotheses (Hypothesis 3 and Hypothesis 4) regarding the moderating effect of interpersonal strengths, given the competing theoretical possibilities derived from the risk-buffering model and the reverse risk-buffering model. Specifically, based on the risk-buffering model and related findings (J.-Y. Lee et al., 2019; Peng et al., 2019), we expected the following:

> **Hypothesis 3.** Interpersonal strengths would mitigate the associations of father (Hypothesis 3a) and mother rejection (Hypothesis 3b) with PSMU.

Based on the reverse risk-buffering model (Britton et al., 2012; Peng et al., 2019; Urano et al., 2020), we hypothesized the following:

> **Hypothesis 4.** Interpersonal strengths would strengthen the association of father (Hypothesis 4a) and mother rejection (Hypothesis 4b) with PSMU.

Third, as mentioned above, there are ongoing debates and limited yet inconsistent evidence on the effects of parent–child gender pairing in this field. Furthermore, the gender dynamics regarding the potential moderating role of interpersonal strengths is a novel area of inquiry. Therefore, following the exploratory approach used in prior research (Jia & Jia, 2016; Salo et al., 2020; Yao et al., 2014), we conducted exploratory investigations into gender-related differences in the associations between parental rejection and PSMU, as well as the moderating

effect of interpersonal strengths without forming specific hypotheses (all possible scenarios of parent–child gender dynamics are outlined in Table A1 in the supplemental materials).

METHOD

Participants and procedures

This study was reviewed and approved by the institutional review board (HSEARS20220927006) at the corresponding author's institute. We collected data in September 2022 through "Wen Juan Xing," which is a frequently used online survey platform in mainland China.

The information about the study was sent to 247 secondary school teachers from 39 secondary schools across mainland China. These teachers had participated in previous teacher training workshops conducted by the research team and were willing to support the study and help promote the survey in the school due to the cooperative and trusting relationships they had established with the corresponding author. Approval from schools was obtained through direct online communication with teachers and school administrators, during which they were presented with an information sheet detailing the study's objectives and voluntary and confidentiality principles. Nonconsenting schools were excluded from the study. Finally, 22 public schools from urban areas of 18 cities agreed to participate in the present study. Details of the regions of these schools are presented in Table A2 in the supplemental materials.

Following school endorsement, teachers communicated essential study information to the legal guardians of students in the classes they taught via online platforms using an information sheet and obtained oral consent from the guardians within 1 week. Teachers then promoted the survey link in the corresponding class's online group after guardians of all students in this class had given their consent (i.e., if any guardians did not give consent within 1 week, the teacher did not promote the survey link in this class).

An information sheet was displayed on the cover page of the online survey stating the study purpose, confidentiality, voluntary participation, and free withdrawal. After students gave their consent by clicking on the options "I have read and understood the above information" and "I consent to participate in the survey," they were directed to the survey questions. Otherwise, they could click on "I do not consent to participate in the survey" and/or directly leave the online page.

To ensure data quality, three instructional attention check questions (e.g., "this question is an attention check, please choose the option of moderately agree") were inserted in the online survey. This strategy has been commonly used in online surveys (Ma et al., 2020; Zhou et al., 2024). Students who did not correctly answer all the attention check questions or whose completion duration was beyond three standard deviations from the average response time were excluded.

Using the *semPower* R package, power analysis with a statistical power of .80 and α level = .05 was conducted. Based on existing literature, medium-sized *r*s (.30) were specified among most predictors, with a large-sized *r* (.70) for the correlation between paternal and maternal rejection. Standardized slopes (βs) were set at .15, with standardized factor loadings at .70 (a modest-to-medium level in the literature). The results showed that a minimum sample size of 643 was required for each of the two adolescent gender groups (i.e., 1,286 for the whole sample) for the investigation of the proposed models using structural equation modeling (SEM).

After excluding 592 invalid cases, the final working sample included 1,874 adolescents, with 1,058 (56.5%) females and 816 (43.5%) males. Thus, the present sample size was adequate. The participants were from Grades 7 to 12 (mean age = 14.779 ± 1.436; age range = 11–19). The valid response rate was 76.0%, which is acceptable in comparison to that of previous online surveys in this field (Eichenberg et al., 2017; Yang et al., 2023).

Measures

Father and mother rejection

Father rejection and mother rejection were measured by the paternal and maternal rejection subscales in the Short-Form of Egna Minnen Beträffande Uppfostran (s-EMBU), the Chinese version of which has been validated and widely adopted in previous research (Z. Li et al., 2012; Yao et al., 2014). Paternal and maternal rejection subscales each consist of six items. Adolescents rated the applicability of each statement to their own experiences with their mothers and fathers separately (e.g., "My mother/father were sour or angry with me without letting me know the cause" and "My mother/father treated me in such a way that I felt ashamed") on a 4-point scale (from 1 = *never* to 4 = *always*). Those who did not have a parent or parents selected "not applicable," and their data would not be included in the final analyses. In this study, the measures demonstrated good reliability. Cronbach's αs for paternal and maternal rejection subscales ranged from .851 to .896 in the entire sample and subgroups of female and male adolescents.

Interpersonal strengths

The four-item interpersonal strength subscale in the Chinese version of the Brief Strength Scale (BSS) was employed in the present study to measure adolescents' interpersonal strengths. This subscale measures four components of interpersonal strengths: empathy (emotional resonance), compassion, gratitude, and emphasis on relationships. The BSS was used in previous studies with Chinese samples and has shown good psychometric properties (Ho et al., 2016; Lian et al., 2021). Participants rated their agreement with each statement (i.e., "I feel happy for others' happiness," "I am grateful for others' kindness to me," "I am a person with compassion," and "I strongly treasure my relationships with people around me") on a 7-point scale (from 1 = *not agree at all* to 7 = *totally agree*). In this study, Cronbach's αs ranged between .796 and .820 across the entire sample and the subgroups of females and males.

PSMU

PSMU was measured by the six-item Bergen Social Media Addiction Scale–Chinese Version, which has also been validated and frequently used in previous studies involving Chinese adolescents (Andreassen et al., 2016; Yu & Du, 2022). This scale assesses six core symptoms related to PSMU, namely salience, mood modification, tolerance, withdrawal, conflict, and relapse. These symptoms align with the addiction model proposed by Griffiths (Yu & Du, 2022). Participants evaluated the frequency of their behaviors over the past year in response to each item (e.g., "You spend much time thinking about social media or planning how to use it" and "You feel an urge to use social media more and more"), using a 5-point scale (1 = *very rarely*, 5 = *very often*). Referring to existing studies (Hawi & Samaha, 2017; Yu & Du, 2022), we treated PSMU as continuous. Higher average scores across the items represent higher levels of PSMU. Cronbach's αs ranged between .858 and .878.

Control variables

Gender (1 = female, 0 = male), age (from 11 to 19), and family socioeconomic status (SES) were used as covariates. In line with Y. Li's (2022) operationalization of family SES in China, the

composite variable of SES was obtained by integrating the standardized scores of parental vocational types (ranging from 1 = *unemployed* to 9 = *national government [including public sector] leaders or personnel*), parental educational level (from 1 = *primary school or below* to 6 = *postgraduate or above*), and monthly family income (from 1 = *below 1,000 CNY* to 8 = *above 10,000 CNY*; Y. Li, 2022). Cronbach's αs (standardized) ranged between .862 and .865, and mean inter-item correlations were between .610 and .615 in the full sample and the subgroups.

Confirmatory factor analysis (CFA) was conducted to support the factor structure of the key measures, with comparative fit index (CFI), Tucker–Lewis index (TLI), and root-mean-square error of approximation (RMSEA) used to assess the model fit per prior practice (Zhou et al., 2024). The results of CFA showed a good model fit for each of the aforementioned measures, with CFI between .966 and .979, TLI between .935 and .961, and RMSEA between .066 and .080 across the entire sample and the subgroups. The standardized factor loadings ranged from .631 to .818 ($ps < .001$).

A common method bias test was conducted using the Harman single-factor approach based on CFA. It showed that explaining all items by a single factor resulted in a considerable fit collapse (CFI = .445, TLI = .397, RMSEA = .131) compared with the four-factor measurement model (M1 in Supplemental Table A3). Namely, responses to the items could not be well explained by a single (common) factor (i.e., the methodology of the questionnaire survey), indicating that the present study did not have a serious common method bias.

An invariance test was performed to ensure the same meaning of the measurement constructs across genders (Supplemental Table A3). There were no significant differences between the baseline configural invariance (baseline) model and the metric invariance model (constrained factor loadings). Additionally, there was no substantial decline in the values of model fit indices of the scalar invariance model (constrained intercepts), indicating that our latent constructs remain equivalent across genders, which supports meaningful comparisons between female and male adolescents.

Statistical analyses

Reliability analyses, descriptive statistics, and correlation analyses were conducted in IBM SPSS (Version 29.0). CFA and moderation analyses were conducted in the full sample and adolescent gender subgroups using SEM with the robust maximum likelihood estimator in Mplus (Version 8.0). To probe into the moderating effect, Johnson-Neyman plots were generated based on the standardized latent factor scores of each latent variable using R (Version 4.4.1).

RESULTS

Descriptive statistics and correlations among the variables

The results of descriptive statistics and the gender differences in the focal variables are shown in Tables A4 and A5 in the supplemental materials. There were no significant gender differences in these variables after controlling for age and SES. The intercorrelations among the key variables are shown in Supplemental Table A6.

Latent moderation model (whole sample)

The associations between parental rejection and PSMU and the moderating effect of interpersonal strengths in the full sample were examined based on latent moderated structural equation modeling (LMS). The results are shown in Figure 1 and Table 1.

As the latent moderation model (M1) based on LMS did not yield model fit indices, the model fit was evaluated by referring to the main effects model (M0) with a log-likelihood ratio test (LRT) (Zhou et al., 2024). The results of the main effects model showed that the model fit the data well: Satorra-Bentler (S-B) $\chi^2(280) = 784.819$, CFI = .964, TLI = .959, RMSEA = .031, standardized root-mean-square residual (SRMR) = .048. Based on LRT, M0 showed a significant fit decline from M1: $\triangle\chi^2(2) = 30.560$, $p < .001$. Given that M0 already showed an acceptable fit, we considered the better fit of the latent moderation model still acceptable.

Both father rejection and mother rejection were positively associated with adolescent PSMU, supporting Hypotheses 1a and 1b. Interpersonal strengths negatively predicted PSMU, providing support for Hypothesis 2. Furthermore, the positive moderating effects of interpersonal strengths on the associations between father and mother rejection and PSMU were significant, implying that interpersonal strengths enhanced the associations. Thus, Hypotheses 4a and 4b (based on the reverse risk-buffering model) were supported, whereas Hypotheses 3a and 3b (based on the risk-buffering model) were not supported.

The results of simple slope analyses are shown in Table 1 and Supplemental Figure A2. There were stronger links between father and mother rejection and PSMU in participants with high interpersonal strengths (+1 *SD*) than in those with low interpersonal strengths (−1 *SD*).

The moderating effects of interpersonal strengths, illustrated with the Johnson-Neyman method, are shown in Supplemental Figure A3. The higher the interpersonal strengths, the stronger the link between parental rejection and PSMU. When interpersonal strengths were lower than 1.23 *SD* below the mean, the relationship between father rejection and PSMU became nonsignificant. Mother rejection's link to PSMU became nonsignificant when

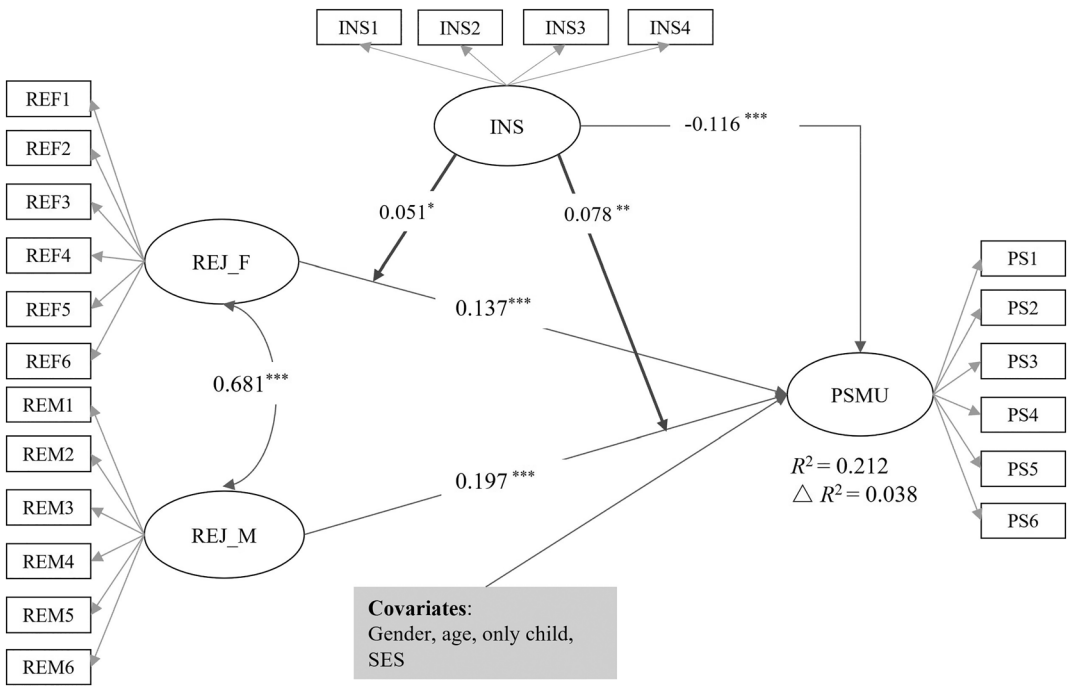

FIGURE 1 The latent moderation model (whole sample). *Note*. INS = interpersonal strengths; PS = measure items of problematic social media use; PSMU = problematic social media use; REF = measure items of father rejection; REJ_F = father rejection; REJ_M = mother rejection; REM = measure items of mother rejection; SES = socioeconomic status. Residuals and factor loadings are omitted in the figure; $\triangle R^2$ is the R^2 change by adding interaction terms. *$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 1 Results of path coefficient estimations in the latent moderation model (whole sample).

Predictor (PSMU as the outcome)	B	*SE*	*Z*	95% CI		β
				LL	*UL*	
Age	0.160	0.021	7.546***	0.125	0.195	.204
Only child	−0.119	0.060	−1.976*	−0.218	−0.020	−.050
Gender	0.021	0.053	0.391	−0.067	0.109	.009
SES	−0.092	0.032	−2.897**	−0.144	−0.040	−.081
REJ_F	0.154	0.044	3.471***	0.081	0.227	.137
REJ_M	0.222	0.049	4.501***	0.141	0.304	.197
INS	−0.130	0.033	−3.912***	−0.185	−0.075	−.116
INS × REJ_F	0.058	0.030	1.961*	0.009	0.107	.051
INS × REJ_M	0.088	0.032	2.712**	0.034	0.141	.078
Simple slopes						
REJ_F (low INS)	0.096	0.039	2.458*	0.032	0.160	.086
REJ_F (high INS)	0.212	0.065	3.286**	0.106	0.318	.188
REJ_M (low INS)	0.135	0.042	3.227**	0.066	0.204	.119
REJ_M (high INS)	0.310	0.072	4.290***	0.191	0.429	.278

Abbreviations: CI = confidence interval; INS = interpersonal strengths; *LL* = lower limit; PSMU = problematic social media use; REJ_F = father rejection; REJ_M = mother rejection; SES = socioeconomic status; *UL* = upper limit.
*$p < .05$.**$p < .01$.***$p < .001$.

interpersonal strengths were lower than 1.71 *SD* below the mean. Additionally, the slopes of both father and mother rejection reversed (became negative and significant) when interpersonal strengths reached a very low level—lower than 3.23 and 3.86 *SD* below the mean, respectively.

Latent moderation model (adolescent gender subgroups)

The associations between parental rejection and PSMU and the moderating effect of interpersonal strengths in female and male adolescents were examined in the latent moderation models. The results are shown in Figure 2 and Table 2. The main effects model (M0) showed an acceptable model fit in both female adolescents, S-B $\chi^2(259) = 556.258$, CFI = .962, TLI = .956, RMSEA = .033, SRMR = .048, and male adolescents, S-B $\chi^2(259) = 458.496$, CFI = .968, TLI = .963, RMSEA = .031, SRMR = .057. Based on LRT, M0 showed a significant fit decline from the latent moderation model (M1) in the female, $\triangle\chi^2(2)_{\text{female}} = 14.070$, $p < .01$, and male groups, $\triangle\chi^2(2)_{\text{male}} = 19.016$, $p < .001$. Given that M0 already showed an acceptable fit, the better fit of the latent moderation model was still acceptable.

Father rejection was significantly and positively associated with daughters' PSMU but not sons' PSMU. Mother rejection was positively related to both daughters' and sons' PSMU. Interpersonal strength was negatively related to PSMU in both female and male adolescents.

The moderating effects showed discernible results in different parent–child dyads. As shown in Figure 2 and Table 2, interpersonal strengths significantly enhanced the link between father rejection and sons' PSMU but not daughters', and it significantly intensified the link between mother rejection and PSMU in both daughters and sons. The simple slopes for the significant moderating effects in gender subgroups are shown in Supplemental Figure A4. The (significant) moderating effects of interpersonal strengths in adolescent gender subgroups are demonstrated with the Johnson-Neyman plots in Supplemental Figure A5. Mother rejection's link to daughters' PSMU became nonsignificant when interpersonal strengths were lower than 1.27 *SD* below

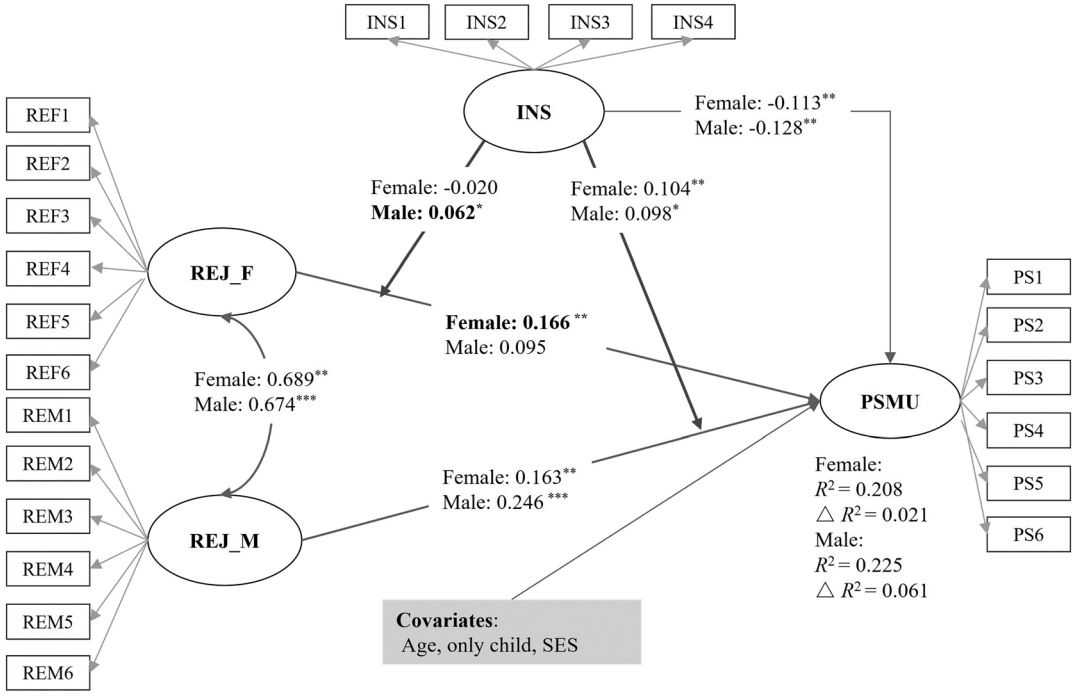

FIGURE 2 The latent moderation model in females and males. *Note*. INS = interpersonal strengths; PS = measure items of problematic social media use; PSMU = problematic social media use; REF = measure items of father rejection; REJ_F = father rejection; REJ_M = mother rejection; REM = measure items of father rejection; SES = socioeconomic status. Residuals and factor loadings are omitted in the figure; $\triangle R^2$ is the R^2 change by adding interaction terms. *$p < .05$. **$p < .01$. ***$p < .001$.

the mean. Father rejection's link to sons' PSMU was not significant when interpersonal strengths were lower than 0.60 *SD* below the mean. Mother rejection's link to son's PSMU was nonsignificant when interpersonal strengths were lower than 1.61 *SD* below the mean. Meanwhile, mother rejection's link to daughters' PSMU and father rejection's link to sons' PSMU reversed (became negative) when interpersonal strengths were lower than 4.32 and 3.19 *SD* below the mean, respectively.

DISCUSSION

This research investigated the relationship between parental rejection and PSMU and the moderating role of adolescents' interpersonal strengths in this association, while also taking parent–child gendered dyads into account. Drawing on the socioecological perspective (Bronfenbrenner, 1979; Eriksson et al., 2018), our findings illustrate how adolescent PSMU is associated with the interaction of family dynamics (parental rejection) in the microsystem and individual factors (interpersonal strengths and gender) in the Chinese context. As expected, both father rejection and mother rejection were positively and significantly associated with adolescent PSMU in the whole sample. This finding aligns with previous studies, which indicate that unfavorable parenting from both parents could contribute to adolescent problematic technology use (Tom et al., 2023; X. Zhu et al., 2023). The similar paternal and maternal associations observed in the present study endorse the equally important role played by fathers and mothers in child and adolescent development, which has been increasingly emphasized

TABLE 2 Results of path coefficient estimations in the latent moderation model in female and male participants.

Predictor (PSMU as the outcome)	B	*SE*	*Z*	95% CI *LL*	95% CI *UL*	β
Female						
Age	0.180	0.030	6.066**	0.131	0.228	.229
SES	−0.141	0.083	−1.702	−0.277	−0.005	−.058
Only child	−0.085	0.043	−1.994*	−0.156	−0.015	−.074
REJ_F	0.186	0.057	3.299**	0.093	0.279	.166
REJ_M	0.183	0.066	2.782**	0.075	0.291	.163
INS	−0.127	0.042	−3.033**	−0.196	−0.058	−.113
INS × REJ_F	−0.022	0.048	−0.456	−0.101	0.057	−.020
INS × REJ_M	0.116	0.039	2.995**	0.052	0.180	.104
Simple slopes						
REJ_M (low INS)	0.067	0.053	1.259	−0.020	0.154	.059
REJ_M (high INS)	0.300	0.094	3.178**	0.145	0.455	.267
Male						
Age	0.140	0.031	4.527***	0.089	0.191	.177
SES	−0.108	0.088	−1.233	−0.253	0.036	−.047
Only child	−0.099	0.047	−2.098*	−0.176	−0.021	−.086
REJ_F	0.108	0.069	1.557	−0.006	0.221	.095
REJ_M	0.280	0.075	3.753***	0.157	0.403	.246
INS	−0.145	0.055	−2.653**	−0.236	−0.055	−.128
INS × REJ_F	0.070	0.030	2.337*	0.021	0.120	.062
INS × REJ_M	0.111	0.056	1.992*	0.019	0.203	.098
Simple slopes						
REJ_F (low INS)	0.037	0.053	0.703	−0.050	0.124	.033
REJ_F (high INS)	0.178	0.093	1.923†	0.026	0.330	.157
REJ_M (low INS)	0.169	0.066	2.554*	0.060	0.278	.148
REJ_M (high INS)	0.391	0.114	3.433**	0.204	0.578	.344

Abbreviations: INS = interpersonal strengths; *LL* = lower limit; PSMU = problematic social media use; REJ_F = father rejection; REJ_M = mother rejection; SES = objective socioeconomic status; *UL* = upper limit.
†Marginally significant ($p = .054$).
*$p < .05$.**$p < .01$.***$p < .001$.

(Cabrera et al., 2018; X. Zhu et al., 2023). Fathers have been traditionally considered the "breadwinners" who are responsible for financial resources and safety protection, whereas mothers are the primary caregivers (Hallers-Haalboom et al., 2014). However, changes in the past decades, such as mothers' increased participation in the labor market and fathers' increased involvement in their children's socialization (especially in guidance and hands-on activities), may narrow the differences between maternal and paternal roles to a certain extent (Cabrera et al., 2018; Hallers-Haalboom et al., 2014).

Despite the similar paternal and maternal associations in the entire sample, further analyses based on adolescent gender subgroups showed that the mother rejection–PSMU link was stronger than the father rejection–PSMU link among boys, with father rejection not significantly related to boys' PSMU. Such a difference was not observed among girls. These results partially support the opposite-gender effect, suggesting that rejection by mothers may play a greater role in shaping boys' PSMU whereas fathers' rejection is less pronounced for sons. This finding is

consistent with Yao et al.'s (2014) observation, showing a stronger prediction of maternal rejection than paternal rejection in adolescent boys (see Table A1 in the supplemental materials for a summary of results regarding gender dynamics).

From a gender socialization perspective, the nonsignificant link between father rejection and sons' PSMU might be explained based on the notion of defensive identification, which is typically identified in the dynamics between an aggressive father and his son (Mussen & Distler, 1959; Wright, 2020). Specifically, sons may develop an identification with an aggressive or rejecting father who seemingly demonstrates (stereotypical) masculine traits—aggression and emotional indifference (Mussen & Distler, 1959). In this case, sons may perceive their fathers' rejection less as personal hostility, but rather as a form of interaction between men that aligns with (stereotypical) masculine norms. This could lessen the adverse emotional consequences of father rejection on sons, thus making them less likely to develop PSMU. However, as this study did not directly examine this mechanism, such an interpretation needs to be further tested by future research. In conjunction with previous findings, our results imply that differences between paternal and maternal roles may also depend on adolescent gender, which may help resolve previous inconsistent findings showing similar or dissimilar roles of mothers and fathers in adolescent internet-related behavior problems (Mumtaz et al., 2023; J. Xu et al., 2014; Yu & Zhou, 2024; X. Zhu et al., 2023). Given the generally insufficient representation of unique paternal impacts and limited investigations into parent–child gender interplay in this field, the present finding reiterates the importance of examining fathering and mothering separately concerning child gender.

In line with previous findings (Satici et al., 2014; She et al., 2023), this study found that interpersonal strengths showed a direct protective effect against PSMU among adolescents, regardless of their gender. However, the results of the moderating effect showed that high interpersonal strengths amplified the link between parental rejection and PSMU. This finding is compatible with some previous studies suggesting that higher interpersonal orientation and competence could amplify the link between interpersonal challenges (e.g., bullying victimization, loneliness) and undesirable outcomes such as mental health issues and PSMU (J. Lee et al., 2017; Urano et al., 2020). Based on the moderation patterns shown by the simple slope plots (Supplementary Figure A2), interpersonal strengths only significantly reduced PSMU when parental rejection was low. In contrast, high parental rejection resulted in similarly high levels of PSMU among adolescents, regardless of their interpersonal strengths, aligning with notion of the reverse risk-buffering model (Peng et al., 2019). Peng et al. (2019) attributed such a ceiling effect to the overwhelming influence of high levels of risk factors (e.g., parental rejection in this study). Specifically, the salient influence of high parental rejection may diminish the protective effects of interpersonal strengths, leading to uniformly high levels of PSMU among adolescents, thus causing a sharper increase in PSMU among those with high interpersonal strengths (who had a lower baseline PSMU).

Adolescents with greater interpersonal strengths experienced a more pronounced increase in PSMU severity as parental rejection escalated, indicating their vulnerability in the face of rejecting parents. Based on the abovementioned equity theory perspective (Stafford & Kuiper, 2021), adolescents' high interpersonal strengths and parents' rejection create an unequal dynamic that may heighten adolescents' relationship dissatisfaction (Vogl-Bauer et al., 1999). This may drive them to use social media as a means of compensation, thereby counteracting the protective effect of interpersonal strengths. Moreover, adolescents' interpersonal strengths may also enable them to engage in online socializing and build virtual connections when their real-life parent–child relationships are disrupted (Hwang, 2011), which could also increase the risk of excessive social media use. Nevertheless, these conjectures still need to be further verified by future research.

Unexpectedly, we also observed a reversed conditional effect of parental rejection (i.e., parental rejection even reduces PSMU) among adolescents with very low levels of interpersonal strengths (e.g., lower than about 3 to 4 *SD* below the mean). This might be because such

a low level of interpersonal strengths potentially indicates high levels of opposite characteristics, such as aggression and hostility, among them. When facing parental rejection, they may engage in direct confrontations with their parents, participate in aggressive activities, or play violent video games, which may divert them away from social media. Although this decreases their PSMU, it could still pose other behavioral problems. Such a novel finding needs more replication in the future, and our explanation needs to be further examined with other outcome variables included.

It is worth noting that the present finding does not entirely rule out the risk-buffering effect of interpersonal strengths for other psychological and behavioral outcomes. Although the present finding of the reverse-buffering effect of interpersonal strengths is similar to J. Lee et al. (2017), which also focused on social media use, it is contradictory to the buffering effect observed by J.-Y. Lee et al. (2019), which focused on digital gaming. As noted above, adolescents with higher interpersonal strengths may be more inclined and able to build (online) connections. Thus, they are more likely to resort to social networking rather than digital gaming. Therefore, our findings may be specific to the context of social media use. Future research can further examine different online activities.

Furthermore, dyad-specific moderating effects were detected in the subsamples of adolescent girls and boys. Specifically, greater interpersonal strengths intensified the association between parental rejection and PSMU in father–son, mother–daughter, and mother–son dyads but not in father–daughter dyads. Admittedly, the underlying mechanism for the father–daughter exception is uncertain and warrants caution against overinterpretation. One possible explanation is that father rejection is robustly associated with daughters' PSMU, making the association less likely to be modified. This aligns with the psychoanalytical idea of the important role of fathers in daughters' development, especially during adolescent daughters' individuation from an early undifferentiated mother–daughter relationship as they grow (Biller & Weiss, 1970; Goldner et al., 2022). Therefore, adolescent girls may be particularly vulnerable to fathers' rejection, regardless of their levels of interpersonal strengths. In this study, the robust association between father rejection and daughters' PSMU was not reflected by a larger coefficient but rather as its resistance to the moderation effect. Although our speculation requires further examination, the present finding highlights the role of child characteristics (i.e., interpersonal strengths) in altering how parent–child gender dynamics affect adolescent PSMU. This suggests a more complex pattern of parent–child gender dynamics than previously recognized through the simple same- or opposite-gender dyad comparisons (Lam, 2020; S. Liu et al., 2024).

The nonsignificant main effect of father rejection on sons' PSMU became significant when sons' interpersonal strengths were high. Based on the above-discussed equity theory perspective on parent–adolescent relationships (Vogl-Bauer et al., 1999), this might be because sons' high interpersonal strengths exacerbate the asymmetry dynamic derived from the interpersonal strengths–rejection disparity (as noted above), thus exacerbating sons' maladjustment like PSMU. However, as this study did not directly examine this explanatory mechanism, future research can further examine our speculative explanation.

Additionally, although this research focuses on the moderating role of interpersonal strengths, they may also play a mediating role in the parental rejection–PSMU linkage. As the latter is not a focus of the present study, we present an alternative mediation scenario and discuss its relevance to this study in the supplemental materials (see Table A7).

IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH

This research reveals the link between mother and father rejection and Chinese adolescent PSMU, with interpersonal strengths intensifying this linkage. Gender differences were observed in some of these effects.

Our findings align with those of other studies, which also found the reverse-buffering effects of several other psychosocial assets, such as emotional intelligence and optimism (e.g., Britton et al., 2012; Peng et al., 2019). These findings imply a need for a possible theoretical adjustment from viewing psychosocial assets as uniformly beneficial to a more nuanced understanding of certain assets as double-edged swords. This may be achieved by integrating the differential susceptibility model with positive psychology frameworks emphasizing psychosocial assets. The former posits that some traits indicate heightened environmental responsivity to both benefits and risks (Belsky et al., 2007). Namely, while enabling greater thriving in a positive environment, some assets may amplify vulnerability in adverse contexts (e.g., nicely showing interpersonal strengths but encountering rejection, betrayal, or exploitation). This integration reconciles the paradox of both benefits and reverse-buffering effects of the psychosocial assets, reframing vulnerability and advantage as two sides of the same coin.

Such an integrated perspective on adolescents' interpersonal strengths could be especially important in the Chinese context, where individuals' sociability in securing *guanxi* (building and maintaining interpersonal connections to obtain favors) is highly emphasized (Dunning & Kim, 2007). Children's and adolescents' reserved interpersonal inclinations (e.g., shyness) are often viewed as deficits to be remedied. However, drawing on our findings and some previous studies (J. Lee et al., 2017; Urano et al., 2020), their low interpersonal strengths may be a defensive mechanism against interpersonal stress and harmful relationships. Forcing a change to meet the societal expectation of high interpersonal strengths may increase their susceptibility to interpersonal adversities such as parental rejection.

Therefore, moving beyond a one-size-fits-all approach that promotes interpersonal strengths as universally beneficial, more context-sensitive and individually tailored practices are recommended. Previous positive psychology interventions, such as strengths interventions and positive youth development or social emotional learning programs (Meyers et al., 2015; Shek et al., 2019), have long been focusing on improving adolescents' psychosocial strengths to facilitate their adaptation and diminish maladjustment, such as internet-related problem behaviors like PSMU (Yu & Shek, 2013, 2021; X. Zhu & Shek, 2020). Future youth programs may consider offering more personalized "packages" comprising different types of strengths tailored to adolescents' specific circumstances, thereby mitigating the potential adverse effects of certain double-edged attributes, such as interpersonal strengths.

First, practitioners can exercise caution when considering whether and how to enhance interpersonal strengths in a particular adolescent, taking into account their familial and social-interpersonal contexts, as promoting interpersonal strengths may increase vulnerability among youth experiencing parental rejection or other negative relationships. Family-based youth intervention, which also addresses unfavorable parenting, may be a better choice in such a situation. Second, although existing frameworks have often emphasized the agreeableness aspect of interpersonal strengths, future education and intervention should adopt a more balanced approach that also incorporates the toughness aspects, such as assertiveness and self-protection skills. This would ensure that adolescents are equipped not only to thrive in supportive environments but also to navigate and withstand relational challenges. Third, practitioners are advised to adopt gender-targeted practices: For boys, addressing the exacerbating effect of interpersonal strengths on both parents' rejection may lower the PSMU risk, whereas for girls, the focus can be placed more on mitigating the role of interpersonal strengths in exacerbating the consequences of mother rejection.

Future research can also develop and test culturally tailored interventions that are sensitive to the dual roles of psychosocial assets in a specific cultural context. Furthermore, future investigations can explore other key moderating factors, such as emotional intelligence, coping styles, and effortful control, to clarify whether they exert buffering or reverse-buffering effects, thereby offering actionable insights for targeted interventions.

This research has several limitations. First, this study adopted a cross-sectional design as many other studies did in this field, limiting causal inference. For example, adolescents' PSMU could also lead to parental rejection. However, the association direction in this study is not entirely arbitrary, as the observed unique moderating pattern can, to a certain extent, assist with our influence inference. According to Wen et al.'s (2024) argument on "influence relationship," a more easily and reasonably explained scenario for the correlation direction could be used to support an influence inference. In our study, the exacerbating role of interpersonal strengths in the reversed direction of variable relationship—adolescent PSMU's impact on parental rejection (i.e., problematic social media users with higher interpersonal strengths were more likely to be rejected by parents)—is much harder explain theoretically than the reverse-buffering scenario based on the interpersonal strengths-related susceptibility (as discussed above) in the current direction of parent rejection–PSMU linkage. Therefore, we focused on the current direction of the association as did many previous studies (e.g., Tom et al., 2023; M. Wang et al., 2022; Yao et al., 2014). Even so, the long-term and more direct causal evidence of the moderating effect of interpersonal strengths and the parent–child gender dynamics has been sparse in this domain. Future research can further examine our unique findings with a longitudinal design.

Second, consistent with prior research (e.g., B.-B. Chen & Volling, 2023; Yao et al., 2014), we employed parallel measures for paternal and maternal rejection. However, parental rejection by fathers and mothers may have different manifestations, which may also depend on child gender (i.e., gendered parenting). More studies are needed to investigate and compare fathers' and mothers' rejection regarding their theoretical and operational conceptualization using mixed-method designs. Subsequently, more precise measures may be applied in future studies to better capture the potentially distinct functions of paternal and maternal rejection, as well as the different underlying pathways.

Third, our explanations for the novel reverse-buffering effect of interpersonal strengths are conjectural, based on existing theories and prior research. In the absence of direct investigations, our interpretations regarding the underlying mechanisms (e.g., asymmetric relationship) for the reverse-buffering effect should be treated with caution. We encourage future research to validate these mechanisms and to discover more possible explanations. For example, Nozaki (2015) found that individuals with higher interpersonal competence showed a better understanding of others' emotional states. In this case, high interpersonal strengths may make adolescents more observant and sensitive to rejecting parents' negative affects (e.g., hostility), thereby increasing their rejection vulnerability. Furthermore, the clash between the "other orientation" inherent in adolescents' high interpersonal strengths and the "nonother orientation" implied by parental rejection may lead to an intense value conflict, potentially exacerbating adolescents' stress and thus counteracting the protective effect of high interpersonal strengths. Future research could benefit from directly investigating these potential explanations.

Fourth, we treated interpersonal strengths as a monolithic construct, per prior practice (Ho et al., 2016; Urano et al., 2020). However, this may obscure the distinct role of different subcomponents of interpersonal strengths (e.g., empathy and emphasis on relationships). By disaggregating different subcomponents, future research can explore their respective moderating roles and the potentially distinct underlying mechanisms.

Fifth, this research focuses solely on adolescents from public schools in urban areas in China. Therefore, generalizing our findings to other cultural or demographic groups should be done with caution. Future research can examine our results in diverse cultural and demographic contexts (e.g., in private schools or rural areas).

Sixth, the potential recall bias and social desirability of the self-report measures used in this study may affect some participants' responses, especially for parental rejection and PSMU. Future research could benefit from employing more objective measures and varied methods of data collection, such as tracking actual social media usage time and incorporating multiple informant perspectives.

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DATA AVAILABILITY STATEMENT

The data were collectively gathered by the research team. Due to the ongoing related research based on the data, access to the datasets is currently restricted and not publicly accessible. The dataset is available from the corresponding author upon reasonable request.

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REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). 10.1176/appi.books.9780890425596

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252–262. https://doi.org/10.1037/adb0000160

Bacikova-Sleskova, M., Barbierik, L., & Orosová, O. (2024). Perceived parental control, parent-adolescent relationship and adolescents' psychological adjustment. Does gender matter? *Journal of Child and Family Studies*, *33*(5), 1632–1646. https://doi.org/10.1007/s10826-023-02643-8

Bakken, L., & Romig, C. (1992). Interpersonal needs in middle adolescents: Companionship, leadership and intimacy. *Journal of Adolescence*, *15*(3), 301–316. https://doi.org/10.1016/0140-1971(92)90032-Z

Belsky, J., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2007). For better and for worse: Differential susceptibility to environmental influences. *Current Directions in Psychological Science*, *16*(6), 300–304. https://doi.org/10.1111/j.1467-8721.2007.00525.x

Biller, H. B., & Weiss, S. D. (1970). The father-daughter relationship and the personality development of the female. *The Journal of Genetic Psychology*, *116*(1), 79–93. https://doi.org/10.1080/00221325.1970.10533907

Bloise, S. M., & Johnson, M. K. (2007). Memory for emotional and neutral information: Gender and individual differences in emotional sensitivity. *Memory*, *15*(2), 192–204. https://doi.org/10.1080/09658210701204456

Boer, M., van den Eijnden, R. J. J. M., Boniel-Nissim, M., Wong, S. L., Inchley, J. C., Badura, P., Craig, W. M., Gobina, I., Kleszczewska, D., Klanšček, H. J., & Stevens, G. W. J. M. (2020). Adolescents' intense and problematic social media use and their well-being in 29 countries. *Journal of Adolescent Health*, *66*(6), S89–S99. https://doi.org/10.1016/j.jadohealth.2020.02.014

Boniel-Nissim, M., van den Eijnden, R. J. J. M., Furstova, J., Marino, C., Lahti, H., Inchley, J., Smigelskas, K., Vieno, A., & Badura, P. (2022). International perspectives on social media use among adolescents: Implications for mental and social well-being and substance use. *Computers in Human Behavior*, *129*, Article 107144. https://doi.org/10.1016/j.chb.2021.107144

Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2019). The interaction of person-affect-cognition-execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. *Neuroscience & Biobehavioral Reviews*, *104*, 1–10. https://doi.org/10.1016/j.neubiorev.2019.06.032

Britton, A. R., Sliter, M. T., & Jex, S. M. (2012). Is the glass really half-full? The reverse-buffering effect of optimism on undermining behavior. *Personality and Individual Differences*, *52*(6), 712–717. https://doi.org/10.1016/j.paid.2011.12.038

Bronfenbrenner, U. (1979). *Ecology of human development: experiments by nature and design*. Harvard University Press. https://doi.org/10.4159/9780674028845

Buhrmester, D., Furman, W., Wittenberg, M. T., & Reis, H. T. (1988). Five domains of interpersonal competence in peer relationships. *Journal of Personality and Social Psychology*, *55*(6), 991–1008. https://doi.org/10.1037/0022-3514.55.6.991

Cabrera, N. J., Volling, B. L., & Barr, R. (2018). Fathers are parents, too! Widening the lens on parenting for children's development. *Child Development Perspectives*, *12*(3), 152–157. https://doi.org/10.1111/cdep.12275

Chen, B.-B., & Volling, B. L. (2023). Paternal and maternal rejection and Chinese children's internalizing and externalizing problems across the transition to siblinghood: A developmental cascade model of family influence. *Child Development*, *94*(1), 288–302. https://doi.org/10.1111/cdev.13857

Chen, F. F., Jing, Y., & Lee, J. M. (2012). "I" value competence but "we" value social competence: The moderating role of voters' individualistic and collectivistic orientation in political elections. *Journal of Experimental Social Psychology*, *48*(6), 1350–1355. https://doi.org/10.1016/j.jesp.2012.07.006

Costantini, A., Semeraro, C., Musso, P., Cassibba, R., & Coppola, G. (2022). The role of parenting, dysregulation and self-esteem in adolescents' problematic social network site use: A test of parallel and serial mediation models in a healthy community sample. *International Journal of Environmental Research and Public Health*, *19*(20), Article 13154. https://doi.org/10.3390/ijerph192013154

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Dunning, J. H., & Kim, C. (2007). The cultural roots of Guanxi: An exploratory study. *The World Economy*, *30*(2), 329–341. https://doi.org/10.1111/j.1467-9701.2007.00885.x

Eichenberg, C., Schott, M., Decker, O., & Sindelar, B. (2017). Attachment style and internet addiction: An online survey. *Journal of Medical Internet Research*, *19*(5), Article e170. https://doi.org/10.2196/jmir.6694

Eriksson, M., Ghazinour, M., & Hammarström, A. (2018). Different uses of Bronfenbrenner's ecological theory in public mental health research: What is their value for guiding public mental health policy and practice? *Social Theory & Health*, *16*(4), 414–433. https://doi.org/10.1057/s41285-018-0065-6

Fardouly, J., Magson, N. R., Johnco, C. J., Oar, E. L., & Rapee, R. M. (2018). Parental control of the time preadolescents spend on social media: Links with preadolescents' social media appearance comparisons and mental health. *Journal of Youth and Adolescence*, *47*(7), 1456–1468. https://doi.org/10.1007/s10964-018-0870-1

Ge, S., Chen, C., Hewitt, P. L., & Flett, G. L. (2023). Father-daughter and mother-son relationships: Parental bonding behaviours and socially prescribed perfectionism in young adults. *Personality and Individual Differences*, *203*, Article 112007. https://doi.org/10.1016/j.paid.2022.112007

Goldner, L., Jakobi, C. D., Schorr, S., Dakak, S., & Shawahne, N. (2022). Keep it quiet: Mother-daughter parentification and difficulties in separation-individuation shaping daughters' authentic/true self and self-silencing: A mediation model. *Psychoanalytic Psychology*, *39*(2), 165–174. https://doi.org/10.1037/pap0000352

Hallers-Haalboom, E. T., Mesman, J., Groeneveld, M. G., Endendijk, J. J., van Berkel, S. R., van der Pol, L. D., & Bakermans-Kranenburg, M. J. (2014). Mothers, fathers, sons and daughters: Parental sensitivity in families with two children. *Journal of Family Psychology*, *28*(2), 138–147. https://doi.org/10.1037/a0036004

Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, *35*(5), 576–586. https://doi.org/10.1177/0894439316660340

Ho, S. M. Y., Li, W. L., Duan, W., Siu, B. P. Y., Yau, S., Yeung, G., & Wong, K. (2016). A brief strengths scale for individuals with mental health issues. *Psychological Assessment*, *28*(2), 147–157. https://doi.org/10.1037/pas0000164

Hsieh, Y.-P., Wei, H.-S., Hwa, H.-L., Shen, A. C.-T., Feng, J.-Y., & Huang, C.-Y. (2019). The effects of peer victimization on children's internet addiction and psychological distress: The moderating roles of emotional and social intelligence. *Journal of Child and Family Studies*, *28*(9), 2487–2498. https://doi.org/10.1007/s10826-018-1120-6

Hwang, Y. (2011). Is communication competence still good for interpersonal media? Mobile phone and instant messenger. *Computers in Human Behavior*, *27*(2), 924–934. https://doi.org/10.1016/j.chb.2010.11.018

Jia, R., & Jia, H. H. (2016). Maybe you should blame your parents: Parental attachment, gender, and problematic internet use. *Journal of Behavioral Addictions*, *5*(3), 524–528. https://doi.org/10.1556/2006.5.2016.059

Jose, P. E., Ryan, N., & Pryor, J. (2012). Does social connectedness promote a greater sense of well-being in adolescence over time? *Journal of Research on Adolescence*, *22*(2), 235–251. https://doi.org/10.1111/j.1532-7795.2012.00783.x

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. *Computers in Human Behavior*, *31*, 351–354. https://doi.org/10.1016/j.chb.2013.10.059

Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, *25*(1), 79–93. https://doi.org/10.1080/02673843.2019.1590851

Kendler, K. S., Myers, J., & Prescott, C. A. (2005). Sex differences in the relationship between social support and risk for major depression: A longitudinal study of opposite-sex twin pairs. *American Journal of Psychiatry*, *162*(2), 250–256. https://doi.org/10.1176/appi.ajp.162.2.250

Klinkosz, W., Iskra, J., & Artymiak, M. (2021). Interpersonal competences of students, their interpersonal relations, and emotional intelligence. *Current Issues in Personality Psychology*, *9*(2), 125–134. https://doi.org/10.5114/Cipp.2021.105733

Lam, L. T. (2020). The roles of parent-and-child mental health and parental internet addiction in adolescent internet addiction: Does a parent-and-child gender match matter? *Frontiers in Public Health*, *8*, Article 142. https://doi.org/10.3389/fpubh.2020.00142

Lansford, J. E., Criss, M. M., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2003). Friendship quality, peer group affiliation, and peer antisocial behavior as moderators of the link between negative parenting and adolescent externalizing behavior. *Journal of Research on Adolescence*, *13*(2), 161–184. https://doi.org/10.1111/1532-7795.1302002

Larose, R., Mastro, D., & Eastin, M. S. (2001). Understanding internet usage: A social-cognitive approach to uses and gratifications. *Social Science Computer Review*, *19*(4), 395–413. https://doi.org/10.1177/089443930101900401

Lee, E. J., & Kim, H. S. (2018). Gender differences in smartphone addiction behaviors associated with parent–child bonding, parent–child communication, and parental mediation among Korean elementary school students. *Journal of Addictions Nursing*, *29*(4), 244–254. https://doi.org/10.1097/Jan.0000000000000254

Lee, J., Kim, H., & Kang, J. (2017). The effect of loneliness on SNS addiction: Moderating effect of interpersonal relations orientation and its gender difference. *Korean Journal of Clinical Psychology*, *36*(2), 154–164. 10.15842/kjcp.2017.36.2.002

Lee, J.-Y., Ko, D. W., & Lee, H. (2019). Loneliness, regulatory focus, inter-personal competence, and online game addiction. *Internet Research*, *29*(2), 381–394. https://doi.org/10.1108/IntR-01-2018-0020

Li, Y. (2022). Jiating shehui jingji diwei yu chuzhongsheng fei renzhi nengli fazhan [Family socioeconomic status and children's noncognitive development]. *Jiaoyu Jingji Pinglun*, *7*, 90–112. https://doi.org/10.19512/j.cnki.issn2096-2088.2022.03.003

Li, Z., Wang, L., & Zhang, L. (2012). Exploratory and confirmatory factor analysis of a short-form of the embu among Chinese adolescents. *Psychological Reports*, *110*(1), 263–275. https://doi.org/10.2466/02.08.09.21.Pr0.110.1.263-275

Lian, L., Guo, S. Z., Wang, Q., Hu, L. H., Yang, X. E., & Li, X. J. (2021). Calling, character strengths, career identity, and job burnout in young Chinese university teachers: A chain-mediating model. *Children and Youth Services Review*, *120*, Article 105776. https://doi.org/10.1016/j.childyouth.2020.105776

Liu, L., Xu, L., Luo, F., & Li, Y. (2018). Intergenerational transmission of interpersonal strengths: The role of parent gender, family processes, and child characteristics. *Journal of Adolescence*, *67*(1), 66–76. https://doi.org/10.1016/j.adolescence.2018.06.005

Liu, S., Ying, J., Wang, X., Shi, J., & Wu, X. (2024). Parent–child gender effect in the associations among problematic internet use, parent–adolescent conflict, and academic engagement. *Family Relations*, *73*(3), 1536–1549. https://doi.org/10.1111/fare.12958

Ma, C., Ma, Y., & Lan, X. (2020). A structural equation model of perceived autonomy support and growth mindset in undergraduate students: The mediating role of sense of coherence. *Frontiers in Psychology*, *11*, Article 2055. https://doi.org/10.3389/fpsyg.2020.02055

Meyers, M. C., van Woerkom, M., de Reuver, R. S., Bakk, Z., & Oberski, D. L. (2015). Enhancing psychological capital and personal growth initiative: Working on strengths or deficiencies. *Journal of Counseling Psychology*, *62*(1), 50–62. https://doi.org/10.1037/cou0000050

Mumtaz, S., Siddiqui, F. A., & Malik, M. (2023). The role of parental acceptance/rejection in the development of internet addiction among adolescence. *Progressive Research Journal of Arts and Humanities*, *5*(2), 17–27. https://doi.org/10.51872/prjah.vol5.Iss2.259

Mun, I. B., & Lee, S. (2021). How does parental smartphone addiction affect adolescent smartphone addiction? Testing the mediating roles of parental rejection and adolescent depression. *Cyberpsychology, Behavior, and Social Networking*, *24*(6), 399–406. https://doi.org/10.1089/cyber.2020.0096

Mussen, P., & Distler, L. (1959). Masculinity, identification, and father-son relationships. *The Journal of Abnormal and Social Psychology*, *59*(3), 350–356. https://doi.org/10.1037/h0044529

Nozaki, Y. (2015). Emotional competence and extrinsic emotion regulation directed toward an ostracized person. *Emotion*, *15*(6), 763–774. https://doi.org/10.1037/emo0000081

Oktaviani, M., & Hasanah, U. (2023). Parenting style, social support, peer relationship, and coping strategies among students during online learning. *Journal of Family Sciences*, *8*(2), 249–263. https://doi.org/10.29244/jfs.v8i2.49756

Peng, W. Y., Li, D. P., Li, D. L., Jia, J. C., Wang, Y. H., & Sun, W. Q. (2019). School disconnectedness and adolescent internet addiction: Mediation by self-esteem and moderation by emotional intelligence. *Computers in Human Behavior*, *98*, 111–121. https://doi.org/10.1016/j.chb.2019.04.011

Pew Research Center. (2023, December 11). *Teens, social media and technology 2023*. https://www.pewresearch.org/internet/2023/12/11/teens-social-media-and-technology-2023/

Reid, J. B. (2025). *A phenomenology of the importance of protection as it relates to the father and daughter relationship* [Unpublished doctoral dissertation]. Liberty University.

Rohner, R. P. (1980). Worldwide tests of parental acceptance-rejection theory: An overview. *Behavior Science Research*, *15*(1), 1–21. https://doi.org/10.1177/106939718001500102

Rohner, R. P., & Rohner, E. C. (1980). Antecedents and consequences of parental rejection: A theory of emotional abuse. *Child Abuse & Neglect*, *4*(3), 189–198. https://doi.org/10.1016/0145-2134(80)90007-1

Romppanen, E., Korhonen, M., Salmelin, R. K., Puura, K., & Luoma, I. (2021). The significance of adolescent social competence for mental health in young adulthood. *Mental Health & Prevention*, *21*, Article 200198. https://doi.org/10.1016/j.mhp.2021.200198

Salo, A.-E., Junttila, N., & Vauras, M. (2020). Social and emotional loneliness: Longitudinal stability, interdependence, and intergenerational transmission among boys and girls. *Family Relations*, *69*(1), 151–165. https://doi.org/10.1111/fare.12398

Satici, B., Saricali, M., Satici, S. A., & Çapan, B. E. (2014). Social competence and psychological vulnerability as predictors of Facebook addiction. *Studia Psychologica*, *56*(4), 301–308. https://doi.org/10.21909/sp.2014.04.738

She, R., Kit han Mo, P., Li, J., Liu, X., Jiang, H., Chen, Y., Ma, L., & Tak fai Lau, J. (2023). The double-edged sword effect of social networking use intensity on problematic social networking use among college students: The role of social skills and social anxiety. *Computers in Human Behavior*, *140*, Article 107555. https://doi.org/10.1016/j.chb.2022.107555

Shek, D. T. L., Dou, D., Zhu, X., & Chai, W. (2019). Positive youth development: Current perspectives. *Adolescent Health Medicine and Therapeutics*, *10*, 131–141. https://doi.org/10.2147/Ahmt.S179946

Son, M. (2018). Influence of self-awareness, other-awareness, and interpersonal relation competence on smartphone and internet addiction in nursing students. *Journal of Korean Academy of Psychiatric and Mental Health Nursing*, *27*(1), 74–84. 10.12934/jkpmhn.2018.27.1.74

Stafford, L., & Kuiper, K. (2021). Social exchange theories: Calculating the rewards and costs of personal relationships. In P. Schrodt, K. M. Scharp, & D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication* (pp. 379–390). Routledge. https://doi.org/10.4324/9781003195511-33

Tang, C. S. K., Koh, Y. W., & Gan, Y. Q. (2017). Addiction to internet use, online gaming, and online social networking among young adults in China, Singapore, and the United States. *Asia-Pacific Journal of Public Health*, *29*(8), 673–682. https://doi.org/10.1177/1010539517739558

Tom, A., Thomas, B., Sharma, M., & Joseph, A. (2023). Parental rejection and control: Potential risks for excessive internet usage among adolescents. *International Journal of Social Psychiatry*, *69*(8), 2007–2017. https://doi.org/10.1177/00207640231185450

Urano, Y., Takizawa, R., Ohka, M., Yamasaki, H., & Shimoyama, H. (2020). Cyber bullying victimization and adolescent mental health: The differential moderating effects of intrapersonal and interpersonal emotional competence. *Journal of Adolescence*, *80*(1), 182–191. https://doi.org/10.1016/j.adolescence.2020.02.009

Vogl-Bauer, S., Kalbfleisch, P. J., & Beatty, M. J. (1999). Perceived equity, satisfaction, and relational maintenance strategies in parent–adolescent dyads. *Journal of Youth and Adolescence*, *28*(1), 27–49. https://doi.org/10.1023/A:1021668424027

Wang, M., He, N., Xu, Q., Yue, Y., Li, M., & Lin, J. (2022). Childhood emotional neglect and problematic social media use among Chinese adolescents: A moderated mediation model. *Addictive Behaviors*, *131*, Article 107309. https://doi.org/10.1016/j.addbeh.2022.107309

Wang, P., Hu, H., Mo, P. K. H., Ouyang, M., Geng, J., Zeng, P., & Mao, N. (2022). How is father phubbing associated with adolescents' social networking sites addiction? Roles of narcissism, need to belong, and loneliness. *Journal of Psychology*, *156*(5), 331–348. https://doi.org/10.1080/00223980.2022.2034726

Wen, Z., Wang, Y., Ma, P., & Meng, J. (2024). The influence relationship among variables and types of multiple influence factors working together. *Acta Psychologica Sinica*, *56*(10), 1462–1470. https://doi.org/10.3724/SP.J.1041.2024.01462

Wright, M. F. (2020). The role of technologies, behaviors, gender, and gender stereotype traits in adolescents' cyber aggression. *Journal of Interpersonal Violence*, *35*(7–8), 1719–1738. https://doi.org/10.1177/0886260517696858

Xu, J., Shen, L. X., Yan, C. H., Hu, H., Yang, F., Wang, L., Kotha, S. R., Ouyang, F. X., Zhang, L. N., Liao, X. P., Zhang, J., Zhang, J. S., & Shen, X. M. (2014). Parent-adolescent interaction and risk of adolescent internet addiction: A population-based study in Shanghai. *BMC Psychiatry*, *14*, Article 112. https://doi.org/10.1186/1471-244x-14-112

Xu, L., Liu, L., Li, Y., Liu, L., & Huntsinger, C. S. (2018). Parent–child relationships and Chinese children's social adaptations: Gender difference in parent–child dyads. *Personal Relationships*, *25*(4), 462–479. https://doi.org/10.1111/pere.12254

Yang, W. J., Morita, N., Ogai, Y., Saito, T., & Hu, W. Y. (2023). Associations between sense of coherence, psychological distress, escape motivation of internet use, and internet addiction among Chinese college students: A structural equation model. *Current Psychology*, *42*(12), 9759–9768. https://doi.org/10.1007/s12144-021-02257-7

Yao, M. Z., He, J., Ko, D. M., & Pang, K. (2014). The influence of personality, parental behaviors, and self-esteem on internet addiction: A study of Chinese college students. *Cyberpsychology, Behavior and Social Networking*, *17*(2), 104–110. https://doi.org/10.1089/cyber.2012.0710

Ye, B., Lei, X., Yang, J., Byrne, P. J., Jiang, X., Liu, M., & Wang, X. (2021). Family cohesion and social adjustment of Chinese university students: The mediating effects of sense of security and personal relationships. *Current Psychology*, *40*(4), 1872–1883. https://doi.org/10.1007/s12144-018-0118-y

Ying, J., Liu, S., Ren, Y., Shi, J., & Wu, X. (2025). Perceived parenting styles and adolescents' problematic internet use: Examining the parent–child same-sex matching effect. *Family Relations*, *74*(2), 755–773. https://doi.org/10.1111/fare.13130

Yu, L., & Du, M. (2022). Social networking use, mental health, and quality of life of Hong Kong adolescents during the COVID-19 pandemic. *Frontiers in Public Health*, *10*, Article 1040169. https://doi.org/10.3389/fpubh.2022.1040169

Yu, L., & Shek, D. T. L. (2013). Internet addiction in Hong Kong adolescents: A three-year longitudinal study. *Journal of Pediatric and Adolescent Gynecology*, *26*(3), S10–S17. https://doi.org/10.1016/j.jpag.2013.03.010

Yu, L., & Shek, D. T. L. (2021). Positive youth development attributes and parenting as protective factors against adolescent social networking Addiction in Hong Kong. *Frontiers in Pediatrics*, *9*, Article 649232. https://doi.org/10.3389/fped.2021.649232

Yu, L., & Zhou, X. (2024). Social media addiction among Hong Kong adolescents before and after the pandemic: The effects of parenting behaviors. *Computers in Human Behavior*, *156*, Article 108233. https://doi.org/10.1016/j.chb.2024.108233

Yue, Y., Aibao, Z., & TingHao, T. (2022). The interconnections among the intensity of social network use, anxiety, smartphone addiction and the parent–child relationship of adolescents: A moderated mediation effect. *Acta Psychologica*, *231*, Article 103796. https://doi.org/10.1016/j.actpsy.2022.103796

Zhang, J.-Y., Zhang, H., Chen, Y., Zhang, L.-H., Zhou, Y., & Li, Y. (2025). Parental neglect and social media addiction of adolescents: The chain mediation effect of basic psychological need and personal growth initiative. *Journal of Pediatric Nursing*, *81*, 24–30. https://doi.org/10.1016/j.pedn.2025.01.013

Zhou, K., Zhu, X., & Chen, B. B. (2024). Understanding the link between social relationships and adolescent internet addiction: Perspectives from two approaches to well-being. *Computers in Human Behavior*, *151*, Article 107995. https://doi.org/10.1016/j.chb.2023.107995

Zhou, K., Zhu, X., Lu, C., Yang, Y., & Chen, S. (2025). Adverse childhood experiences, basic psychological needs, and adolescent affective distress: Revisiting the buffering role of resilience factors. *Journal of Research on Adolescence*, *35*, Article e70080. https://doi.org/10.1111/jora.70080

Zhu, J., Chen, Y., & Su, B. (2020). Non-suicidal self-injury in adolescence: Longitudinal evidence of recursive associations with adolescent depression and parental rejection. *Journal of Adolescence*, *84*(1), 36–44. https://doi.org/10.1016/j.adolescence.2020.08.002

Zhu, X., & Shek, D. T. L. (2020). Predictive effect of positive youth development attributes on delinquency among adolescents in mainland China. *Frontiers in Psychology*, *11*, Article 615900. https://doi.org/10.3389/fpsyg.2020.615900

Zhu, X., & Shek, D. (2023). The predictive effect of depression on self-injury: Positive youth development as a moderator. *Applied Research in Quality of Life*, *18*(6), 2877–2894. https://doi.org/10.1007/s11482-023-10211-x

Zhu, X., Deng, C., & Bai, W. (2023). Parental control and adolescent internet addiction: the moderating effect of parent–child relationships. *Frontiers in Public Health*, *11*, Article 1190534. https://doi.org/10.3389/fpubh.2023.1190534

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