

Investigating the relationship between parental phubbing and children's academic adjustment with the mediating role of loneliness in students

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Abstract

Aim: Issues related to academic adjustment are a major concern among students, especially in late adolescence, because academic adjustment or non-adjustment has broad effects on students' overall development. Therefore, the present study aimed to investigate the relationship between parental phubbing and children's academic adjustment with the mediating role of loneliness in students.

Method: The research method was correlational and, more precisely, structural equation modeling. The statistical population of the study included all ninth-grade male and female students in the academic year 2024-2025 in Yazd city. The sample consisted of 342 students (171 female students and 171 male students) who were selected through multi-stage random sampling method. To collect data, the University of California, Los Angeles Loneliness Scale (Russell, 1996), the Academic Adjustment Scale (Anderson et al., 2016), and the Parental Phubbing Scale (Ding et al., 2020) were used. The evaluation of the proposed model was carried out using AMOS software.

Results: The results showed that parental phubbing has a direct, positive, and significant relationship with loneliness ($\beta = -0.37$ and $p < 0.001$) and a direct, negative, and significant relationship with academic adjustment ($\beta = -0.50$ and $p < 0.001$). The results also showed that loneliness has a direct, negative, and significant relationship with academic adjustment ($\beta = -0.30$ and $p < 0.001$). Finally, the results of the bootstrap test showed that loneliness plays a mediating role in the relationship between parental phubbing and children's academic adjustment.

Conclusion: The model demonstrated a strong fit. The mediating role of loneliness in the relationship between parental phubbing and academic adjustment is a good model for explaining mental injuries of phubbing and applying it in the field of preventing academic adjustment problems in students.

Keywords: Academic adjustment, Parental phubbing, Loneliness, High school students.



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Introduction

Adolescence is one of the most susceptible stages in human life due to the transition it brings in the physical and psychological development of the individual also related to social and behavioral aspects (Zayed, 2024). The impetus to adapt to changing environments during adolescence can have lasting implications for academic performance, employability, and social and behavioral adjustment (Vaillancourt et al, 2019). In this modern age, the issue of adaptation has arisen, and it is related to many social, emotional, and educational, or academic contexts (Bai & Srivastava, 2022). One of the environments where adolescents need to adapt is to school or university (Avcı, 2024). It is important to consider that adaptation to educational contexts, such as school and university, is dependent on the student's academic adjustment (Basharpoor et al, 2022). Academic adjustment is one of the key constructs in educational psychology (rezaei rad, 2024) and is necessary to make progress in both academic and social skills and to succeed and be happy in life (Azpiazu et al, 2024). Academic adjustment is the extent to which students can cope with the mandates of education and how satisfied they are with school and their education (Li et al, 2020). Anderson et al. (2016) felt that academic adjustment encompasses the student's ability to cope with their performance, lifestyle, expectations, and motivations in the social, psychological, and physical school environment. Academic adjustment can be imagined as the ability to effectively negotiate the educational environment and manage academic demands (Van Rooij et al, 2018). It should also be recognized that students who are poorly adjusted in their academic pursuits are more likely to face academic stress simply because they feel their capacity to cope with the pressures associated with studying is impossible. Perhaps the most concerning issue with low academic adjustment is that it may result in increased levels of absence which can lead to failure (Clinciu & Cazan, 2014).

Research has shown that several factors such as perceived social support (Akanni & Oduaran, 2018), anxiety (Hassan, 2020), self-efficacy in learning (Dwinanda & Nugraha, 2023), etc. can affect the increase or decrease of students' academic adjustment. Previous studies have shown that family-related factors play an important role in the adjustment of students (Zangiabadi, 2018). Although in the current information age, mobile phones have provided convenience for users. However, this trend has also drawn attention to "parental phubbing", which is a negative element in the family environment. Parental phubbing refers to the neglect of the parent-child relationship, when parents are physically close to their child, instead of interacting with their child, they are preoccupied with their mobile phone (Xia & Xia, 2020). As parents' use of mobile devices increases, both verbal and nonverbal communication with their children during interactions decreases. As a result, the quality of the parent-child relationship weakens. Studies have shown that parental phubbing can directly or indirectly lead to psychological and behavioral problems in children (Akbağ et al., 2025). In other words, parental phubbing can be considered a new form of parental neglect (Niu et al, 2020), which in fact represents poor-quality interaction between parents and adolescents (McDaniel & Radesky, 2018). Repeated exposure to such low-quality interactions and poor interpersonal environments may make adolescents feel neglected and neglected (Zhang et al, 2021), making their need for connection more difficult to satisfy (Hales et al, 2018), and this may contribute

to the development of multiple adjustment difficulties. In a similar vein, Tong et al. (2024) examined the relationship between parental phubbing, Chinese adolescents' phubbing, and adolescents' adjustment in a study. The results showed that parental phubbing can hinder adolescents' adjustment in various domains, especially in the academic field. The results of Zhang et al.'s (2023b) meta-analysis also showed that there is a significant negative relationship between parental phubbing and students' socio-emotional adjustment.

One of the variables that has been explored in the study of Phubbing from parents and academic adjustment is loneliness. Studies have shown that, in adolescents, parental phubbing had a positive, significant relationship with loneliness (Wang et al., 2022b, 2022c). Loneliness is a negative subjective experience which has a strong relationship with the quality of social relationships. Loneliness occurs in situations where there is a discrepancy between the real and the desired level of social relationships (Surkalim et al, 2022). Kirwan et al (2024) believed that loneliness is an unpleasant feeling and can best be defined in the experience one has of perceiving they have offered an insufficient quantity or quality of social relationships. While Lim et al. (2019) believed that in loneliness, the poor quality of social relationships is more important than their quantity. People who have never married, people who live alone, people who do not often contact friends or family, and people who do not receive sufficient social support from their parents are all vulnerable to loneliness and its associated consequences (Barjaková et al, 2023). Research has shown that loneliness negatively affects students' overall academic experiences (Stoliker & Lafreniere, 2015) and academic engagement (Li & Ye, 2023).

According to the displacement hypothesis (Roberts & David, 2016), we proposed that loneliness would be a mediator in the relationship between parental phubbing and academic adjustment. The displacement hypothesis suggests time spent on mobile phones displaces (or reduces) meaningful interactions with others and decreases relationship quality (Wang et al., 2017). For example, parental phubbing occupies time and attention resources, which could lead to less time and fewer resources remaining for parent-child connection. Specifically, when mobile phones disrupt adolescents' interaction with parents, they may perceive the psychological distance in spite of parents' physical presence, possibly increasing a sense of loneliness. Understandably, that feelings of loneliness can reduce the individual's abilities of self-regulation and cognitive processing, and may, in turn, negatively influence that individual's academic adjustment (Dong et al, 2023). In addition, Quan et al. (2014) have considered loneliness to be a barrier to students' academic adjustment, as it causes them to lose interest in mastering learning skills and develop a negative attitude towards their surroundings.

It should be noted that although the issue of academic adjustment in students as the future builders of the country is an important issue, special attention has not been paid to this group in the research conducted. In this regard, Rajput & Bala (2023) believed that since academic adjustment plays an important role in academic success and progress, studying and paying attention to the factors underlying academic adjustment is of particular importance. On the other hand, given the increasing use of smartphones by parents in the presence of their children and as a result of neglecting their children (parental phubbing), no study has yet been conducted in the country on the effects of parental phubbing on

children and their academic affairs, while abroad, many experts in psychology and educational sciences have shown special attention to studying this emerging phenomenon and its effects on the family and especially children. Therefore, it is necessary to study and examine the phenomenon of parental phubbing in Iranian culture in various studies. Therefore, the present study attempts to examine the mediating role of loneliness in the relationship between parental phubbing and academic adjustment in order to ultimately provide a more comprehensive understanding of the overall effect of parental phubbing on students' academic adjustment. The proposed research model is presented below.

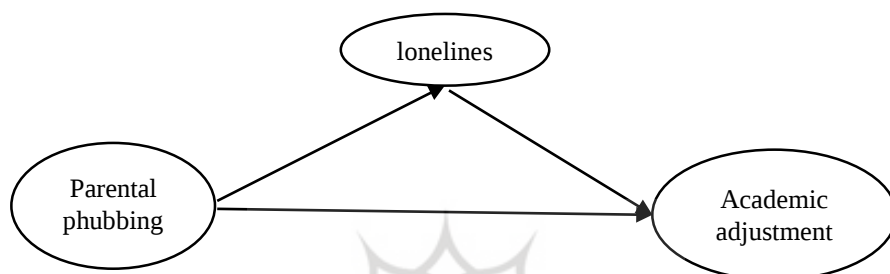


Figure 1: Proposed research model

Methods

The current work employs correlational and, more specifically, structural equation modeling techniques. The statistical population of this study included all ninth-grade students in Yazd city in the academic year 2024-2025 (which is 12,144 people based on education statistics). The sample size of the study included 342 students (171 girls and 171 boys) studying in ninth grade, who were selected through multi-stage random sampling. First, from the two education districts of Yazd city, District 2 was randomly selected. Then, from among the junior high schools in this area, 6 high schools (3 girls' high schools and 3 boys' high schools) were randomly selected. Finally, 3 classes were randomly selected from the ninth grades of each high school, with 19 students from each class. In the present study, the collected data were analyzed at two levels of descriptive statistics (mean and standard deviation) and inferential statistics. In order to test the proposed research model, SPSS and AMOS software were used.

Academic Adjustment Scale (AAS): The Academic Adjustment Scale is a 9-item instrument designed by Anderson et al. (2016) to measure students' academic adaptability. This scale has three subscales: academic lifestyle (including items 1, 2, and 3), academic achievement (including items 4, 5, and 6), and academic motivation (including items 7, 8, and 9). The scoring of this scale is based on a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). It should be noted that items 2 and 3 are scored in reverse order. Therefore, the scores of this scale range from 9 to 45, with higher scores indicating greater academic adjustment. Anderson et al. (2016) reported

Cronbach's alpha coefficients for the entire scale as 0.86, and they also conducted a confirmatory factor analysis to verify the validity of this scale, which indicated a good fit of the model. Baharvand et al. (2020) reported the convergent and construct validity of the academic adjustment scale as favorable. Baharvand et al. (2020) reported the reliability of the academic adjustment scale as favorable. In the present study, the reliability of the academic adjustment scale was calculated using Cronbach's alpha method as 0.80.

Parental phubbing scale: The parental phubbing scale was designed by Ding et al. (2020) to measure adolescents' perception of parents being busy with their mobile phones while neglecting their children. This scale has two forms, mother and father, and each form has 7 items that are scored on a five-point Likert scale (from 1 = never to 5 = always). The minimum and maximum scores of this scale in both forms are 7 and 35, respectively, and higher scores indicate more parental phubbing. The average scores from both forms can be considered as parental phubbing. Ding et al. (2020) have investigated the psychometric properties of this tool in several studies and have shown that the reliability coefficients of this tool range from 0.82 to 0.88. They also examined the validity of this scale using confirmatory factor analysis and reported it as satisfactory. Li and Yu (2023) reported the reliability coefficient of this scale as 0.79 in a study conducted on 324 adolescents aged 15 to 18. In Iran, the validity and reliability of this tool were first examined by Estbarghi (2025), who obtained the reliability coefficients for this scale using two methods: Cronbach's alpha and Spearman-Brown correlation coefficient, which were 0.87 and 0.85, respectively. Its construct validity was also examined using confirmatory factor analysis, and the results showed that the factor loading of all items was greater than 0.3.

UCLA Loneliness Scale: This scale was designed by Russell (1996) and has 20 items; 10 of which are positive and 10 are negative. The questionnaire is scored on a four-point Likert scale from never (1) to very often (4). It should be noted that items 1, 4, 5, 6, 9, 10, 15, 16, 19, and 20) are reverse scored. Higher scores on this scale indicate greater loneliness. Russell (1996) reported the reliability of the scale using Cronbach's alpha as 0.94. He also obtained the convergent validity coefficient of this scale as 0.72 by examining the correlation of its scores with other loneliness measures. Cole et al. (2021) found the Cronbach's alpha coefficient of the scale to be 0.96 in a study. In a study conducted by Roshanravan (2021) on first-grade secondary school students, the reliability coefficient of this scale was reported to be 0.83 using the Cronbach's alpha method. In the present study, the reliability coefficient of this scale was obtained using the Cronbach's alpha and Spearman-Brown correlation coefficient methods, respectively, as 0.876 and 0.837.

Results

Before starting statistical analyses, the presence of outliers was first examined, and the results showed that there were no outliers. Table 1 reports descriptive information related to the research variables.

Table 1. Descriptive information related to research variables

variables	Mean	Std. Deviation	Skewness	Kurtosis
Parental phubbing	14.771	4.883	.61	.106
Loneliness	44.397	10.033	.029	.326
Academic adjustment	29.573	7.221	.350	.178

According to the results of Table 1, the mean and standard deviation of the parental phubbing variable are 14.77 and 4.88, and the mean and standard deviation of the loneliness variable are 44.39 and 10.03, respectively. The mean and standard deviation of the academic adjustment variable are 29.57 and 7.22, respectively. Also, the skewness and kurtosis of the research variables are in the range of -2 and 2, which indicates that the research data have a normal distribution. Table 2 shows the Pearson correlation coefficient between research variables.

Table 2. Correlation between research variables

variables	1	2	3
Parental phubbing	1		
Loneliness	.236**	1	
Academic adjustment	-.430**	-.402**	1

The results of Table 2 show that there is a positive and significant correlation between parental phubbing and loneliness with a coefficient of .236 at a significance level of .01. There is a negative and significant correlation between the academic adjustment and parental phubbing with a coefficient of -.430 at a significance level of .01. There is a negative and significant correlation between the academic adjustment and loneliness with a coefficient of -.402 at a significance level of .01. Therefore, the results related to the correlation coefficients show that there is a significant correlation between the research variables and also there is a linear relationship between the predictor, mediator, and criterion variables. The structural model of the research is examined below.

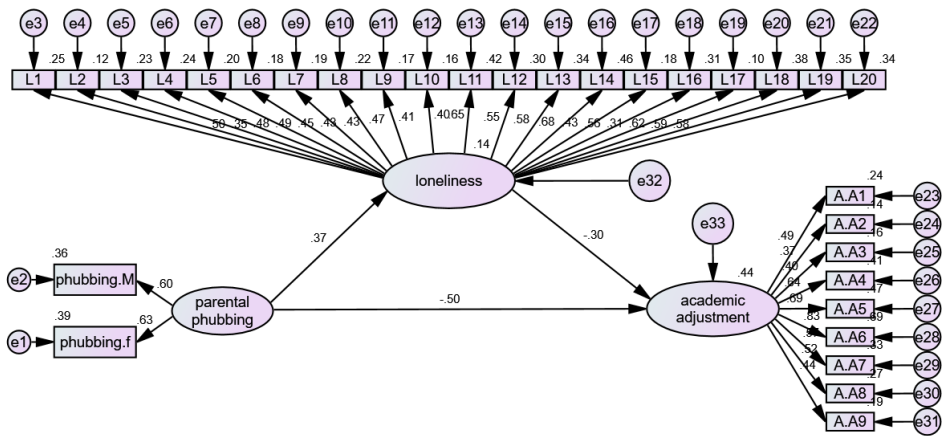


Figure 1: structural model of the research

The fit indices for the structural model are reported below (Table 3).

Table 3: Fit indices of the model

Indicator	X ² /df	CFI	PCFI	GFI	IFI	RMSEA
model	2.34	.91	.74	.93	.91	.06

As can be seen in the table above, the structural model of the research has an acceptable fit.

Table 4: Direct paths of the model

path	Estimate	β	S.E	C.R	p
Parental phubbing to loneliness	.034	.37	.009	3.858	.0001
Loneliness to academic adjustment	-.502	-.30	.134	-3.750	.0001
Parental phubbing to academic adjustment	-.078	-.50	.018	-4.368	.0001

Based on the standardized coefficients (beta) in Table 3, it can be seen that the paths of the structural model of the present study are significant. Overall, the results showed that parental phubbing had a direct, positive, and significant effect ($\beta= 0.37$, $p<0.01$) on feelings of loneliness and a direct, negative, and significant effect ($\beta= -0.50$, $p<0.01$) on academic adjustment. The results also showed that loneliness has a direct, negative and significant effect ($\beta= -0.30$ and $p<0.01$) on academic adjustment. Next, to determine the

significance of the indirect path, the output of the bootstrap command in the AMOS software is reported (Table 5).

Table 5: Bootstrap test results for indirect paths of the model

Predictor	Mediator	Criterion	Direction effect	lower limit	upper limit	sig
Parental phubbing	loneliness	academic adjustment	-.11	-.166	-.058	.002

As the bootstrap test results in Table 4 show, loneliness plays a mediating role in the relationship between parental phubbing and academic adjustment.

Discussion

The current study sought to evaluate the association between parental phubbing and children's academic adjustment, with loneliness serving as a mediator factor among Yazd students. The findings of the data analysis revealed that parental phubbing has a direct, negative, and considerable impact on students' academic adjustment. In other words, the greater the level of parental phubbing, the lower the students' academic adjustment will be. This observation supports the findings of Tong et al. (2024) and Zhang et al. (2023b). Also, this finding is consistent with the results of Eshkhakh's (2015) study, which showed that the mother's neglectful parenting style plays the greatest role in reducing adolescents' academic adjustment. In explaining this finding, it can be said that, based on the expectancy violations theory, parental phubbing affects children's expectations of interacting with their parents. This theory assumes that people often have expectations about interpersonal relationships and social interactions. Expectancy violations will have a negative and destructive impact on the interaction. In the case of parental phubbing, children expect their parents to be fully present during interactions and provide them with attention and emotional support. When parents engage in phubbing behavior during interactions with their children, they violate the child's expectation of full attention and responsiveness to them (McDaniel, 2019). This violation can lead to adverse emotional reactions, such as feelings of neglect and frustration. Elias et al. (2021) found that children experience frustration and disillusionment during parental phone use, which leads to various behavioral and adjustment difficulties or withdrawal from communicating with their parents. Even infants (under one year of age) can respond to maternal phubbing during mother-child interactions, in the form of increased heart rate and negative emotions (Rozenblatt-Perkal et al, 2022). In short, parental phubbing violates children's expectations of parental attention and responsiveness, leads to adverse emotional reactions, and potentially affects their social, emotional, and academic adjustment. The findings also indicated that parental phubbing has a direct, positive, and significant impact on students' feelings of loneliness. In other words, the greater the intensity of parental phubbing, the more isolated students will feel. This discovery is congruent with the findings of He et al. (2024), who discovered that parental phubbing is strongly associated with teenagers' Internet procrastination, and that sensitivity to rejection and loneliness

plays an essential mediating role in this relationship. It is also consistent with the results of Wang et al.'s (2022b and 2022c) study, which showed that maternal phubbing and paternal phubbing have a direct, positive, and significant effect on adolescents' feelings of loneliness. Furthermore, this finding is consistent with the results of Dong et al. (2023) and Li and Yi (2023) who showed that parental phubbing positively and significantly causes loneliness in adolescents. In explaining this relationship, Robert and David (2016) noted that according to the displacement hypothesis, time spent on mobile phones eliminates meaningful interactions with others and reduces relationship quality. Therefore, parental phubbing disrupts adolescents' interactions with their parents. They may feel lonely despite their parents' physical presence. This finding is also consistent with the accepted view that parental phubbing can be considered a form of neglect or rejection (Chutpitayasonand & Douglas, 2018). Undoubtedly, parental neglect jeopardizes teenagers' fundamental need for belonging and leads to loneliness (Leary, 1990). Furthermore, according to the belongingness theory (Baumeister & Leary, 1995), the need to belong is a fundamental human need that goes beyond a simple want, and humans naturally want to form meaningful and long-term relationships with others. Baumeister and Leary argued that unmet attachment requirements led to feelings of psychological loneliness. As a result, when parents are distracted by their phones rather than paying attention to their children, the latter may feel neglected. On the other hand, parental phubbing can degrade the quality of family communication. As a result, children's attachment requirements are not adequately met, which can lead to loneliness and isolation (Dong et al, 2023). In this regard, Allen et al. (2003) noted that human attachment goes beyond parent-infant relationships and continues throughout the stages of development. During adolescence, although parental bonds diminish slightly as peer relationships become more important, they remain vital. Insecure attachment through parental neglect may lead to complete emotional detachment and the perception of parents as unreliable sources of support (Hamami & Widyatno, 2025). Such neglect leads to isolation and feelings of worthlessness, which can lead to increased loneliness in adolescents. It should be noted that lack of or poor communication with parents can lead to feelings of loneliness in adolescents, as they do not consider themselves worthy of their parents' attention and time. Therefore, adolescents who observe their parents using the phone during their conversations often interpret this behavior as a sign of disinterest or indifference, which ultimately leads to their experiencing feelings of loneliness (Hamami & Widyatno, 2025).

Another finding showed that loneliness has a direct, negative, and significant effect on students' academic adjustment. In other words, the more lonely students feel, the lower their academic adjustment will be. This finding is consistent with the results of the research of Barjaková et al. (2023) and Akdeniz & Gültekin Ahçı (2023), which showed that loneliness has a direct, negative, and significant effect on students' academic adjustment. In addition, it is consistent with the results of the research of Bahamin and Koroshnia (2017) and Moosivand et al. (2023), which were conducted in Iranian samples

and showed that loneliness has a direct, negative, and significant effect on adjustment in adolescents. In explaining this finding, Quan et al. (2014) noted that loneliness can weaken students' interest in new environments and their initiative in those environments and reduce the individual's cognitive ability, including emotion recognition; Therefore, the experience of loneliness creates a situation that prevents students from achieving academic adjustment. Also, Vanhalst et al. (2013) found that loneliness can reduce students' academic adjustment levels by suppressing the use of positive coping methods and promoting the use of negative coping strategies. They stated that loneliness can lead to negative self-perception and self-assessment, can reduce the level of self-esteem and coping self-efficacy, and increase feelings of inadequacy; as a result, students who feel a lot of loneliness are more likely to experience hopelessness and are prone to mental illness, which reduces their proactive behavior and intention to explore their new environment. Therefore, lonely students tend to resort to negative coping styles instead of positive coping styles, while various studies have shown that the use of negative coping styles can cause problems for students' academic adjustment. In addition, it should be noted that feeling lonely can lead to a decrease in motivation to study and participate in educational activities. Students who feel lonely believe that they have very little in common with other students, as a result, they may be less willing to participate in classes and group activities, which can lead to a decrease in their academic adjustment. In addition, students who feel lonely may avoid social interactions. This distance can lead to a lack of access to social support and provide less opportunity for the development of the ability to regulate one's behavior in response to changes in the school environment, which ultimately hinders one's academic adjustment (Behamin & Kouroshnia, 2017).

Finally, the findings revealed that loneliness mediates the association between parental phubbing and children's academic adjustment. According to Liu et al. (2021), parental phubbing, which is a negative contact between parents and children, can lead to poor self-assessments in teenagers, causing them to lose confidence in interpersonal connections and feel lonely. Furthermore, Zhao et al. (2023) found that parental phubbing diminishes children's psychological resource support and interrupts communication between parents and children, thereby increasing children's nervous expectancies of rejection while talking with them. When adolescents suffer from parental phubbing, intimacy between them decreases. This perception reduces communication and need satisfaction in them. They may have pessimistic beliefs about interpersonal relationships, as a result of which their interpersonal interactions decrease, which increases their feelings of loneliness. On the other hand, feelings of loneliness, in turn, lead to the adolescent withdrawing from interpersonal relationships, which can disrupt the adolescent's interaction with peers and teachers, and ultimately reduce their academic adjustment.

It should be noted that the method of the present study was correlational; therefore, caution should be exercised in inferring causal relationships. In addition, the data in the present study were collected cross-sectionally, while academic adjustment may undergo changes during the school year. In order to gain a more accurate perspective on the

relationships between variables, it is suggested that researchers examine the moderating role of other variables, including social support, school climate, peer relationships, etc., in their research model. Given the novelty of the parental phubbing variable and its importance in today's society, it is suggested that researchers conduct more studies on parental phubbing and its impact on various aspects of academic life and the development of children and adolescents. The results of the present study help parents and teachers understand the causes of adolescents' academic problems and how to intervene in their adjustment. Given the results of the present study on the negative effects of parental phubbing and also considering the results of other studies, it is suggested that parents reduce the use of mobile phones in front of their children. Given the significant relationship between loneliness and academic adjustment, it is suggested that academic counselors take steps to improve students' academic adjustment by holding workshops and training sessions to strengthen students' communication and social skills.

Conclusion

The current study, in line with prior research, demonstrated that loneliness serves as a mediating factor in the relationship between parental phubbing and the academic adjustment. The results of this study indicated the importance of the role of parents in various areas of adolescent development, education, and adaptation. Therefore, it can be concluded that improving family communication can act as a protective factor against loneliness in adolescents. Overall, these findings emphasize the need for a deeper understanding of students' psychological problems, especially feelings of loneliness that may be rooted in family issues. Also, according to the findings of this study, the need for family- and school-based interventions that promote healthy digital habits and increase adolescents' coping skills is becoming increasingly clear. Finally, this research emphasizes the importance of a deeper understanding of students' internal experiences and the impact of family relationships on their mental health and academic success, and provides practical solutions to improve the situation. Additionally, these results can aid school counselors in formulating hypotheses to manage excessive mobile phone usage among parents, presenting a promising opportunity for researchers and counselors to implement successful interventions.

Disclosure Statements

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