Research on the Relationship Between Mobile Phone Addiction, Self-acceptance and Resilience of College Students Based on SPSS22.0 and AMOS21.0

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Abstract. Mobile phone addiction may be affected by individuals' self-acceptance and resilience. In order to study the relationship between the three and analyze the mediating effect of resilience between self-acceptance and mobile phone addiction, SPSS22.0 software and AMOS21.0 software were used to process and analyze the data of 413 college students. The results show that (1) There is a significant correlation between mobile phone addiction, self-acceptance and resilience. Mobile phone addiction is negatively correlated with self-acceptance, and with psychological resilience. Self-acceptance is positively correlated with resilience. (2) Self-acceptance associated with mobile phone addiction ($p < 0.001$) mediated by resilience (proportion of effect mediated = 53.9%). Specifically, college students' self-acceptance can not only directly affect mobile phone addiction, but also indirectly affect it through the intermediary effect of resilience. Finally, some solutions targeted at the problem of mobile phone addiction among college students were proposed.

Keywords: Mobile phone addiction · Self-acceptance · Resilience · Mediating effect

1 Introduction

Up to June 2022, the size of mobile Internet users in China is 1.047 billion, of which young students is an important part [1]. Along with the improvement of mobile phone's functions and the increasing scenarios where mobile phones are needed in daily life, some students have become addicted to mobile phones. Mobile phone addiction refers to a new type of behavioral addiction in which individuals cannot control behavior due to excessive use of mobile phones, resulting in psychological and behavioral problems [2]. Excessive use of mobile phones has a negative impact on the life and study of college students, so it is necessary to explore the influencing factors of mobile phone addiction, which is of great significance to help college students get rid of mobile phone dependence.

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Previous studies have found that mobile phone addiction is associated with individual self-acceptance and resilience. Self-acceptance refers to the individual's ability to correctly face everything about themselves, whether it is strengths or weaknesses [3]. The study has shown that the realization of self-acceptance is the basis of many interpersonal relationships and that individuals with low self-acceptance are prone to mobile phone addiction [3]. Resilience is an individual's ability to effectively adapt to life when faced with stress, setbacks, and other difficulties [4]. The essence of resilience is a protective factor of individual psychology. The stronger the resilience, the stronger the ability to withstand pressure. The study has shown that students with higher resilience are less likely to become dependent on mobile phones [5]. At the same time, resilience is also related to self-acceptance. Self-acceptance affects an individual's personality development, environmental adaptation, etc. Studies has shown that self-acceptance has a significant impact on resilience [6].

As above mentioned, There is a correlation between mobile phone addiction, self-acceptance and resilience, while previous studies have only focused on the relationship between the two, and have not explored the interrelationship between the three. Based on the above analysis, we propose hypothesis H1: mobile phone addiction is negatively correlated with self-acceptance and resilience. H2: Self-acceptance can affect mobile phone addiction through resilience. This study aims to quantitatively analyze the relationship between the three to effectively reduce the phenomenon of mobile phone addiction among college students.

2 Materials and Methods

2.1 The Participants

There are 413 college students participating in the survey, 196 boys and 217 girls. The subjects ranged from 17 to 26 years old ($M = 21.47$; $SD = 1.64$).

2.2 Tools

Spss22.0 software; AMOS21.0 software; Mobile Phone Addiction Index (MPAI) scale, which includes four factors: uncontrollability, inefficiency, withdrawal, avoidance; Self Acceptance Questionnaire (SAQ), which includes two factors: self-acceptance and self-evaluation; Connor-Davidson Resilience Scale (CD-RISC-10). In this study, the Cronbachα of the three scales are 0.920, 0.970, and 0.923 respectively.

2.3 Statistical Analysis

SPSS22.0 software was used to perform descriptive statistics and correlation analysis on the data. AMOS21.0 software was used to test the mediation effect. In this study, Bias-corrected nonparametric percentile Bootstrap method was used to estimate the 95% confidence interval of the mediating effect by taking 5000 Bootstrap samples.

Table 1. The correlation coefficient of each variable

	1	2	3	4	5	6	7	8
1. SAQ	1	—						
2. self-acceptance	0.993**	1	—					
3. self-evaluation	0.993**	0.973**	1	—				
4. CD-RISC-10	0.595**	0.592**	0.590**	1	—			
5. MPAI	−0.378**	−0.382**	−0.368**	−0.414**	1	—		
6. uncontrollability	−0.334**	−0.338**	−0.324**	−0.333**	0.889**	1	—	
7. withdrawal	−0.339**	−0.346**	−0.327**	−0.350**	0.818**	0.536**	1	—
8. avoidance	−0.306**	−0.304**	−0.303**	−0.353**	0.836**	0.636**	0.665**	1
9. inefficiency	−0.304**	−0.305**	−0.299**	−0.415**	0.877**	0.717**	0.666**	0.698**

ps: * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$
(The source of the table is an analysis of the data in this study by SPSS22.0 software).

2.4 Common Method Bias Test

Harman's One-factor Test was used for testing common method bias. The results show that there are 7 factors with Characteristic root greater than 1, and the variation explained by the first factor was 38.15%, which is 40% lower than the critical value. Therefore, the common method bias is not apparent.

3 Results

3.1 Descriptive Statistics and Correlation Analysis of Each Variable

SPSS22.0 software was used to analyze the correlation between self-acceptance, mobile phone addiction, and resilience. As shown in Table 1, college students' self-acceptance meets a significant negative correlation with mobile phone addiction ($r = -0.38$, $p < 0.01$), and a significant negative correlation with the four dimensions of mobile phone addiction ($r = -0.33$–-0.42, $p < 0.01$). College students' resilience meets a significant negative correlation with mobile phone addiction ($r = -0.41$, $p < 0.01$), and a significant negative correlation with the four dimensions of mobile phone addiction ($r = -0.33$–-0.42, $p < 0.01$). There is a significant positive correlation between resilience and self-acceptance ($r = 0.60$, $p < 0.01$).

3.2 A Test of the Mediating Effect of College Students' Resilience Between Self-acceptance and Mobile Phone Addiction

According to the hypothesis of this study: resilience plays a mediating role between self-acceptance and mobile phone addiction, we use self-acceptance as an exogenous variable, mobile phone addiction as a outcome variable, and resilience as a mediating variable to establish a structural equation model. First, model A is established with mobile phone addiction as the dependent variable and self-acceptance as the independent variable. Then add resilience as a mediating variable to build model B.

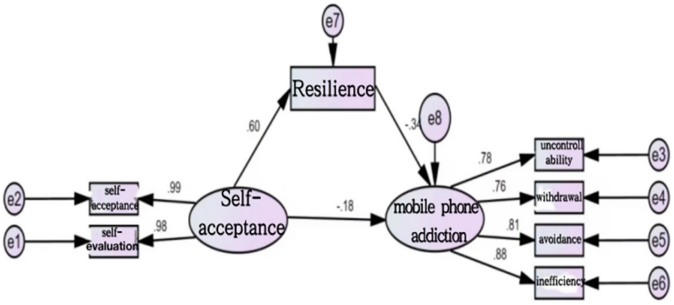

Fig. 1. A mediating effect model of resilience between self-acceptance and mobile phone addiction (ps: The source of the figure is an analysis of the data in this study by AMOS21.0 software).

Table 2. Parameter estimation in mediation models

the path	β	p	95%CI
self-acceptance → mobile phone addiction	−0.39[a]	<0.001	−0.26–− 0.08
self-acceptance → resilience	0.60[b]	<0.001	0.51–0.66
resilience → mobile phone addiction	−0.34[b]	<0.001	−0.34 –−0.16
self-acceptance → mobile phone addiction	−0.18[b]	<0.001	−0.23 –−0.08
self-acceptance → resilience → mobile phone addiction	−0.21[c]	<0.001	−0.24 –−0.09

ps: [a] Total effect, [b] direct effects, [c] Indirect effects
(The source of the table is self-made based on the results of the study)

In model A, the direct path coefficient for the effect of self-acceptance on mobile phone addiction is −0.39 (β = −0.39, P < 0.001); In model B, after including resilience as the mediating variable, the direct path coefficient of the effect of self-acceptance on mobile phone addiction is −0.18 (β = −0.18, P < 0.001), and the direct path coefficient of the effect on psychological resilience is 0.60 (β = 0.60, P < 0.001). The direct path coefficient for the effect of resilience on mobile phone addiction is −0.34 (β = −0.34, P < 0.001).

In this study, The bias-corrected non-parametric percentile Bootstrap method was used for each effect (repeated sampling was set to 5000 times, and the confidence interval was set to 95%) to test, and all confidence intervals did not include zero. Therefore, we can conclude that the effects of the experiment were statistically significant, which shows that there is a partial mediating effect of resilience between self-acceptance and mobile phone addiction. The value of the mediating effect of resilience: 0.60 * (−0.34) = −0.21. Self-acceptance associated with mobile phone addiction (p < 0.001) mediated by resilience (proportion of effect mediated: −0.21/−0.39 * 100% = 53.9%). Structural

equation model fit exponent: $\chi 2/df = 3.58$, CFI = 0.97, GFI = 0.99, AGFI = 0.94, RMSEA = 0.05, SRMR = 0.03. This indicates that the model fits well (Fig. 1, Table 2).

4 Results Discussion and Recommendations

4.1 Survey Results of College Students' Mobile Phone Addiction

The survey results show that the number of college students addicted to mobile phones is relatively large, accounting for 64.8% of the overall population. Among them, 47.5% of students are generally dependent, and 17.3% of students are more dependent and heavily dependent. The proportion of college students with mobile phone addiction is much higher than Liu Hong's survey result (29.8%) in 2012 [7], Zhang Qun's survey result (36.5%) in 2016 [8], and Hu Guangfu's survey result (60.8%) in 2019 [9]. This shows that with the popularity of smartphones and the improvement of functions, the time and frequency of college students using mobile phones continue to rise, resulting in a certain negative impact on their studies and life. This phenomenon has attracted the attention of many universities.

The survey results also show that sophomores and juniors have higher rates of cell phone addiction than freshmen and seniors, possibly because the curriculum makes each grade level have different free time. Therefore, to better the phenomenon of "phubber" that is common in colleges in the future, it is necessary to take the right measures according to different stages.

4.2 The Relationship Between College Students' Self-acceptance and Mobile Phone Addiction

This study found that self-acceptance is negatively correlated with mobile phone addiction, and can predict mobile phone addiction to a certain extent. That is to say, the degree of self-acceptance is closely related to mobile phone addiction, and individuals with a higher degree of self-acceptance reflect a lower degree of mobile phone dependence. Individuals with high self-acceptance are able to take a correct and holistic view of their strengths and weaknesses. People with this trait tends to be optimistic about their own state and status quo, actively meet difficulties and challenges, and actively interact with the social environment. However, individuals with a low level of self-acceptance easily feel perplexed and inferior to others due to their inability to view their own shortcomings correctly, resulting in low levels of mental health. This group of people tend to withdraw from difficulties or interpersonal interactions. Mobile phones can be used as an alternative tool to meet the demand of the establishment of virtual interpersonal relationships, so individuals with low self-acceptance are more likely to form dependence on mobile phones.

Universities should pay attention to guiding students to objectively analyze their strengths and weaknesses in daily pedagogy. Teachers can consciously help college students correctly understand themselves, accept themselves, and actively interact with the surrounding environment to reduce their dependence on mobile phones.

4.3 The Mediating Role of College Students' Resilience in Self-acceptance and Mobile Phone Addiction

Mediating effect analysis shows that resilience has a mediating effect between self-acceptance and mobile phone addiction. A large part of the influence of self-acceptance on mobile phone addiction is through the mediating variable of resilience. Resilience affects how college students cope with difficulties and setbacks. Individuals with higher mental resilience choose a positive approach. Specifically, high resilience can help college students to make correct choices in their study and life, and to stay away from mobile phone addiction. For college students with a low level of self-acceptance, if they have high resilience, the tendency to mobile phone addiction will be reduced.

This relationship can provide a new way of thinking to solve the problem of mobile phone addiction among college students. College mental health workers can start from the perspective of improving the psychological resilience of college students, and then reduce the occurrence and development of mobile phone addiction.

5 Conclusions

1. The rate of mobile phone addiction among college students is high and has had a negative impact on their life and study.
2. College students' self-acceptance and resilience are negatively correlated with mobile phone addiction and its dimensions.
3. College students' self-acceptance can not only directly affect mobile phone addiction, but also indirectly affect mobile phone addiction through the mediating role of psychological resilience. Self-acceptance associated with mobile phone addiction ($p < 0.001$) mediated by resilience (proportion of effect mediated = 53.9%).

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References

1. CNNIC Homepage, https://www.cnnic.net.cn, last accessed 2023/3/10.
2. Liu, Q .X., Yang, Y., et al.: Smartphone addiction: concepts, measurements, and factors. Chinese Journal of Clinical Psychology 25(1): 82-87 (2017).
3. Williams, J.C., Lynn, S.J.: Acceptance: a historical and conceptual review. Imagination Cognition & Personality 30(1): 5-56 (2010).
4. Connor, K.M., Davidson, J.R.T.: Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). Depression and Anxiety18(2): 76–82 (2003).
5. Walsh, S., White, K., et al.: A qualitative exploration of the relationship between Australian youth and their mobile phones. Adolescence (31): 77-92 (2008).
6. Le, J.l.: A study on the relationship between resilience and self-acceptance of college students. University 495(01): 143–145 (2021).
7. Liu, H., Wang, H.l.: Mobile phone dependence and loneliness among college students. Chinese Mental Health Journal 26(1): 66–69 (2012).

8. Zhang, Q., G, J., et al.: Investigation of influencing factors of college students' smartphone addiction tendency. Chinese Journal of School Health 37(1): 142–144 (2016).
9. Hu, G.F., Cheng, X., et al.: Impacts of College Students' Mobile Phone Addiction on Depression: the Mediating of Regulatory Emotional Self-efficacy. Journal of Ningbo University (Educational Science Edition) 41(01): 13–19 (2019).

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