

# Avoidance Attachment and Smartphone Addiction in Rural Secondary School Students

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**Abstract:** This study aims to explore the relationship between parent-child attachment avoidance and smartphone dependence among rural junior high school students. The theoretical model was constructed based on attachment theory, evolutionary model of trait social anxiety, compensatory internet use theory and social cognitive theory of social class, and adopted smartphone addiction scale, parent-child attachment avoidance scale, social anxiety scale and the economic difficulty scale surveyed 285 rural junior high school students. The results showed that: (1) parent-child attachment avoidance of junior high school students positively predicted their smartphone dependence; (2) social anxiety played a mediating role between the two; (3) family economic difficulties moderated the second half of the mediating effect, and social anxiety had Junior high school students with high family economic difficulties have a stronger predictive effect on smartphone dependence. The findings of this study have theoretical significance for reducing the dependence on smartphones of junior high school students.

**Keywords:** Smartphone Dependence; Parent-child Attachment Avoidance; Social Anxiety; Family Financial Difficulties

## 1. Introduction

With the continuous improvement of mobile phone functions and the continuous decline of mobile network costs, mobile phones have become the main Internet-connected devices. As of March 2020, netizens in adolescence (10-19 years old) account for the ratio is as high as 19.3% (China Internet Network Information Center, 2020). At the same time, the income level of rural families is generally lower than that of urban families (Luo Yongmin et al., 2020; Mu Huaizhong, 2020), students from rural families show higher social anxiety (Liu Yong, 2005), their mobile phone dependence and The problem of network dependence is also more prominent (Wang Yulong et al., 2008; Zhang Yan et al., 2015). According to attachment theory, avoidant attachment is an important reason behind many adjustment problems (Bretherton, 1985). Based on this, this study will take junior high school students in rural schools as the research object to explore the relationship between attachment avoidance and smartphone dependence.

## 2. Literature Review

### 2.1 Parent-child Attachment Avoidance and Smartphone Dependence among Junior High School Students

According to attachment theory, a good attachment relationship with parents can promote the individual's physical and mental health and reduce problem behaviors; but without a good attachment relationship with parents, especially when there is avoidance attachment, it is easy to show many adaptation problems (Bretherton, 1985). While these practices reduce the possibility of being rejected by others, they also make it difficult for their interpersonal needs to be met (Deng Yanhe et al., 2017). They are therefore more likely to experience loneliness and depression (Weie et al., 2005). Therefore, parent-child attachment avoidance may also be related to the problem of Internet and mobile phone dependence among junior high school students. Based on this, the following hypothesis is proposed: parent-child attachment avoidance positively predicts smartphone dependence of junior high school students.

## **2.2 Mediating Role of Social Anxiety**

Second, how does parent-child attachment avoidance predict smartphone dependence among junior high school students. The Compensatory Internet Use Theory (Kardefelt-Winther, 2014) points out that escaping from reality or self-compensation for frustration in reality are important reasons for individuals to use the Internet, and the problem of Internet dependence occurs when excessive use occurs. Among them, social anxiety is a common trigger (Kardefelt-Winther, 2014). People with high social anxiety are more likely to pay attention to threatening interpersonal interactions (Mogg & Bradley, 2018), and tend to interpret social information in a more negative way (Mobinie et al., 2014). This makes them more inclined to use the Internet to escape real problems or seek self-compensation, which makes them more likely to have problems with Internet dependence (Kardefelt-Winther, 2014). Therefore, the following hypothesis is put forward: social anxiety plays a mediating role in the process of parent-child attachment avoidance indirectly predicting smartphone dependence in junior high school students.

## **2.3 The Moderating Effect of Family Economic Difficulty**

Finally, the above-mentioned intermediary process has a stronger effect on which junior high school students. According to the social cognitive theory of social class, there are systematic differences in the importance that poor and rich people place on interpersonal relationships: economically disadvantaged individuals not only have fewer resources, but also face more risks and challenges, and are well-established than rich people. Based on this, the last hypothesis of this study is put forward: family economic difficulties mediate the second half of parent-child attachment avoidance → social anxiety → smartphone dependence: for junior high school students with high family economic difficulties, social anxiety and smartphone dependence are more closely related. In summary, this study will explore the relationship between parent-child attachment avoidance and smartphone dependence of junior high school students, as well as the role of social anxiety and family economic difficulties, in order to explore the potential mechanism of parent-child attachment avoidance and smartphone dependence of junior high school students.

## **3. Research Object**

In the two rural junior high schools to be explored in this paper, group tests were conducted on the junior high school students with the class as the unit, and 285 valid questionnaires were obtained after collecting and sorting out the blank and regular answering data of the subjects. Among them, there were 179 boys. The subjects were between 14 and 18 years old (average 15.80). The median and mode of the household annual income of the subjects fall in the intervals of "24,000-48,000" and "48,000-80,000" respectively. The median and mode of the education level of the fathers tested were both "junior high school", and only 3.51% of them had received undergraduate education or above. The median and mode of the educational level of the mothers tested were "junior high school" and "primary school and below", and only 2.11% of them had received undergraduate education or above.

## **4. Result**

### **4.1 Control and Inspection of Common Method Bias**

This study collects data anonymously, and some topics are reversed. The fit index of the single factor model [ $\chi^2/df(665)=4.24$ , CFI=0.28, TLI=0.24, RMSEA=0.11] was not ideal, so there was no serious problem of common method bias.

### **4.2 Descriptive Statistics and Correlation Analysis**

The absolute values of kurtosis and skewness of all variables in this study are lower than 2.0, and the absolute values of skewness are lower than 7.0, meeting the requirements of normal distribution (Hancock & Mueller, 2010). Correlation analysis found that parent-child attachment avoidance, social anxiety, and smartphone dependence were significantly positively correlated; family economic difficulties were not significantly correlated with smartphone dependence (see Table 1 for descriptive statistics). This shows that the smartphone dependence of junior high school students increases with the increase of parent-child attachment avoidance and social anxiety, and the level of social anxiety of

junior high school students increases with the increase of parent-child attachment avoidance.

Table 1: Descriptive Statistics and Correlation Analysis Results of Each Variable

Variable	M	SD	Kurtosis	Skewness	1	2	3	4
1 Avoidance	3.78	0.82	-0.07	0.19	1			
2 Social Anxiety	1.31	0.77	0.47	0.11	0.15*	1		
3 Smartphone Dependence	3.69	0.99	0.06	-0.10	0.15*	0.30***	1	
4 Economic Difficulties	1.69	0.9	1.58	2.41	0.18**	0.1	0.03	1

Remark: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , same as below.

### 4.3 Moderated Mediation Model Test

The bias-corrected percentile Bootstrap method suggested by Fang Jie et al. (2012) was used to test the moderated mediating effect. In order to realize this method, use Hayes (2013) to compile the SPSS macro program PROCESS plug-in to analyze the data, the specific analysis process and results are as follows:

Use PROCESS model 4 to test the mediating effect (the number of repeated samples is set to 5000), and the results can be seen in equations 1 to 3 in Table 2: The parent-child attachment avoidance of junior high school students positively predicts their smartphone dependence and social anxiety respectively. The bias-corrected Bootstrap test showed that the mediating effect of social anxiety was significant, the indirect effect value was 0.04, the standard error was 0.02, and the 95% confidence interval [0.01, 0.08] did not include 0. This suggests that parent-child attachment avoidance can indirectly predict smartphone dependence through social anxiety.

Table 2: Moderated Mediation Model Test

Predictor Variable	Path 1			Path 2			Path 3			Path 4		
	b	SE	t	b	SE	t	b	SE	t	b	SE	t
PCAA	0.15	0.06	2.51*	0.15	0.06	2.59*	0.10	0.06	1.83	0.12	0.06	2.09*
SA							0.28	0.06	4.89***	0.25	0.06	4.49***
FFD										-0.04	0.06	-0.67
SA* FFD										0.16	0.04	3.77***
R <sup>2</sup>		0.02			0.02			0.10			0.14	
F		6.29*			6.68*			15.37***			11.58***	

PCAA=Avoidance SA=Social Anxiety FFD=Economic Difficulties

In order to test the moderating role of family economic difficulties in the second half of junior high school students' indirect prediction of parent-child attachment avoidance through social anxiety and smartphone dependence, the data were processed using PROCESS model 14 (the number of repeated samples was set to 5000), and the results can be found in Equations 2 and 4 in Table 2, which indicated that family economic difficulties played a moderating role in the prediction of social anxiety and smartphone dependence among junior high school students. The judgment index INDEX is 0.02, and the confidence interval [0.01, 0.05] does not include 0, indicating that there is a significant moderated mediation effect.

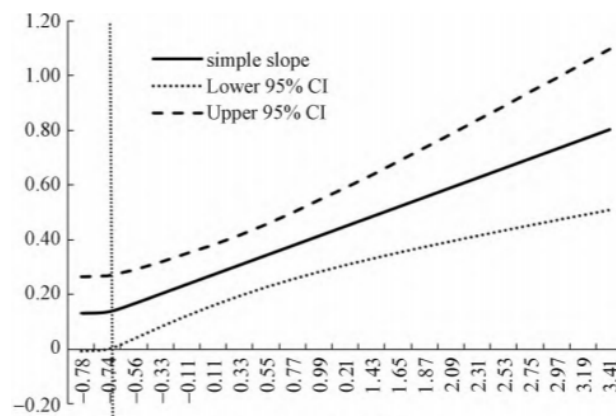


Figure 1: The Mediating Effect of Social Anxiety under Different Family Economic Difficulties

When the standardized score of family economic difficulties is higher than  $-0.74$ , social anxiety plays a significant mediating role between parent-child attachment avoidance and smartphone dependence, and this mediating effect increases with the increase of family economic difficulties of junior high school students; while when the standardized score of family economic difficulties is lower than  $-0.74$ , the mediating effect is no longer significant. The proportion of subjects whose standardized score was higher than  $-0.74$  accounted for 57.54% of the total number, that is to say, for most of the subjects in this study, the mediation effect was significant. In order to intuitively reflect the changes in the predictive effect of social anxiety on junior high school students' smartphone dependence under different conditions of family economic difficulties, the Johnson-Neyman method is used to present the simple slope change trajectory. The results (Figure 2) show that social anxiety has a significant positive predictive effect on the dependence on smartphones of junior high school students in all values of family economic difficulties in this study, and the higher the degree of family economic difficulties, the relationship between social anxiety and smartphone dependence of junior high school students is significantly higher.

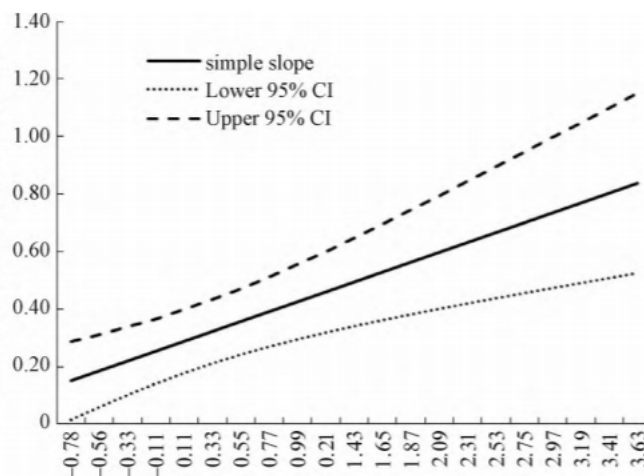


Figure 2: Prediction of Social Anxiety on Smartphone Dependence Among Junior High School Students under Different Family Economic Difficulties

The closer the relationship between dependencies. This shows that the predictive effect of social anxiety on smartphone dependence of junior high school students is enhanced with the increase of family economic difficulties of junior high school students.

## 5. Discussion

### 5.1 Moderated Mediation Model Test

The results of the study verified the positive predictive effect of parent-child attachment avoidance on smartphone dependence of junior high school students, and supported Hypothesis 1. Future research can test whether solving the problem of parent-child attachment avoidance and improving the parent-child relationship can effectively reduce the problem of smartphone dependence among junior high school students through experimental intervention.

### 5.2 Mediating Role of Social Anxiety

This study found that social anxiety plays a mediating role between parent-child attachment avoidance and smartphone dependence among junior high school students, which supports Hypothesis 2. As expected by the theory of compensatory network use (Kardefelt-Winther, 2014), in order to alleviate this anxiety, they will use mobile phones and the Internet to escape reality or self-compensation, and they are more likely to have the problem of smartphone dependence. Of course, there may be other paths for the connection between attachment avoidance and smartphone dependence. Future research can explore more factors that play a bridge role in this relationship, and then provide more ideas and methods for solving the problem of smartphone dependence among junior high school students.

### 5.3 The Moderating Effect of Family Economic Difficulty

This study found that family economic difficulties moderated the relationship between social anxiety and smartphone dependence among junior high school students, and Hypothesis 3 was verified. Specifically, the higher the level of family economic hardship, the stronger the predictor of social anxiety on smartphone dependence. In other words, the problem of smartphone dependence associated with social anxiety is more prominent for junior high school students whose families have higher financial difficulties. This finding suggests that we should pay more attention to students from families with financial difficulties and pay attention to their interpersonal communication when preventing and intervening in junior high school students' smartphone dependence. When it is found that the level of social anxiety is high, it should be intervened and guided in time to avoid the potential consequences of the joint effect of social anxiety and family economic difficulties. Future research can explore other factors that play a regulating role in parent-child attachment avoidance, social anxiety, and smartphone dependence. By targeting susceptible groups more accurately and changing the process of action more scientifically, it can be more effectively solved the problem of smartphone dependence.

### 5.4 Insufficiency and Prospect in the Research

Due to the research conditions, this study has certain limitations. First of all, in terms of empirical data collection methods and subject selection, this study is a cross-sectional study, and it is impossible to obtain exact causal inferences. Future studies can further verify the directional relationship between variables through longitudinal studies; at the same time, this study is only in one area Sampling is carried out, and the sample size is not very large. Future research can consider obtaining more information from more subjects in more regions to improve the external validity of the research conclusion. In future research, multiple sources of data can be considered in data collection to improve the objectivity of measurement.

## 6. Conclusion

In general, from the above discussion, we can see that the mobile phone of rural students mainly depends on factors such as family, parental relationship, social psychology and economic background. The above research also puts forward a solution to the phenomenon of mobile phone dependence. First of all, parents should pay attention to the relationship with their children, help their children establish a good parent-child attachment, and avoid a series of psychological and behavioral problems caused by avoidance of parent-child attachment, and prevent them before they happen. Secondly, in the practice of preventing smartphone dependence among junior high school students, more attention needs to be given to students with high parent-child attachment avoidance, who are susceptible to smartphone dependence. When solving the problem of high parent-child attachment avoidance of smartphone dependence, junior high school students can also start with their anxiety in interpersonal communication: when their social anxiety problem is alleviated, the connection chain of parent-child attachment avoidance-social anxiety-smartphone dependence will be interrupted, they will show less smartphone dependency issues.

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