

# The Mediating Role of Self-differentiation in the Relationship between College Students' Cell Phone Dependence and Family Function

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**Keywords:** Mobile Phone Dependence, Family Function, Self-differentiation, Mediation.

**Abstract.** *Purposes* To explore the relationship between college students' family function, self-differentiation and mobile phone dependence. *Methods* Using convenient sampling, 430 undergraduates were selected from a college in Wuhan City. Questionnaires using Mobile Phone Dependency Index (MPAI), Family Function Rating Scale (FAD) and Self-Differentiated Questionnaire (DSI). *Results* The scores of boys' mobile phone dependence scores were significantly higher than those of girls. The grades of seniors were significantly higher than those of other grades. The family function and self-differentiation of the normal group were better than those of mobile phone dependent groups. The results of mediation regression analysis showed that the scores of self-differentiation were taken into consideration. The predictive function of family function on mobile phone dependence is significant but has weakened. *Conclusion* Self-differentiation has partial mediation in the relationship between family function and mobile phone dependence.

## Introduction

Mobile phones have gradually become a necessary social tool that accompanies the growth of college students and have a profound impact on their psychosocial development [1]. The use of mobile phones by college students, especially mobile phone dependence, has attracted widespread attention. Mobile phone dependence mainly refers to the individual's uncontrolled use of mobile phones, so as to harm physical and mental health, affecting life, learning and work. Studies have shown that mobile phone dependents have poor overall social adaptability in real life and are more prone to social difficulties, anxiety, loneliness, and depression [2]. The family is an important place for individual growth. The most basic function of the family is to provide necessary conditions for the healthy development of family members' physiology, psychology and sociality [3]. Poor parent-child relationship can easily lead to college students' mobile phone dependence; family intimacy, contradiction, and organization are all family factors that affect college students' mobile phone dependence [4]. Self-differentiation is a core concept proposed by Bowen in the family system theory, which refers to the individual's degree of emotional attachment and independence in the family [5]. Self-differentiation can be regarded as the process and result of family interaction, and it is one of the most critical personality qualities for individual maturity and mental health [6]. This study considered the impact of family factors and individual development levels on college students' mobile phone dependence behaviors, introduced the three variables of family function, self-differentiation and mobile phone dependence, and assumed that the level of self-differentiation has an intermediary role in the influence of family function on mobile phone dependence behavior, in order to provide a theoretical basis for the exploration and intervention of college students' mobile phone dependence behavior.

## Methods

### Research Methods

A sample survey was conducted from a university in Wuhan, and questionnaires were issued in class units. A total of 470 copies were distributed, and 430 valid questionnaires were collected. The recovery rate was 91.2%. Among them, there are 250 male students and 180 female students. The

numbers of the students from the first grade to the fourth grade in universities are 125, 115, 95 and 95, with an average age of  $20.12 \pm 1.87$  years.

## Tools

**Mobile Phone Addiction Index (MPAI)** Mobile Phone Addiction Index was revised by Huang Hai and Niu Luying et al [7]. A total of 17 items were divided into four subscales: uncontrollability, withdrawal, escape, and inefficiency. Each item is rated from 1 to 5 points. The higher the score, the stronger the dependence of the mobile phone. In this study, the internal consistency coefficient of the total table was 0.915.

**Family Assessment Device (FAD)** McMaster Family Function Rating Scale [8] had a total of 60 items, and they were divided into 7 subscales: Problem Solving, Communication, Role, Emotional Response, Emotional Intervention, Behavior Control, and Total Function. Each item is rated from 1 to 4 points. In this study, the internal consistency coefficient of the total table was 0.89.

**Differentiation of Self Inventory (DSI)** Differentiation of Self Inventory was revised by Wu Yihui and Wang Guiping [9]. It had a total of 27 items, and they were divided into four subscales: Emotional response, Self-position, Emotional disconnection, and Integration with people. Each item is rated from 1 to 6 points. In this study, the internal consistency coefficient of the scale was 0.88.

## Statistical Methods

The data was sorted and analyzed using SPSS17.0 and analyzed by correlation analysis, one-way analysis of variance, and linear regression analysis. The test level was  $\alpha=0.05$ .

## Results

### College Students' Mobile Phone Dependency

There are gender differences in the scores of the mobile phone dependence scale. The boys are significantly higher than the girls. The scores of mobile phone dependence in the third grade are significantly different from those in other grades. See Table 1

Table 1, Sex and grade differences in college students with high mobile phone dependence

variable	sex		F	grade				F
	male (n = 250)	female (n = 180)		(n = 125)	(n = 115)	(n = 95)	(n = 95)	
uncontrollability	$7.76 \pm 2.56$	$7.24 \pm 2.51$	3.45*	$7.32 \pm 2.41$	$7.28 \pm 3.46$	$8.52 \pm 2.64$	$7.51 \pm 2.58$	3.93**
withdrawal	$26.82 \pm 8.83$	$23.32 \pm 9.18$	6.62**	$23.58 \pm 8.59$	$24.98 \pm 8.44$	$27.78 \pm 9.89$	$25.88 \pm 9.29$	3.39*
escape	$15.44 \pm 5.28$	$13.15 \pm 4.94$	9.78**	$13.50 \pm 5.17$	$14.28 \pm 4.64$	$15.7 \pm 5.63$	$14.31 \pm 4.94$	2.78*
inefficiency	$20.18 \pm 6.51$	$17.32 \pm 6.26$	10.63**	$16.93 \pm 6.17$	$18.75 \pm 6.54$	$21.5 \pm 7.35$	$19.73 \pm 6.12$	6.36**
Total score	$96.92 \pm 26.01$	$85.62 \pm 25.90$	10.03**	$87.67 \pm 24.21$	$90.68 \pm 24.58$	$99.09 \pm 29.51$	$93.21 \pm 26.89$	4.03**

### Differences in College Students' Family Function and Self-differentiation in Different Mobile Phone Dependencies

There were significant differences in family function and self-differentiation scores. Normal family functions were better than those of mobile phone dependent groups. Normal group self-differentiation and development were better than mobile phone dependent groups (see Table 2).

Table 2, Comparison of scores of college students' MPAI groups in family function and self-differentiation

item	group (high)	group (low)	F
<b>FAD</b>			
Problem Solving	14.33 ± 2.87	12.65 ± 2.78	10.61**
Communication	21.21 ± 2.39	19.32 ± 3.64	6.32**
Role	24.97 ± 3.41	23.71 ± 4.23	4.88**
Emotional Response	14.28 ± 2.35	13.43 ± 2.79	3.40*
Emotional Intervention	15.81 ± 2.81	14.60 ± 3.21	6.69**
Behavior Control	20.78 ± 2.24	20.57 ± 2.82	1.92
Total Function	27.18 ± 4.69	23.9 ± 5.45	7.88**
Total score	138.0 ± 14.40	127.95 ± 19.68	9.02**
<b>DSI</b>			
Emotional response	20.58 ± 5.27	22.44 ± 5.89	3.41*
Self-position	18.35 ± 4.22	20.51 ± 5.38	4.31*
Emotional disconnection	20.69 ± 5.13	25.34 ± 6.24	12.23**
Integration with people	32.58 ± 6.97	36.58 ± 8.54	6.12**
Total score	91.97 ± 12.57	104.35 ± 17.65	13.90**

### Examination of the Mediating Role of Self-differentiation

To test the mediating role of self-differentiation in family function and cell phone dependence, Baron and Kenny's method was used to test the mediation. The results show that 1 self-differentiated score has a significant negative predictive effect on mobile phone reliance while considering the total functional impact of the family, and at the same time, the overall family function has a significant but weaker predictive effect on mobile phone dependence. Self-differentiation has a partial mediating role in the influence of family function on mobile phone dependence (see Table3).

Table3. Regression effects of MPAI on self-differentiation (including family function)

variable		Total score of MPAI		variable	Total score of MPAI
mediating variables	Total score of DSI	-0.432**	mediating variables	Emotional response	0.114
				Self-position	-0.224
				Emotional disconnection	-0.931**
				Integration with people	-0.462*
Independent variable	Total score of FAD	1.321**	Independent variable	Problem Solving	1.258*
				Communication	0.62
				Role	0.390
				Emotional Response	-0.273
				Emotional Intervention	1.01*
				Behavior Control	-0.441
	F	47.567**		F	10.986**
	df	429		df	429
	R2	0.22		R2	0.221
	Adjusted R2	0.21		Adjusted R2	0.209

## Summary

Mobile phone has become an indispensable medium for university students to learn and live, and have a profound influence on the group of college students. The study found that male students' mobile phone dependence scores were significantly higher than female students, indicating that male students are more likely to have mobile phone dependence problems. This gender difference is consistent with the “masculinized” addiction trend found by previous studies [10], and some researchers believe that boys and girls are traditionally different in the interest of machine-based functions and technologies [11]. In addition, it may also be related to psychological differences between boys and girls. In comparison, junior' mobile phone dependence behavior is more obvious, which may be related to less regular classes in the third grade and relatively more leisure time.

The study found that the family function of the cell phone dependent group was significantly lower than that of the normal behavior group. The basic function of the family is to meet the needs of the family members' healthy development. If members of the family have problems in communication, role division, etc., and members lack emotional and emotional input, not only the needs cannot be satisfied, but they feel restricted. With control, these problems can easily lead to social adaptation problems for children, such as the appearance of mobile phone dependence. Self-differentiation is an important criterion to measure the growth status of adolescents. Individuals with high self-differentiation tend to show better real-life interpersonal communication and life coping, and they tend to have normal mobile phone use behavior.

The study also found that Self-differentiation has a partial mediating role in the influence of family function on mobile phone dependence, indicating that family factors are important factors affecting adolescents' mobile phone dependence, but these are influenced by individual factors. The level of maturity can, to a certain extent, weaken the negative effects of bad family functions.

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