

## The Mediating Role of Boredom and Fear of Missing Out in the relationship between Depression Symptoms and Problematic Cell-phone Use

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### Abstract

The aim of current study was to investigate the mediating role of boredom and fear of missing out in the relationship between depression symptoms and problematic cell-phone use. The research design was descriptive-correlational. A total of 276 high school students selected via multistage cluster sampling method and were examined by Beck Depression Inventory-II (BDI-II), Multidimensional State Boredom Scale (MSBS), Cell-phone Over Use Scale (COUS), and Fear of Missing Out Scale (FOMOS). To analyze the collected data path analysis were conducted. The results of path analysis showed that the mediating role of psychological boredom and fear of missing out in the relationship between depression symptoms and problematic cell-phone use was significant. Based on the findings, it can be concluded that depression, boredom and fear of missing out information and social events were important factors affecting adolescents' problematic cell-phone use.

**Keywords:** Boredom, cell-phone, depression, fear of missing out

### Introduction

Despite their portability, cell-phones are causing some problems, one of which is referred to as problematic cell-phone use (Xie, et al., 2018). Research has found that problematic cell-phone use can cause a number of detrimental consequences in students including sleep interference, poor academic performance and interpersonal distress (Yang, et al., 2019). A relevant, theory accounting for problematic cell-phone is Compensatory Internet Use Theory that conceptualizes excessive cell-phone use as a maladaptive coping strategy used to alleviate negative emotion including depression symptoms (Elhai, et al., 2018). Research has found that depression among adolescents is associated with certain behaviors, such as problematic cell-phone use (Rozgonjuk, et al., 2017). Hence, depression is not the only factor influencing problematic cell-phone use. Based on research literature some variables including boredom (Elhai, et al., 2018) and fear of missing out (Wolniewicz, et al., 2018) have mediated relations between depression and problematic cell-phone use. Boredom involves attention and impulse control difficulties and correlates with negative emotions and problematic cell-phone use (Struk, et al., 2017). Fear of missing out involves an adverse negative emotional state, and is correlated with depression and higher levels of problematic cell-phone use (Oberst, et al., 2018). Altogether, as mentioned before problematic cell-phone use may pose a number of deleterious outcomes for students. Therefore, focus on high school students when studying problematic cell-phone use is highly pertinent. Although an enormous amount of research is in line with the notion that high depression symptoms could predict students' problematic cell-phone use, studies that have tested the mediating role of boredom and fear of missing out are minimal. Above all, the current study aimed to investigate the mediating role of boredom and fear of missing out in the relationship between depression symptoms and problematic cell-phone use.

## Method

The present study was a descriptive-correlational study that was conducted in 2019. The research population included male adolescent students at public high schools in Nourabad, Iran. Using the multistage cluster sampling method, a total of 276 high school students were selected. The following instruments were administered.

**Beck Depression Inventory-II (BDI-II):** The BDI-II is a 21-item with 0 to 3 point Likert-type response. Beck, et al., (2000) has confirmed the validity and reliability of BDI-II across different populations. In the present study, the internal consistency with Cronbach's  $\alpha$  was 0.92.

**Multidimensional State Boredom Scale (MSBS):** It is a 29-item with 7-point Likert-type response. In Fahlman, et al., (2011) study, the Cronbach's  $\alpha$  of the scale was 0.96. In the present study, the internal consistency with Cronbach's  $\alpha$  was 0.89.

**Cell-phone Over Use Scale (COUS):** It is a 23-item scale based on a 6-point Likert type response, with Cronbach's alpha 0.80 – 0.93 (Jenaro, et al., 2007) for male and female students respectively. In the present study, the internal consistency with Cronbach's  $\alpha$  was 0.86.

**Fear of Missing out Scale (FOMOS):** The FOMOS is a 10-item survey, with response ranging from 1 to 5. Przybylski, et al., (2013) reported the internal reliability was adequate, with convergent validity against social media engagement scale. In the present study, the internal consistency with Cronbach's  $\alpha$  was 0.85.

## Results

Mean, standard deviation, and correlation coefficients are presented in Table 1. The result of Kolmogorov-Smirnov test showed that the distributions of study variables are normal ( $P > 0.05$ ). Also, the results in Table 1 showed that all relationships were significantly positive at  $P < 0.01$ . Therefore, based on these, the necessary condition for investigating the mediating role of boredom and fear of missing out is fulfilled.

Table1. Descriptive statistics, correlation matrix and tests of normality for study variables

Variables	Mean	SD	1	2	3	4	Kolmogorov–Smirnov	
							Statistics	P-value
1) Depression	20.62	5.21	1	-	-	-	0.08	0.05
2) Boredom	112.84	10.07	0.58**	1	-	-	0.07	0.06
3) Fear of missing out	32.09	6.14	0.45**	0.36**	1	-	0.06	0.09
4) Problematic cell-phone use	78.53	8.02	0.31**	0.44**	0.39**	1	0.07	0.08

$P < 0.01^{**}$

Prior to conducting path analysis basic assumptions of the sample size, data distribution normality, and multi-collinearity, were established. The research model of the relationship between depression and problematic cell-phone use mediated via boredom and fear of missing is shown in Figure 1 based on standardized coefficients ( $\beta$ ). As shown in Table 2, the proposed model had a good fit based on fitness indices.

The parameters of the direct and indirect relationship measurement in the research model (Figure 1) show that the direct effect of depression on boredom ( $\beta= 0.37$ , C. R=5.24,  $P<0.01$ ) and fear of missing out ( $\beta= 0.33$ , C. R=4.80,  $P<0.001$ ) were positive and significant. Moreover, the direct effect of depression ( $\beta= 0.29$ , C. R=3.62,  $P<0.001$ ), boredom ( $\beta= 0.52$ , C. R=7.94,  $P<0.001$ ) and fear of missing out ( $\beta= 0.47$ , C. R=6.30,  $P<0.001$ ) on problematic cell-phone use were positive and significant. Finally, results showed that the mediating role of boredom ( $\beta= 0.19$ ,  $P<0.01$  and fear of missing out ( $\beta= 0.15$ ,  $P<0.01$ ) in the relationship between depression symptoms and problematic cell-phone use was significant.

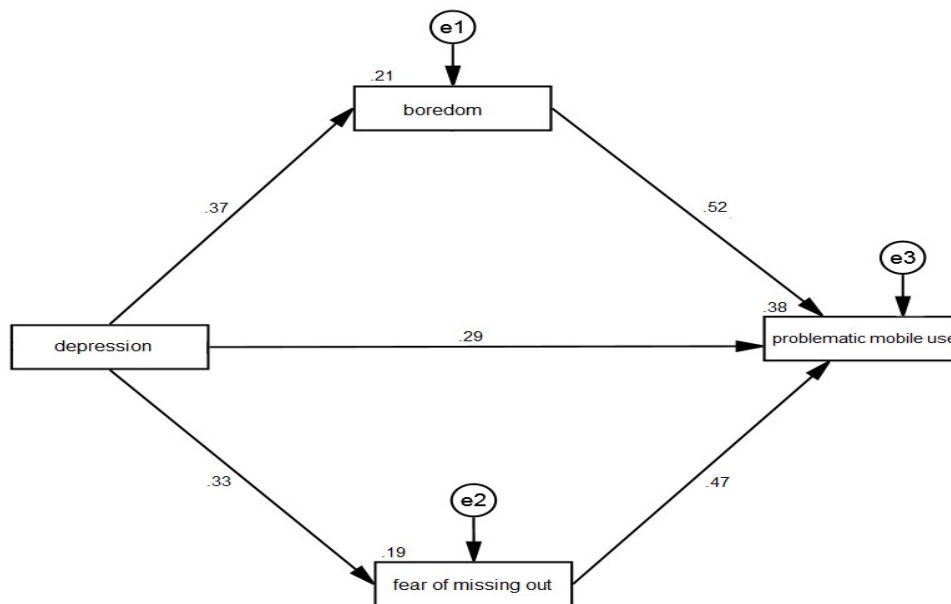


Figure1. Model of the mediating role of boredom and fear of missing out

Table2. General fit assessment indices of Model

Indices	GFI	AGFI	CFI	NFI	CMIN/DF	RMSEA
Model values	0.92	0.88	0.91	0.92	2.79	0.04

## Discussion

The results showed that depression had a significant positive effect on problematic cell-phone use in students, which is consistency with the results of previous research (Elhai, et al., 2018). Also, the findings showed that depression through boredom and fear of missing out had a significant effect on

problematic cell-phone, which is in line with other studies (Struk, et al., 2017; Wolniewicz, et al., 2018). A possible explanation is that according to compensatory internet use theory individual's cell-phones excessive use is a maladaptive coping strategy to alleviate depression, boredom and anxiety (found with fear of missing out). The cross-sectional design, which is not the best way to evaluate causal relations, limits the results. Future longitudinal research is needed to further ascertain the particular directions and relationships among these variables. Limitation aside, the present study provided some practical implications. The findings of this study could help to guide targeted preventions and interventions for problematic cell-phone use in students. Thus, mental health practitioners can educate students about the potential harms of depression, boredom, fear of missing out and problematic cell-phone use and guide them to set self-reinforcing goals to monitor their frequency and duration of cell-phone use.

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