



## Cognitive Predictors of Mobile Phone Addiction

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### ABSTRACT

The present study aimed to investigate the impact of loneliness and emotional intelligence on mobile phone addiction among adolescents. The sample for the current study consisted of 200 adolescents (100 males and 100 females) in the age group of 14-19 years from Chandigarh. The subjects were administered a measure of UCLA Loneliness Scale (Russell, 1980) along with Emotional intelligence scale (Singh & Narain, 2014) and Mobile phone addiction scale (Velayudhan & Srividya, 2012). Inter-correlation analysis, t-test and regression analysis were applied. Results revealed that loneliness was positively related and emotional intelligence was negatively related to mobile phone addiction. Also, loneliness and emotional intelligence were negatively related with each other. It was also found that loneliness significantly predicted the levels of mobile phone addiction in male adolescents. Males as compared to females were higher on loneliness and mobile phone addiction; however, females in comparison to males were higher on emotional intelligence.

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### 1. Introduction

Mobile phones have become an important and integral part of our society. The benefits of mobile phones are undeniable because of the access of any individual in remote corner of the world within no time. Mobile phones have become a ubiquitous part of our daily lives. Initially, mobile phones were used only as a communication tool; but, these days, mobile phones function as mobile computers that serve us with music player, games, internet, video camera, calculator, alarm clock, and many more other perceived benefits. Owing to these countless perks, mobile phones are increasingly adopted and used by teenagers. Moreover, usage of mobile phones has increased dramatically owing to their more affordability and availability all over the world. This increased usage has led to its addiction among people using them. Cha and Seo (2018) estimated that in India mobile phone usage among people will be 2.87 billion by 2020.

The term addiction refers to all types of extreme behaviors, such as an abnormal dependence on drugs, food, exercise, gambling, gaming, television watching, and internet use and as any compulsive or overuse activity (Park, 2005). Similarly, mobile phone addiction is termed as constant dependency on one's mobile phone, to cater to psychological needs and extraneous necessities, causing a constant attachment to ones gadget, leading to loss of productivity and developing chronic side effects such as depression, loneliness, lack of social behavior, loss of sound sleep and various health issues.

Mobile phones are one of the greatest inventions of the 20th century. It acts as a double edged sword. On one hand, it has helped people in improving the communication channels but on the other hand, it has made human beings dependent on it and led to an irreplaceable position of a mobile phone in their daily life. Hence, mobile phone addiction is a behavioral

form of addiction just like any other, but different from substance addiction. According to a report by New York Times (2017), both adults and teens check their mobile phone 150 times a day that is every 6 minutes and send an average of 110 texts per day.

Constant usage and addiction to mobile phones has affected the people physically, psychologically, and socially. Excessive mobile phone use has been found to be associated with several health problems. Ahmed and Perzi (2011) described mobile phone addiction as a phenomenon in which individuals are engrossed in their mobile phone use to the extent that they neglect other areas of life. Therefore, mobile phone dependence can be considered as a new diagnostic entity as it has properties of excessive use, withdrawal, tolerance and negative repercussions (Bhatia, 2008).

Adolescents are fascinated by the usefulness, portability and availability of mobile phones hence; it has become a true object of desire for many in this age group. However, even though mobile phone is an extraordinarily useful tool and facilitates the performance of numerous social and personal functions. But the uncontrolled, inappropriate, or excessive use of mobile phones can give rise to problems in interactions with parents and in other areas of life. Therefore, as the prevalence, of mobile phones is easier, their intricate inclusion in everyday life is very common and the influence of mobile phones on youngsters is huge.

Loneliness is one of the most common feelings that individuals could experience in their lives. It is a negative emotion that comes about through a discrepancy between desired and achieved levels of social contact (Perlman & Peplau, 1981). Lopata (1969) defined loneliness is an emotion experienced by an individual who wishes for a level of contact unlike from the one currently encountered i.e. the multiplicity of social relations does not matter but the quality

of them is important. Studies on loneliness have shown that it is associated with some variables, like depression (Anderson & Arnoult, 1985) and stress (Yaacob, Juhari, Talib, & Uba, 2009).

Jin and Park (2012) found that more face-to-face interactions were associated with lower levels of loneliness; however, more mobile phone calling was associated with greater loneliness. Reid and Reid (2007) revealed that lonely people preferred calls and rated text such as short message service (SMS, or text messaging) as a less intimate method of contact. According to Takao, Takahashi, and Kitamura (2009) it is conceivable that lonely people are eager to maintain contact with their peers through frequent calls so as to fulfill their loneliness. We, therefore, would expect that higher or problematic phone use is predicted by loneliness.

Salovey and Mayer (1990) defined emotional intelligence as an ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions. Management and regulation of emotions is an important aspect of one's well-being and mental health (Aldao, Nolen-Hoeksema, & Schweizer, 2012). However, inability to manage the emotions leads to various psychological problems. Beranuy, Oberst, Carbonell, and Chamarro (2009) also found that emotions play a major role in internet and mobile phone addiction. As emotional intelligence involves conscious and unconscious processes through experiences that help in emotion control like, repression, inhibition and cognitive assessment (Rothermund, Voss, & Wentura 2008). Therefore, we expect that problems in emotional regulation and emotional control increase the possibility of mobile phone addiction.

Thus, the primary need of the study was to explore whether loneliness and emotional intelligence could predict mobile phone addiction among adolescents. It also measured the associations between loneliness, emotional intelligence and mobile phone addiction among adolescents. In addition, the study investigated gender differences on all variables.

## 2. Hypotheses

1. It was expected that there will be a positive relation between:

a. Loneliness and mobile phone addiction among adolescents.

2. It was expected that there will be a negative relation between:

a. Emotional intelligence and mobile phone addiction among adolescents.

b. Loneliness and emotional intelligence among adolescents.

3. Loneliness and emotional intelligence will emerge as predictors of mobile phone addiction among adolescents.

4. Gender differences will exist on loneliness, emotional intelligence and mobile phone addiction.

## 3. Method

### 3.1 Sample

The sample was taken from government and private schools from tricity i.e. Chandigarh, Panchukla and Mohali. A list of students was taken from 8<sup>th</sup> grade to 12<sup>th</sup> grade was obtained. Multistage purposive random sampling technique was used. Four hundred adolescents in the age range of 14-19 years were contacted. Out of these four hundred, two hundred adolescents (100 males and 100 females) who met the inclusion criteria were randomly chosen as final sample.

### 3.2 Inclusion criteria

➤ Participants had minimum qualification of 8<sup>th</sup> grade so that they can read and comprehend the questions.

➤ Participants who were using their own mobile phones for at least two years.

➤ Mobile phone addicts were identified with the help of mobile phone addiction scale by Srividya and Velayudhan (2012).

➤ Participants scoring within the range of 128-185 for males and 109-185 for females who were high on mobile phone addiction were included in the sample.

➤ The participants were from middle socio economic strata (National Council of Applied Economic Research, [NCAER], 2012) belonging to tricity (i.e. Chandigarh, Panchkula and Mohali).

➤ Participants residing in tricity (i.e. Chandigarh, Panchkula and Mohali) for atleast past five years

### 3.3 Exclusion criteria

➤ Those suffering from any kind of psychopathology or undergoing treatment for their psychological issues.

➤ Individuals using their parent's or sibling's mobile phone were not included in the study.

➤ In order to keep the sample homogenous, adolescents and young adults from broken families were not included as that would contribute to increased loneliness.

➤ Joint families were excluded from the sample

## 4. Measures

### 4.1 Mobile Phone Addiction (Srividya and Velayudhan, 2012).

It is a self report 37 items scale and is measured on 5-point scale measured on five categories, i.e., Strongly agree (5), Agree (4), Uncertain (3), Disagree (2), Strongly disagree (1). The minimum and maximum score range in 37- 185. The scale has reliability of 0.89 which is quite satisfactory. The split half reliability is 0.75.

### 4.2 Emotional Intelligence Questionnaire (Singh & Narain, 2014).

It is a 31 items scale and is measured on 2 categories, i.e., Yes or No. The total score of 20 or less is considered as low emotional intelligence, 21 to 26 is average emotional intelligence and 27 and above shows high emotional intelligence. Scale is reliable with alpha coefficient as 0.86.

### 4.3 Loneliness Scale (Russell, 1980)

The self report measure of loneliness constructed by Russell (1980) comprises of 20 items, in which 10 items are positively worded and other 10 are negatively worded. The individual has to mark the response on a four point scale, with 1= Never and 4= Often for the negatively worded items. The scoring pattern is reversed for positively worded items. The reported internal consistency of this scale was .94 which is quite satisfactory.

In addition to all the psychometric tests, a semi-structured questionnaire was administered to assess the socio demographic information such as sex, education, socio-economic status, age and other general information.

## 5. Statistical Analyses

To meet the objectives of the study, correlation analysis and simple linear regression analysis were applied. Descriptive statistics viz, mean and standard deviation was also performed and t-test was used to find the gender differences among variables.

## 6. Results

One of the objectives of the study was to find the relationship between loneliness, emotional intelligence and mobile phone addiction among adolescents.

Results showed that among males ( $r = 0.52^{**}$ ,  $p \leq 0.01$ ) and females ( $r = 0.37^{**}$ ,  $p \leq 0.01$ ) loneliness was positively

related to mobile phone addiction. The results further revealed that among males ( $-0.27^{**}$ ,  $p \leq 0.01$ ) as well as females ( $r = -0.26^{**}$ ,  $p \leq 0.01$ ) emotional intelligence was negatively related to mobile phone addiction. Loneliness and emotional intelligence were negatively related with each another with ( $r = -0.55^{**}$ ,  $p \leq 0.01$ ) among males and ( $r = -0.54^{**}$ ,  $p \leq 0.01$ ) among females.

Another objective of the present study was to delineate the predictors for mobile phone addiction. For this, simple linear regression analysis was applied. For male adolescents, loneliness ( $\beta = 0.46$ ) explained 27 % variance ( $R^2 = 0.27$ ) in mobile phone addiction. Among female adolescents both the variables did not significantly predict the levels of mobile phone addiction.

**Table 1. Shows the regression analysis for loneliness and emotional intelligence as predictors of mobile phone addiction**

Predictor Variables	Standardized Coefficients	T-value	R Square	F-value
	Beta			
Loneliness	0.46	5.27**	0.27	35.97**
Emotional intelligence	0.21	1.16	0.16	2.8

\*\*Significant at  $p \leq .01$  level

Gender differences were found on loneliness ( $t = 3.36^{**}$ ,  $p \leq 0.01$ ) and mobile phone addiction ( $t = 6.16^{**}$ ,  $p \leq 0.01$ ). Males were found to be higher on loneliness ( $M = 48.8$ ) as compared to females ( $M = 45.64$ ). Also, males ( $M = 106.97$ ) were higher on mobile phone addiction as compared to their female counterparts ( $M = 98.71$ ). Gender differences were found on emotional intelligence ( $t = 1.99^{**}$ ,  $p \leq 0.01$ ). Females were found to be higher on emotional intelligence ( $M = 21.66$ ) as compared to males ( $M = 20.21$ ).

## 6. Discussion

The current study primarily aimed to investigate the associations between loneliness, emotional intelligence and mobile phone addiction; it also ascertained whether loneliness and emotional intelligence predict mobile phone addiction in adolescents.

Loneliness was found to be positively related to mobile phone addiction. Thus, hypothesis 1(a) is accepted. Previous studies are in line with the hypothesis. Tan, Pamuk, and Donder (2013) did a study on 527 university students to study the relationship between loneliness and mobile phone addiction. The results obtained from the study showed that, 17.6% of university students who participated in the research were addicted to their mobile phones. There was a significant difference between loneliness of university students who were not addicted to mobile phone and students with mobile phone addiction. Loneliness scores of students who have been addicted to mobile phone were found to be higher than those of non-addicts.

The results of our study are also supported by Kraut et al.'s (1998) study. They claimed that pathological use of the new technologies reduces the individual's social implication in the real world and, as a consequence, his or her psychological well-being, as it produces the kind of isolation, loneliness and depression, the individual wants to ease by connecting to the internet. Since mobile phones are readily available and portable the individuals prefer using internet through them and hence, get addicted to their mobile phone devices.

Chen (2006) also found that heavy mobile phone users meet their friends less. Additionally, they constantly use their mobile phones and as a result time allocated to other social

relations, especially based on face-to-face interaction reduces. This situation may also make individuals lonely. Therefore, even though mobile phones and the internet are used as communication tools, but their excessive usage makes individuals to become addicted to them.

McKenna, Green, and Gleason (2002) reported that lonely adolescents spend a lot of time talking to people on the mobile phone because it is a way to break the social isolation. Moreover, depressed youths spend long time talking to others on mobile phone because it encourages intimate self-disclosure and allows them to anonymously express their true self. Consequently, in order to deal with these feelings of loneliness individuals end up using mobile phones excessively.

Another plausible reason for positive relationship between loneliness and mobile phone addiction could be that through social networking applications in mobile phones adolescents temporarily serve their social needs, sense of connectedness with others, receive social support and feel loved (Mansourian, Solhi, Adab, & Latifi, 2014). As a result, through mobile phones they virtually try to fill the empty void in them due to loneliness and in the process of filling this gap their usage of mobile phones gradually becomes excessive and further leads to addiction.

Hypothesis 2(b) stated that there will be a negative relationship between emotional intelligence and mobile phone addiction. The result of our study completely supports this hypothesis and is concurrent with the previous studies.

Emotional intelligence has been linked to substance use problems. With respect to internet also there are few studies that deal explicitly with internet addiction and emotional intelligence. Parker, Taylor, Eastabrook, Schell, and Wood (2008) also found that (low) emotional intelligence was a moderate to strong predictor of addiction-related behavior (gambling, Internet use, and video game playing).

In relation to mobile phone addiction, Ha, Chin, Park, Ryu, and Yu (2008) explored the relationship between levels of mobile phone addiction and emotional intelligence. They found that the excessive user group experienced difficulty in expression of emotion than the comparison group did. Furthermore, excessive user group had higher interpersonal anxiety in comparison to the controlled group.

Furthermore, teenagers are at a stage of life where they go through lot of hormonal changes in their body and hence, go through lot of emotional turmoil due to these changes. Teenagers who are emotionally strong, comfortably deal with these changes however; teenagers with weak emotional regulation skills are prone to compulsive behavior, like, overuse of mobile phones to compensate for their negative moods (Extremera, Merida-Lopez, Sanchez-Alvarez, Quintana-Orts, & Rey, 2019).

Another plausible reason for inverse relationship between mobile phone addiction and emotional intelligence could be that individuals who are weak on emotional intelligence are also poor in social intelligence and have higher tendency to experience negative affect (Ehrenberg, Juckes, Whitel & Walsh, 2008). In addition, individuals with low emotional intelligence have problems in expressing one's emotions face-to-face they thereby rely upon mobile phones to express one's emotions.

Hypothesis 2(b) stating negative relationship between loneliness and emotional intelligence has been completely accepted since; results of our study also depict negative relationship between loneliness and emotional intelligence.

Tamir, John, Srivastava, and Gross (2007) also found that young individuals who are high on emotional intelligence tend to feel less lonely showing an inverse relationship because they possess the required capabilities to recognize their emotions and effectively regulate their internal states. Moreover, young individuals high on emotional intelligence are also able to understand the reasons for their negative states and therefore, they accordingly adjust or modify with their environment to manage their internalizing problem of loneliness.

Davis, Nowland, and Qualter (2019) also ascertained that those individuals who are unable to recognize their emotions appropriately and manage them effectively, lack confidence in their emotional intelligence which hinders with their relationship maintenance behaviors. As a consequence, due to inability to maintain intimate relationships they remain socially isolated and hence, feel lonely.

The findings therefore show that as loneliness increases, individuals manifest poor emotional intelligence abilities in terms of poor relations with others, poor understanding of one's own and others' emotions, lack of commitment and poor regulation of emotions.

The findings of the study depict that loneliness predicts the extent of mobile phone addiction among only male adolescents. Therefore, hypothesis 3 stating that loneliness and emotional intelligence will predict mobile phone addiction among adolescents has been partially supported.

Pathak and Mhaske (2017) also found that loneliness was significantly predicting mobile phone addiction among a sample of 18-21 year old college students. The reason why loneliness significantly predicted mobile phone addiction could be that lonely individuals possess poor social skills and are incompetent in relationships. This incompetency makes them reluctant to be involved in self-disclosure.

Moreover, lonely individuals are afraid to disclose themselves; therefore, these traits make them socially passive which means that they prefer text messaging instead of voice calling (Bonetti, Campbell & Gilmore, 2010). Therefore, lonely people compensate for their weak social skills by text messaging more often.

In the present study, emotional intelligence did not yield any significant contribution towards mobile phone addiction among any of the gender. This could be due to the type of emotional intelligence test being used to assess EI. For instance, studies have found that the way in which emotional intelligence is assessed makes a huge difference in the findings of the study (Goldenberg, Matheson & Mantler, 2006). If one uses performance based measures of emotional intelligence, it might yield significant findings because performance based measures are more affected by age, education and receiving psychotherapy.

In our study, hypothesis 4 has been accepted as gender differences exist on loneliness, emotional intelligence and mobile phone addiction. Males were found to be high on loneliness and mobile phone addiction and females were found to be high on emotional intelligence. Previous studies support the findings of our study. Tan et al. (2013) examined the levels of loneliness of university students with respect to gender. The loneliness scores of male students (Mean =40.6, SD=9.4) were found higher than the scores of female students (Mean =35.8, SD=9.4).

Another plausible reason for males to be higher on loneliness could be that the upbringing of males is different from females. Since, childhood they are brought up in a way

where they are discouraged to express their true feelings of sadness or crying with others. As a result, males become less expressive and consequently, they start hiding their feelings and internally sink into it.

Males were also found to be higher on mobile phone addiction. The reason for males to be higher than females on mobile phone addiction can be attributed to the sensation seeking or thrill seeking tendencies in males (Billieux, Rochat, Rebetez & Van Der Linden, 2008). Thus, in order to fulfill these tendencies males tend to indulge in excessive mobile phone usage.

Another plausible reason for males to be higher on mobile phone addiction could be that males are inclined more towards recent developments in the field of technology. In order to explore the new technology innovations males tend to indulge into overuse of mobile phones.

Females were found to be higher on emotional intelligence. The reason could be that females biochemistry is more evolved to consider emotions of others and one's own. Moreover, neuroscientists have also found that areas of the brain which are related to processing of emotions are much larger in females than males (Nolen-Hoeksema & Jackson, 2001) as a result; females are more emotionally sensitive in comparison to males.

Another reason for females to be higher on emotional intelligence could be that the socialization practises for females in different for females as compared to males. As, females are expected to take care of emotions of others and being aware of everybody's needs. As a result they are discouraged to express their true feelings of their desires, guilt and wants. Therefore, females learn to regulate their emotions in a better way as compared to males.

## 8. Conclusions

In the present study, we have ascertained that loneliness and mobile phone addiction are positively related to each other and on the other hand, emotional intelligence and mobile phone addiction are negatively related to each other. Loneliness predicts the levels of mobile phone addiction among adolescents. An important implication of the study is the possibility to develop intervention programs aiming to deal with high levels of loneliness in adolescents. Moreover, efforts should be made in schools to train adolescents to be emotionally mature and deal with emotions effectively. In addition, adolescents need to be made aware of negative consequences and health hazards of succumbing to problematic use of mobile phone usage. Effective intervention strategies need to be developed to make adolescents mentally and healthy. As a result, our research supports the opportunity of implementing a program focused on building life skills in adolescents so that they are able to deal with loneliness and are able to control and manage their emotions effectively.

However, the present study has its limitations. The sample is based only on adolescents from urban areas. For better understanding of the antecedents of mobile phone addiction, it is important to include population from different age groups and from rural areas as well. Also, the sample belongs to middle socio-economic stratum only which again limits its scope.

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