

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

Suramya Bhatnagar^{1*}, Dr. Sachita Passi Sabharwal²

ABSTRACT

The last two decades have witnessed a surge of interest in the negative effects of problematic mobile phone usage on attention and concentration problems. However, only a few researchers have investigated the effects of mobile phone dependency on metacognition and social interest among young adults. Moreover, these effects have not been well understood among the Indian young adult population. The aim of the study was to determine the effect of mobile phone dependency on metacognition and social interest among young adults. It was hypothesized that a statistically significant correlation between mobile phone dependency and metacognition, and a statistically significant correlation between mobile phone dependency and social interest would be obtained. The sample consisted of 134 students (Mage = 22.10; SD = 3.03) with 38.8% (n=52) males, 59.7% (n=80) females, 0.7% (n=1) Other and 0.7% (n=1) Prefer not to say category. Data was collected using the Questionnaire for Nomophobia questionnaire (NMP-Q), metacognition questionnaire (MCQ-30) and social interest index. Linear regression was used to analyze data revealing a significantly strong relationship between the outcome variable metacognition and the predictor variable mobile phone dependency ($R = .34$), The proportion of variance in the outcome variable which can be explained by the model (the predictor variable) was 15.5% ($R^2 = .155$), suggesting that the model is a good predictor of the outcome variable. The study indicates that mobile phone dependency increases unhelpful metacognitions and decreases the level of social interest among young adults.

Keywords: Mobile Phone Dependency, Social Interest, Metacognition, Nomophobia, Togetherness, Thinking About Your Thinking

Mobile phone dependency

Nomophobia is a person's fear of not being able to use his/her mobile phone. It is also known as 'no mobile phone phobia' and it was first coined in 2008 post office where they investigated anxieties faced by mobile phone users (Securenvoy, 2012). People use social networking sites or application due to the expectation of certain gratifications, the person using the technology finds at least partial gratification after usage. For example, using the application to chat with friends or to find new information. The gratification one

¹Child development trainer, Amity institute of psychology and allied sciences, Amity university Noida

²Assistant Professor, Amity institute of psychology and allied sciences, Amity university Noida

*Corresponding Author

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Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

gets from the usage of social networking sites reinforces the person for future use. (Bulmer and Katz,1974). Young adults feel that mobile phone helps them calm down when they experience negative emotions and fulfills their need of belongingness when they are alone. (Diefenbach et al,2019)

Over the past few years, the academic fraternity has investigated about the effects of problematic mobile phone usage on metacognitive awareness, cognitive emotional regulation and how it affects individuals in maintaining close relationships Even less attention has been given to whether there is direct relationship between problematic mobile phone use and social interest in Indian population. In a public place if a person is using a mobile phone, it is less likely for him to respond to others or interact. It also revealed that people who are heavy mobile phone users are less likely to help others. (Banjo et al, 2008)

People who score high on positive urgency showed increased cognitive interference which means even in the mere presence of a silent mobile phone, the cognitive performance decreases. (Canale at al,2019). It is also prevalent that there is a significant correlation between nomophobia, metacognitive problems and alexithymia (Yavuz et al.2019). Galvan et al. (2013) aimed to study the effects of cell phone conversation on attention and memory and it revealed that people are more attentive towards cell phone conversations than two sided conversations and cells phones acts as a common source of distraction in workplace environments and any other public places.

Social interest

Social interest is a feeling of being connected with others and lack of it leads to a person being “self-absorbed” and is only concerned with oneself. Moreover, studies revealed that excessive usage of mobile phones leads to social withdrawal and people start feeling that they have no need to interact with people in real life. The consensus has been that problematic mobile phone usage leads to lack of attention in learning but at the same time it fulfills the need of belongingness when an individual is alone, (Diefenbach et al, 2019). Also, phubbing (When an individual ignores someone in order to use phone) behavior was found to be directly related to problematic mobile phone use (Hong et al,2019). In addition, prior studies failed to establish relationship between nomophobia (mobile phone dependency), Metacognition awareness and social interest among young adults in an Indian population. Excessive usage of phones leads to social withdrawal and people start feeling less need for people in real life. Also, it leads to decrease in helping behavior and concerned about only self which leads to impulsive and aggressive behavior sometimes. (Pocheptsove, 2012)

Turner (2013) in his paper aimed to study technology’s impact on the social interest on different generations and found that usage of technology is neither good nor bad and is simply the reality. However, if humans focus on the strengths of the technology use it will only lead to the enhancement of social interest for all. It was also reported that that technology use may or may not hamper the level of social interest among individuals. Teenagers use mobile phones because of the convenience, user friendly and phones promotes sense of security and wellbeing. (Ansari et al, 2012)

According to a study, phone is majorly used for two purposes that is instrumental purpose (where an information is conversed) and consummatory purpose (where people just talk to kill time). The results also stated that adolescents prefer texting or voice call more because they want to avoid direct contact with friends and if they need a person for emotional

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

purpose they will prefer texting over voice call. (Kenichi et al,2011). Hammer and his colleagues (2010) revealed that the mobile phones enhances the feeling of being connected all the time and retrieves a sense of community but it also leads to self-centeredness, inconsideration and playfulness. Mobile phones even lead to shorter attention span, and leads to difficulty in maintaining close relationships. Massimini and his colleagues (2009) suggested that mobile phone usage also leads to unhealthy cycle of behavior, lack of social support and excessive usage leads to stress and anxiety.

Metacognition

Metacognition describes a range of interrelated factors comprised of any knowledge or cognitive process that is involved in the interpretation, monitoring, or control of cognition. It can be divided into knowledge, experiences, and strategies (Wells,2000)

In today's time, when it is almost impossible to manage our lives without internet connectivity and mobile phones, we are also not realizing the importance of maintaining real life relationships and having a feeling of community. For instance, while travelling in metro nowadays, people don't have an urge to talk with others rather prefer using their electronic gadgets making them even more self- absorbed. At the same time, we are just a click away to find solutions to our problems with the help of search engines which in turn decreases our capacity to control or regulate our memory and learning that probably makes us even more dependent on mobile phones. Therefore, the study attempted to illustrate the effects of mobile phone dependency on unhelpful metacognitions and social interest among young adults.

METHODOLOGY

The aim of the study was to understand the effect of mobile phone dependency on metacognition and social interest among young adults with respect to study the relationship of mobile phone dependency with metacognition and social interest and to find out significant differences among young adults in their metacognition and social interest on the basis of gender.

Participants

The research was conducted with young adults in the age group of 18 to 30 years residing in India. Snowball sampling technique was employed in which research participants identified other potential participants and a representative sample of 134 participants were collected (Mage = 22.10; SD= 3.03) with 38.8% (n=52) males, 59.7% (n=80) females, 0.7% (n=1) Other and 0.7% (n=1) Prefer not to say category.

Description of the tools

Following tools were utilized in the present study to administer on the sample for the three variables that are studied in this research:

- **Nomophobia Questionnaire (NMP-Q):** Nomophobia questionnaire was developed by Yildirim & Corriea in 2015. It consists of 20 questions, each scored on a seven-point scale. The total score on NMP-Q is 20 at its lowest and 140 at its highest. Higher scores show severity on nomophobia or phone dependency. The internal consistency reliability is 0.945. The NMP-Q and MPI-Q are directly correlated, $r(399) = 0.710$ which indicates a good construct validity.
- **Metacognition Questionnaire (MCQ-30):** Metacognition questionnaire was developed by Wells & Hatton in 2003 and it measures an individual's metacognitive beliefs, judgments and monitoring tendencies. It has 30 questions each scored on a 4

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

-point Likert scale and total scores ranging from 30 at its lowest and 120 at its highest. High scores indicate high levels of unhelpful metacognitions. The internal consistency reliability is 0.93. Construct validity was evaluated by confirmatory and exploratory factor analysis indicating good construct validity.

- **Social Interest Index:** Social interest index was developed by James. E Crandall in 1975 which measures a person's level of social interest and how willing they are to help people in need. It comprises of twenty-four pairs of traits out of which 9 were buffer items and the subject has to select one item from a pair which would rather possess as one of his own characteristics The test-retest reliability was 0.77 and the index has a good construct validity.

Procedure

The research was conducted to study the effect of mobile phone dependency on metacognition and social interest. Three questionnaires were utilized for the conduction of study namely Nomophobia questionnaire (NMP-Q), Metacognition questionnaire (MCQ-30) and social interest index. From the total sample of 134 participants, 52 were males, 80 were females, 1 was other category and 1 Preferred not to disclose the gender. Males and females were considered for the study and the subjects were approached online through google forms after explaining the purpose of the study. The subjects were informed that this is a voluntary task and were assured confidentiality of their responses. A mail id was provided to them in case of any doubts or clarifications by the researcher. Relevant statistical techniques were applied using (SPSS-20), namely t-test, Correlation and Linear regression.

Statistical Analysis

The research data were analyzed using IBM SPSS Statistics (Version 20). Preliminary analysis was carried out by running descriptive statistics of the data where means and SD were computed. To determine the gender differences in metacognition and social interest t-test was calculated and to study the relationship among them correlation was computed. In order to study the effect of mobile phone dependency on metacognition assumptions of linearity, homoscedasticity and normality were checked and linear regression was carried out.

RESULTS

Table 4.1 Descriptive statistics for dependent and independent variables

		Mobile Dependency	Social interest	Metacognition
N	Valid	134	134	134
	Missing	0	0	0
Mean		85.8955	8.8209	62.5522
Median		86.5000	9.0000	62.0000
Mode		71.00 ^a	8.00	64.00
Skewness		-.062	-.570	.568
Std. Error of Skewness		.209	.209	.209
Kurtosis		-.533	.369	.568
Std. Error of Kurtosis		.416	.416	.416

^a Multiple modes exist. The smallest value is shown

Table 4.1 represents mean, median, mode, skewness and kurtosis results for two dependent variables (Metacognition and social interest) and independent variable (Mobile phone dependency)

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

Table 4.2 Independent sample test

Test variables	Males		Females		t(130)	p	Cohen's d
	M	SD	M	SD			
Metacognition	61.82	8.01	62.88	10.78	0.60	0.54	0.10
Social Interest	14.42	0.72	14.45	1.24	1.33	0.18	0.23

Table 4.2 shows results of the independent sample t test employed to determine any gender differences in metacognition and social interest. It is noted that there is no significant difference between males and females in metacognition and social interest ($p > 0.05$)

Table 4.3 Correlations

Variable	N	M	SD	1	2	3
Mobile Phone Dependency	134	85.89	20.82	-		
Metacognition	134	62.55	9.73	0.39**	-	
Social Interest	134	14.44	1.05	-.017*	0.16	-

*. Correlation significant at the 0.05 level (2 tailed)

**. Correlation significant at the 0.01 level (2 tailed)

Table 4.3 represents Pearson correlations suggesting a moderate positive correlation between Mobile phone dependency and metacognition ($r = 0.39$, $p < 0.01$) and a weak negative correlation between mobile phone dependency and social interest ($r = -.017$, $p < 0.05$).

Table 4.4 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.393 ^a	.155	.148	8.98268	1.794

a. Predictors: (Constant), Dependency

b. Dependent Variable: Metacognition

Table 4.4- The model suggests a significant relationship between mobile phone dependency and metacognition ($R = 0.40$). The proportion of variance in the outcome variable which can be explained by predictor variable is 15.5% ($R^2 = .255$).

Table 4.5

ANOVA

Model	sum of squares	df	Mean square	F	sig.
Regression	1948.248	1	1948.248	24.145	.000
Residual	10650.887	132	80.689		
Total	12599.134	133			

a. Dependent variable- Metacognition

b. Predictor(constant)- Mobile phone dependency

Table 4.5 reports the significance of the overall model as a predictor of the outcome variable. The results show that the model was a significant predictor of metacognition, ($F(1,132) = 24.14$, $p < .001$)

DISCUSSION

The aim was to study the effect of mobile phone dependency on metacognition and social interest among young adults. The three variables in the study were mobile phone dependency, metacognition and social interest and were assessed by administration of three questionnaires namely Nomophobia questionnaire by Yildirim and Corriea, Metacognition questionnaire by Wells and Gatton and Social interest index by Crandall. The scales were administered on a sample of 134 young adults comprising of 52 males, 80 females, 1 other and 1 prefer not to say category.

There are various researches conducted by researchers or pioneers in the field. These researches have established remarkable findings and prove this field to be developing and growing. The purpose of the study was to gain a better understanding of effect of mobile phone dependency on metacognition and social interest. Findings reveal establishment of existing relationship between mobile phone dependency and metacognition, for example, a study revealed that problematic mobile phone use leads to lack of attention in learning (Diefenbach et al., 2019). A study also revealed that higher levels of family cohesion and expressiveness and lower levels of conflict were associated with higher levels of social interest in young adults. (Johnson et al,2003). However, studies have not been conducted to inquire the effect of mobile dependency on social interest.

The results of the study described how mobile phone dependency, metacognition and social interest are related and are categorized according to the analysis used. Descriptive and inferential statistics of the data was calculated using was calculated using SPSS and in order to analyze the hypothesis statistical techniques used were t test, correlation and linear regression.

The first hypothesis suggests that there will be a significant difference between metacognition among males and females. To test the hypothesis independent sample test was used and the results are tabulated in Table 4.2. Results revealed that there were no statistical difference in the metacognition scores for males (M=61.82, SD=8.01) and females(M=62.88, SD=10.78); $t(130)= 0.60$, $p=0.54$. Therefore, the hypothesis was rejected and there is no significant difference in metacognition among males and females.

The second hypothesis suggests that there will be significant difference between social interest among males and females. To test the hypothesis Independent sample test was used and results are tabulated in Table 4.2. Results revealed that there were no statistical difference in the social interest scores for males (M=14.42, SD=0.72) and females (M=14.25, SD= 1.24) ; $t(130)= 0.14$, $p=0.88$. Therefore, the hypothesis was rejected and there is no significant difference in social interest among males and females.

The third hypothesis suggests that there will be a significant relationship between mobile phone dependency and metacognition. To test this hypothesis, Pearson's correlation was computed and the results are tabulated in Table 4.3. Results revealed that mobile phone dependency and metacognition have a moderate positive relationship. ($r=0.39$, $p<0.01$) that is if mobile phone dependency increases unhelpful metacognition also increases. Therefore, the hypothesis was accepted and there is a significant relationship between mobile phone dependency and metacognition.

The fourth hypothesis suggests that there will be a significant relationship between mobile phone dependency and social interest. To test this hypothesis, Pearson's correlation was

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

computed and the results obtained are tabulated in Table 4.3. Results revealed that mobile phone dependency and social interest have a weak negative relationship ($r = -.017, p < 0.05$) that is if mobile phone dependency increases social interest decreases. Therefore, the hypothesis was accepted and there is a relationship between mobile phone dependency and social interest.

The fifth hypothesis suggests that there will be a significant effect of mobile phone dependency on metacognition. To test this hypothesis, Linear regression was computed after checking all the assumptions for running regression. Results obtained are tabulated in table 4.4. A linear regression established that mobile phone dependency could statistically significantly predict metacognition, $F(1,132) = 24.14, p = .0001$ and mobile phone dependency accounted for 15.5% of the explained variability in metacognition.

The research study has found a significant relationship between mobile phone dependency, metacognition and social interest which suggests that having a high level of mobile phone dependency leads to high levels of unhelpful metacognition. This pattern of result is consistent with previous literature suggesting a significant correlation between nomophobia and metacognitive problems (Yavuz et al., 2019). On the other hand, a significant relationship was also found between mobile phone dependency and social interest which provides supporting evidence that when people are more mobile phone dependent their capacity to understand other people's concerns and needs decreases which further leads to inability in maintaining real life relationships and lacking a communal feeling.

Limitations

The limitations of this study are a comparative study among different age groups can be studied, the effect of socio-economic status and educational qualification factors can also be studied and since the research was conducted in a pandemic situation which could have influenced the results, future researches can support the present findings by conducting the study in a more stress free and comfortable environment.

Recommendations

Despite the indispensability of the mobile phone usage among young adults, based on the findings of the study several recommendations are made. First, young adults should set a boundary between the usage of their phones and maintaining close relationships in order to build healthy relations with others. Second, young adults should not be encouraged to simply rely upon the search engines to find solutions of problems rather focus should be upon insight learning. Third, encouraging the young adults to understand the perspectives of other people which would lead to the development of social interest and enhance one's psychological wellbeing. Fourth, maintaining a daily journal of "things to do in a day" which would improve their metacognitive skills and facilitating reflective thinking which is a process of becoming aware of self.

The research, therefore, contributes to a growing body of evidence suggesting that mobile phone dependency significantly effects one's metacognition and it is also negatively related to social interest.

CONCLUSION

The objective of the present research was to understand the effect of phone dependency on social interest and metacognition. The results of the present research showed an association between phone dependency, metacognition and social interest. It can be concluded that with

Effect of Mobile Phone Dependency on Metacognition and Social Interest Among Young Adults

more usage of phone unhelpful cognition with also increase whereas if social interest is high then mobile dependency will be less. At the same time, metacognition strongly predicted by mobile dependency.

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Conflict of Interest

The author(s) declared no conflict of interest.

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