

“A Correlational Study On Nomophobia With Metacognition And Emotional State Among University Students”

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Abstract

The purpose of this study is to find out the correlation of Nomophobia with Metacognition and Emotional States among University students. This study examined the correlation of the scores of Nomophobia with Metacognition; and Nomophobia with 8 different emotional states of students studying in Amity University. The 8 emotional states studied in this research paper includes Anxiety, Stress, Depression, Fatigue, Guilt, Regression, Extraversion and Arousal. 200 participants of age group 18-23 years of age studying in Amity University were selected for the survey.

Background: Nomophobia is one of the most prevalent disorders in today's adult and adolescent population and so, this study focuses on finding the correlation of Nomophobia with Metacognition and various emotional states in University students. With a prevalence rate of 66%, its prevalence is likely to increase with coming generations because of over dependency on phones.

Objective: The objective of this study is to find the correlation of Nomophobia with Metacognition and 8 different emotional states.

Materials Used: In this study Nomophobia Questionnaire (NMP-Q) by Yildirim, Metacognitions Questionnaire (MCQ-30) by Wells & Cartwright-Hatton and 8 States Questionnaire (ESQ) by Curran & Cattell were used to assess the traits of Nomophobia, Metacognition and Emotional States respectively and post the scoring of all the questionnaires, SPSS was used to find the Pearson Correlation Coefficient.

Results: The results indicated that Nomophobia scores had a negative correlation with Metacognition and Arousal, there was no correlation of Nomophobia with Extraversion, while positive correlation with Anxiety, Depression, Stress, fatigue, Regression and Guilt was found.

Key Words: *Nomophobia, Meta Cognition, Emotional State*

INTRODUCTION

“I fear the day technology will surpass the human interaction and wreck everything” – Albert Einstein

Along with the advancement in today's world comes the dependence on various technologies and e-services. Nomophobia is present all across the world in almost all the age groups with an alarming rate in youth specifically. People aged between 18 to 24 have a prevalence rate of 77% as compared to 68% in 25 to 34 years of age. Also, the developing and developed countries are more affected by this fear of losing mobile phones. Because of these various issues, the rationale behind choosing this topic was chosen for the study to see the correlation of Nomophobia with emotional states and metacognition, so as to find how much Nomophobia is correlated with these variables.

NOMOPHOBIA:

It is the fear of not being in touch with your phone or not being able to stay online/connected to internet. Nomophobia comes from the word NO MO(Mobile) PHOBIA. This term was given by U.K Post Office in 2008 while they were surveying for a research study about anxieties among people when there is no battery in their phones, lose their phones, or have no coverage of network. Although the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-V) does not give a criteria for Nomophobia, it has been proposed as a specifier in “specific phobias”. The symptoms that are most associated with this phobia are Anxiety, Agitation, Perspiration, Respiratory problems, Tachycardia, Depression, Loneliness, Low self esteem, Rejection, Dependence, Panic etc [Bragazzi, N. L., & Puenete, G. D, 2014]

METACOGNITION: The term comes from two words “Meta” meaning on top of and “Cognition” meaning awareness/understanding through thoughts [Metcalf, J., & Shimamura, A. P., 1994]. This term was coined by American developmental psychologist John H. Flavell. In literal sense Metacognition means beyond cognition. In studies, it was

found that metacognitive processes contribute in General intelligence, Fluid intelligence and reasoning. [Demetriou, A.; Kazi, S., 2006]

EMOTIONAL STATES: In regard to pleasure or displeasure, emotional states refers to the present state of an individual's emotions [Cabanac, Michael, 2002]. To give a multidimensional approach, 8 emotions have been used in this study that include both positive and negative emotions.

1. Anxiety : Anxiety refers to the anticipatory fear or worry about a threat perceived in future. It is different from fear because fear is rational, healthy and focused on the present scenario while anxiety is irrational, unhealthy and is about the future.

2. Stress : Stress is the perception (psychological) of pressure and related physiological changes experienced by an individual. However, it is wrong to say that stress is negative. Stress is actually of two types: Eustress and Distress. Eustress is the positive kind of stress that by building up pressure motivates a person to do a certain task and hence strive us to attain goals in our lives. The bad stress that people usually fear is the second type, i.e., Distress which is the building up of tension when a task becomes or is perceived to be too demanding or difficult. This can negatively affect the physical and mental well being of a person.

3. Depression : Depression is a disorder of mood affecting the behavior, thoughts and feeling of a person. It is characterized by a persistent low mood, loss or lack of interest and feelings of hopelessness, sadness and helplessness. The basic symptoms of depression are : Unhappiness, sadness, lack of concentration, tiredness, fatigue, changes in appetite (little eating or overeating), changes in sleep (insomnia or hypersomnia), irritability, helplessness/hopelessness, feeling worthless, suicidal ideation/tendencies etc.

4. Regression : Regression is a defense mechanism, given by psychoanalyst Sigmund Freud which refers to the reversion or fixation of ego to an early stage of development. This can include childish mannerisms, unhealthy coping strategies and age inappropriate behavior.

5. Fatigue : Fatigue is the feeling of extreme tiredness and inability to do cognitive as well as physical activities. It is subjective in nature and has a gradual onset. Weakness is different from fatigue as weakness decreases with certain amount of rest but fatigue alleviates with rest even.

6. Guilt: Guilt is the feeling or realization of doing wrong. It is subjective and experiential in nature. Guilt can become problematic when a person feels guilty or blames oneself for almost everything happening around them. People having very high moral standards feel guilty more often than others. It can be associated with feelings of unhappiness, worrying and anxiety. It is also related highly with remorse.

7. Extraversion : It is a personality trait characterized by outgoing social behavior. People with this trait are usually talkative, energetic and make friends very easily. The opposite in this dimension is Introversion and introvert people are more reserved and quiet in nature.

8. Arousal: Arousal is the state of sensory alertness, readiness to act or respond to stimulus and mobility. Arousal is related to increase in blood pressure, heart rate, wakefulness, mediation of endocrine and autonomic nervous system. People with higher arousal levels are active, energetic, attentive, excited and more observant in nature

BACKGROUND

Over dependency on phone is increasing with alarming pace. Apple's official website confirmed that and an I phone user unlocks his/ her phone 6 to 7 times/hour and 80 times/ day . While a typical phone user touches his/ her phone 2,617 times and an extreme user touches his/her phone 5400 times daily. Thus we can simply understand the menace of such problematic dependence on phone. A significant amount of productive time of the people is being wasted. It doesn't end here, many psychological, neurological and social problems are also connected with this mass addiction. And with this comes the fear of not being able to touch your phones or stay online. This fear, in psychological terms is called *Nomophobia*.

Nomophobia is one of the most prevalent disorders in today's adult and adolescent population and so, this study focuses on finding the correlation of Nomophobia with Metacognition and various emotional states in University students. Studies have shown that the prevalence of Nomophobia is around 66% and it is hence the highest prevalent anxiety disorder and is expected to increase even more in the coming generations. Due to such increasing rates, it is needed to study more and more about Nomophobia and find ways to prevent it as well as find ways to rehabilitate people suffering from this disorder.

REVIEW OF LITERATURE

In a study of 2014, done by Spear King, Valenca and Silva on the residents of Rio de Janeiro, two groups were made. Group 1 had 50 patients of Panic Disorder with Agoraphobia and Group

2 was of 70 control participants. The emotional alteration of these individuals when away from their mobile phones was analyzed. The results showed that both groups had dependence on their cell phones but the patients of panic disorder with agoraphobia had significantly higher emotional alteration as compared to the healthy individuals. Also, healthy individuals had less intense physical and psychological changes when they were not in touch with their phones as compared to the 50 patients. [King S.,2014]

A study was done in a college in Bangalore to find out the prevalence of Nomophobia. With the sample size of 200, MB, Madhukumar and Murthy TS found that 72% of the respondents spent nearly 40% of their pocket money on recharging their mobile phone. 27% reported to have lack of concentration and high stress when not in touch with their phones. 39.5% of them were Nomophobic and other 27% were on the verge of developing the disorder. This study was done in 2015 and clearly showed the alarming rates of the anxiety related to mobile phones, dependence on technology and the current need to work this area. [Madhukumar MB and Murthy TS, 2015]

Abraham, Williams and Mathias at JSS college of nursing Mysore conducted a survey in 2014 to find out the knowledge about nomophobia and effect of nomophobia among the college students. The study also aimed to find the relationship of knowledge and effect of nomophobia among the respondents. It was later found that 59.5% of the students never heard of the term nomophobia and 41.3% of them showed symptoms of nomophobia. The Karl Pearson's correlation coefficient was $r = 0.61$ and showed that lack of knowledge about the disorder leads to increased effect. It was hence concluded that it is better to sensitize the growing children and adults about the dependence on cell phones and its negative effects. [Abraham, Williams and Mathias,2014]

A study done by Petkaki and Efklides in 2005, investigated how induced mood affected the performance in arithmetic and metacognition. Ninety students were taken in which 45 students had low aptitude of math and the other 45 of high aptitude. These 90 students were randomly divided into three groups of equal number: group with a mood treatment that was positive, group having a negative mood and a control group. No significant effect of mood was seen on math performance however the metacognitive experiences were positively affected by positive mood. [Efklides, A., & Petkaki, C., 2005]

For empirical evidence, Teasdale and Moore did a study in 2002. The hypothesis was that exposure to depression would be associated with a lack of metacognitive awareness and an increase in metacognitive awareness would lessen the risk of relapse of depression. This increase in awareness was done by cognitive therapy and mindfulness based cognitive therapy (MBCT).

It was found that these two therapies may reduce the risks of relapse by changing negative thoughts and not by changing beliefs. It was also found that vulnerability to depression is negatively correlated with metacognitive awareness, which means, higher the awareness lower the risk of relapse in depression. [Teasdale and Moore,2002]

A group of patients diagnosed with major depressive or bipolar disorder (Acute episodes) based on the diagnostic criteria of DSM-IV and a control group were taken in a comparative study of 2014 by Sarisoy and Yilman. The Meta-Cognitions Questionnaire (MCQ-30) was administered on the participants to discover their metacognitive beliefs. The relationship between the following 4 was established: Depressive Severity, Metacognitive beliefs, Anxiety and Self esteem. It was found that the group of bipolar individuals has low metacognition. However, a correlation of anxiety, self esteem and depression severity with metacognitive beliefs was seen in both patient group. [Sarisoy and Yilman,2014]

In 2000, Misra and McKean studied the relationship of time management, leisure, stress and anxiety among 249 undergraduate university students. There were clear gender differences among the students when it came to benefits from leisure time activities. It was found that lack of time management, excessive leisure and anxiety all contributed in increasing the academic stress especially in exam times. The freshers had more reactions to such stress than the seniors and old students [Misra, R., & McKean, M., 2000]

In a study by Thomee and Hagberg in 2010, 4000 respondents were studied for frequency of use of mobile phones, sleeplessness and stress. Associations were found between high usages of mobile with higher levels of stress. People overusing mobile phones and addictions to internet showed some signs of depression (one-year follow up) and sleeplessness or disturbed sleep cycle. It was then concluded that people using the mobile phones in higher frequency were at more risk to develop mental health issues in a time period of one year or more. [Thomee and Hagberg,2010]

With the help of Jung's Depression Inventory, Young and Rogers in 2009, studied about the relationship between depression and internet addiction. It was found the people having internet addiction had moderate to severe levels of depression. Because of lack of standardization of ZDI, Beck's Depression Inventory was then used for the same purpose. The results were very similar and hence showed a high correlation between both the disorders. [Young and Rogers in 2009]

OBJECTIVE

The objective of this study is to find whether there exists a correlation between Nomophobia and Metacognition and a correlation between Nomophobia and various Emotional states that include Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion and Arousal.

HYPOTHESIS

- There will be no correlation between Nomophobia and Metacognition.
- There will be no correlation between Nomophobia and Anxiety.
- There will be no correlation between Nomophobia and Stress.
- There will be no correlation between Nomophobia and Depression.
- There will be no correlation between Nomophobia and Regression.
- There will be no correlation between Nomophobia and Guilt.
- There will be no correlation between Nomophobia and Fatigue.
- There will be no correlation between Nomophobia and Extraversion.
- There will be no correlation between Nomophobia and Arousal. **METHODOLOGY**
- Sampling technique: Incidental Non Probability Sampling
- Sample Size: 200
- Research Design: Quantitative Correlation Research Design
- Statistical Tool: Pearson Correlation Coefficient has been calculated with the help of

SPSS

MATERIALS USED

In this study the following tools were used to assess the traits of Nomophobia, Metacognition and Emotional States and post the scoring of all the questionnaires, SPSS was used to find the Pearson Correlation Coefficient.

- **Nomophobia Questionnaire (NMP-Q):** It was developed by *CaglarYildirim* at Iowa State University. NMP-Q is a 20 item self report questionnaire. Its scoring is on a 7-point likert scale with 1 being “strongly disagree” and 7 being “strongly agree”. Its Cronbach’s reliability is 0.945 and its validity is 0.95.
- **Metacognitions Questionnaire (MCQ-30):** It was developed by Wells and Matthews in 1994. It is a 30 item self report questionnaire with a 4 point likert scale where 1 signifies “Do not agree” and 4 signifies “Agree very much”. Its test retest reliability is 0.823 and validity is 0.88.
- **Eight State Questionnaire (ESQ):** It was developed by R.B. Cattell and J.P. Curran in 1976. It is a 96 item questionnaire and has 8 subscales: Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion and Arousal. The average test-retest reliability is 0.953 and its average validity 0.718.

PROCEDURE

For this study, 200 samples were drawn randomly from 300 students of Amity University Lucknow, UP. The three questionnaires mentioned above, were administered simultaneously on all the samples and the scoring was then done. With the help of Pearson’s Correlation coefficient the results were calculated and analyzed to establish the relationship between Nomophobia with Metacognition and emotional states (8 Emotional States mentioned).

RESULTS

Table: 1.0 Showing Correlation Matrix of Nomophobia with Metacognition and Eight Emotional States i.e. Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion and arousal.

	NOMOPHOBIA
METACOGNITION	0.863*
ANXIETY	0.267*
STRESS	0.227*
DEPRESSION	0.314*
REGRESSION	0.196*
FATIGUE	0.440*
GUILT	0.227*
EXTRAVERSION	0.072
AROUSAL	-0.317*

*p ≤ 0.01

As shown above in the Table 1.0, the following results were found from the study:

There was **positive correlation** between scores of nomophobia and scores of Metacognition with $r = 0.863$ with 0.01 level of significance. Here it is necessary to be mentioned that high score on Meta Cognition Questionnaire indicates low MetaCognition abilities. Thus there is Negative Correlation between Meta Cognition and Nomophobia as a trait. Hence, **the null hypothesis is not accepted**. Nomophobia has a **positive correlation** with Anxiety with $r = 0.267$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomophobia has a **positive correlation** with Stress with $r = 0.227$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomo phobia has a **positive correlation** with Depression with $r = 0.314$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomophobia has a **positive correlation** with Regression with $r = 0.196$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomophobia has a **positive correlation** with Fatigue with $r = 0.440$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomophobia has a **positive correlation** with Guilt with $r = 0.227$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**. Nomophobia **has no correlation** with Extraversion with $r = 0.072$ which shows no significant correlation. Hence, **the null hypothesis is accepted**. Nomophobia **has a negative correlation** with Arousal with $r = -0.317$ with 0.01 level of significance. Hence, **the null hypothesis is not accepted**.

Interpretation:

Based on the results, we can say that:

- A negative correlation exists between Nomophobia and Meta Cognition. This means when level of Nomophobia increases, level of Meta Cognition will decrease. High scores on Meta Cognition Questionnaire mean that the meta Cognition of the individual is low. This suggests that Nomophobia negatively affects the Meta Cognition in an individual.
- A positive correlation exists between Nomophobia and Anxiety. This means when scores of Nomophobia increases, scores of Anxiety will also increase. This suggests that Nomophobia increases the Anxiety levels in an individual.
- A positive correlation exists between Nomophobia and Stress. This means when scores of Nomophobia increases, scores of Stress will also increase. This suggests that Nomophobia increases the Stress levels in an individual.
- A positive correlation exists between Nomophobia and Depression. This means when scores of Nomophobia increases, scores of Depression will also increase. This suggests that Nomophobia increases the Depression levels in an individual.
- A positive correlation exists between Nomophobia and Regression. This means when scores of Nomophobia increases, scores of Regression will also increase. This suggests that Nomophobia increases the Regression levels in an individual.
- A positive correlation exists between Nomophobia and Fatigue. This means when scores of Nomophobia increases, scores of Fatigue will also increase. This suggests that Nomophobia increases the amount of Fatigue in an individual.
- A positive correlation exists between Nomophobia and Guilt. This means when suggests that Nomophobia increases the amount of Guilt in an individual. Since $p = 0.01$, the confidence level is 99% and the chance of error is 1%.
- No correlation exists between Nomophobia and Extraversion. This means when scores of Nomophobia increases, no significant effect can be seen on the scores of Extraversion.
- A negative correlation exists between Nomophobia and Arousal. This means when scores of Nomophobia increases, scores of Arousal will decrease. This suggests that Nomophobia decreases the levels of arousal in an individual.

Discussion and Conclusion:

Present study tries to through light on this very contemporary issue. It is evident from the findings that Nomophobia reduces students' awareness about their own cognition/ thought process (Metacognition). Furthermore nomophobia has been found to be positively correlated with Anxiety, Stress, Depression, Regression, Guilt and Fatigue, which simply means being

high on nomophobia makes an individual more vulnerable to the above disorders. Next, there was negative correlation found between Arousal and Nomophobia, means high nomophobia is indicative of low arousal level. This is indeed a big concern, since Nomophobia and other mental disorders are increasing worldwide. Awareness about one's own thought process makes a person more empowered to deal his/her unhealthy thought patterns. Which is found to be negatively correlated with nomophobia, thus nomophobia can be considered as a big hurdle in the path of psychological empowerment. It occupies a huge sum of productive time of our youth generation on the other hand adversely affects arousal level of an individual and makes them more procrastinating and lethargic. Thus, having said this much this research work would suggest that it is the high time to spread awareness on the issue before it becomes a menacing havoc for our younger generation.

LIMITATIONS

- This study focuses on the adult (18-22 years) population only, and thus the conclusions cannot be generalized on all the age group.
- This study examines the correlation of Nomophobia only with some variables. One can examine the correlation of Nomophobia with some other variables like Memory, Achievement, Motivation, emotional regulation etc.
- The sample size is limited to 200 only and hence it may not be generalized for a large population.
- The study is not gender specific and hence it does not evaluate the differences in the correlational values of males and females.

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