PREVALENCE OF NOMOPHOBIA; AND AN ANALYSIS OF ITS CONTRIBUTING FACTORS IN THE UNDERGRADUATE STUDENTS OF PAKISTAN

ABSTRACT

BACKGROUND: Nomophobia (**no**-**mo**bile-phone **phobia**) is a relatively new term that describes the growing fear and anxiety associated with being without a mobile phone.

AIMS: Our study aims to determine the prevalence of Nomophobia among the undergraduate students of Pakistan, and to determine its correlation with age and gender. It also aims to determine the contributory factors of Nomophobia.

METHODS: A cross sectional study was conducted through an online survey from March 25 to April 25 2021. The snowball sampling technique was used for data collection. The Nomophobia Questionnaire NMP-Q developed by Yildrim and Correia was circulated among the target population. It was a 7-point Likert Scale which was analyzed on the basis of age, gender using IBM SPSS version 22 and MS Excel 2007. The contributing factors were also analyzed.

RESULTS: Of the 483 responses we received, 28 were discarded due to incompleteness and respondents being out of age under study i.e 15-25 years. Most of the respondents were women (n=314, 69.01%). Men were less in number than women (n=141, 31%). The ages of most of the respondents lied between 15-25. 20 was the mode age. 186 (40.88 %) had severe, 221 (48.57%) had moderate and 48 (10.55 %) had mild Nomophobia. Average factor wise scores and individual item scores were also added.

CONCLUSION: Our findings reached a conclusion that the majority of the undergraduate students in Pakistan suffer from Nomophobia ranging from its mild to severe form. Nomophobia can possibly be included as a recognized phobia in the DSM. Wider research on the subject to investigate it further and evaluate the clinical significance should be done.

KEYWORDS: Nomophobia, Contributing Factors, Undergraduate Students, Prevalence.

1. INTRODUCTION

Nomophobia (**no**-**mo**bile-phone **phobia**) is a relatively new term that describes the growing fear and anxiety associated with being without a mobile phone. It explains the increasing psychological dependence of people, especially young and adolescents [1], on mobile devices and connectivity and the distress that follows when such contacts are lost or are beyond one's reach. The term was first used in 2008 by a UK-based research organization, YouGov, licensed by the UK Post Office to evaluate the anxieties associated with the use of mobile phones [2]. Though it has not been included in the Diagnostic and Statistical Manual of Mental Disorders (DSM), [3] it has been proposed as a phobia and has evolved as a symptom or syndrome of problematic digital media use in mental health. There have been proposals to include Nomophobia as a recognized phobic disorder in the upcoming DSM. [4]

Smartphones are widely used for constant access to a variety of services and features. Even the developing countries like Pakistan, are advancing towards e-learning methodologies which means an increased on-screen time for students to attend virtual learning sessions [5]. This increased use of smartphones for academic and non-academic purposes especially among teenagers (undergraduates) is giving rise to a dependence along with other health concerns like headaches and psychological concerns

[6]. A survey conducted by SecurEnvoy showed that 77% of the participants aged 18-24 reported nomophobia [7]. A similar study in Australia revealed that the incidence of nomophobia and related psychological issues were proportional to frequency of use and on-screen time of the participants [8]. A constant fear of losing one's phone is associated with emotional symptoms such as self-rejection, low self-esteem and agitation. These emotional disturbances significantly alter individual functionality and add to anxieties and other psychological concerns (mood alterations). One of the major mood changes observed in individuals with nomophobia is impulsiveness and agitation. Loss of patience and aggressiveness are common changes observed after nomophobic episodes. [9] Even the thought of losing or not having devices within reach can provoke agitation and impulsive tendencies in nomophobic individuals [10].

Very few studies have been previously recorded to assess nomophobia and its various contributing factors, among the undergraduates in Pakistan which makes this study crucial both statistically and analytically. The importance of the study lies in its authenticity for assessing undergraduates on Nomophobia Questionnaire (NMP-Q) and characterizing them on a scale of mildly nomophobic to severely nomophobic. The study analyzes the impact of gender and age on the prevalence of nomophobia and gives rationale for higher rate of nomophobia in women. This study also presents valuable insights for any future research under similar domains in Pakistan.

2. MATERIAL AND METHODS

We designed a cross-sectional study with no identification of participants to determine the prevalence of Nomophobia and to study its contributing factors among the undergraduate students of Pakistan. The snowball sampling technique was used for data collection. The participants were the undergraduate students of Pakistan from age group 15 to 25 years old, who could understand English and had access to the internet. All other participants were excluded. An online questionnaire, developed using Google Forms, was distributed among the students and they were asked to forward it to others. The form was circulated through social media sites (WhatsApp, Facebook, Twitter and Instagram) because of the prevalent pandemic and its associated restrictions imposed by the Government. Voluntary completion of the questionnaire was considered an informed consent. The responses were collected from 5th April 2021 to 19th April 2021. The Nomophobia Questionnaire NMP-Q developed by Yildrim and Correia was circulated among the target population. It was a 7-point Likert Scale which was analyzed on the basis of age, gender using IBM SPSS version 22 and MS Excel 2007. The contributing factors were also analysed on the same basis i.e. (1) Not being able to communicate. (2) Losing connectedness (3) Not being able to access information (4) Giving up convenience. The study and research were approved by the Institutional Review Board of King Edward Medical University, Lahore-Pakistan.

3. RESULTS

A total of 483 responses were received during the two-week time. Responders were both men and women of ages mostly between 16-25. 28 responses were discarded owing to incompleteness of the information and respondents being out of the group under study.

The presence of Nomophobia corresponded to the total score on NMP-Q being higher than a minimum of 20. Responses were recorded on a 7-point Likert scale with "1" denoting that the respondent "Strongly

Disagrees" with the statement and 7 being a response of 'Strongly Agreeing" with each item on the NMP-Q.
Any respondent could theoretically score between 20 and 140, these being the highest and the lowest attainable scores respectively.

The classification which is used to grade the nomophobia was also obtained from Yildrim and Correia and the following score ranges correspond to following inferences. [11]

Sr. No.	Total Score on NMP-Q	Inference
1.	20	Nomophobia Absent
2.	21-59	Mild Nomophobia
3.	60-99	Moderate Nomophobia
4.	100-140	Severe Nomophobia

Table 1 : Nomophobia Assessment Scale

The responses obtained demonstrated that all of the respondents were nomophobic (n=455, 100%). The lowest score was 21 (n=1) and the highest obtained score was 140 (n=4) [Table 2].

- The most commonly reported total score i.e Mode total score was 84 (n=12), lying in the Moderately Nomophobic category.
- The mean total score was 92.87, with a standard deviation of 24.90967 [Table3]
- The median NMP-Q score was 93 [Figure1]

Category	Scores	No. of responses	Percentage of total responses
Severe Nomophobia	(100-140)	186	40.88 %
Moderate Nomophobia	(60-99)	221	48.57%
Mild Nomophobia	(21-59)	48	10.55 %

Table 2: General overview of the results

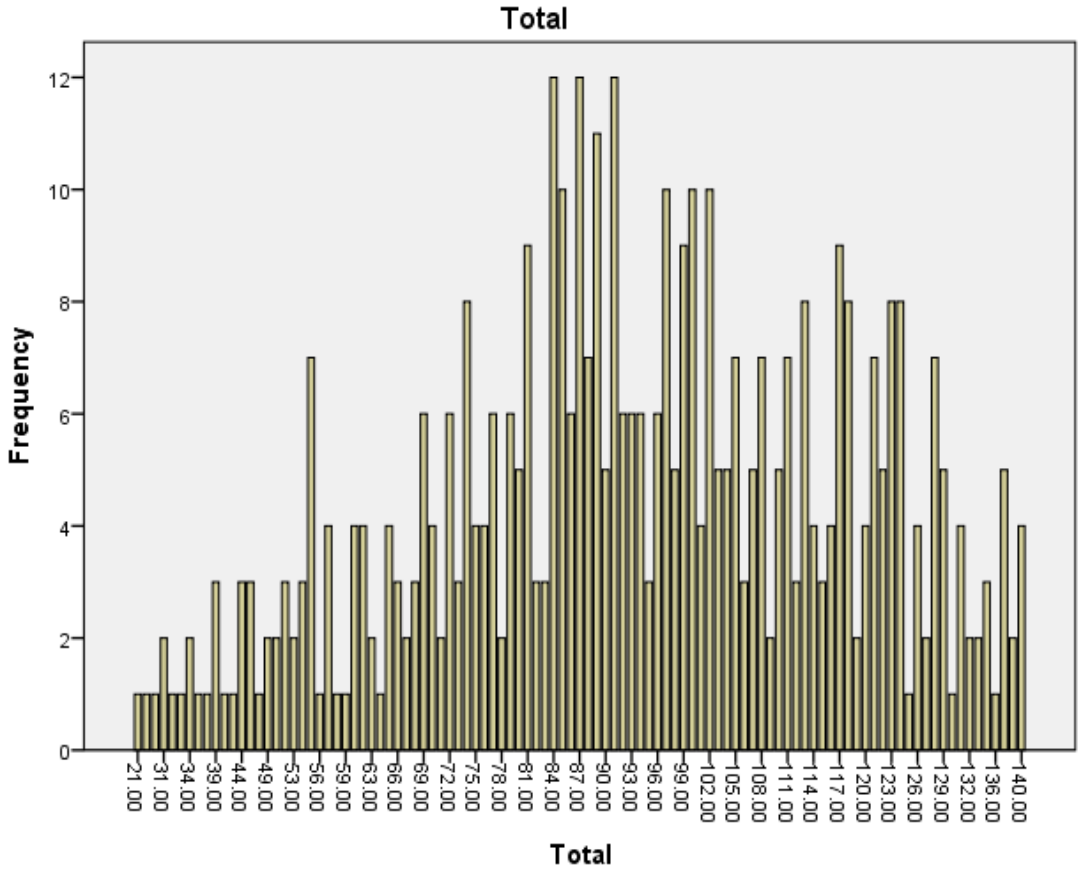

Figure 1: Frequency of the obtained total scores on NMP-Q

Total (N)	Valid	455
Mean		92.8703
Std. Deviation		24.90968
Minimum		21.00
Maximum		140.00

Table 3: Mean obtained total scores on NMP-Q

3.1 Results on the Basis of Age

Since most of the respondents were undergraduate students, the ages of most of the respondents lied between 15-25. 20 was the mode age [Figure2]

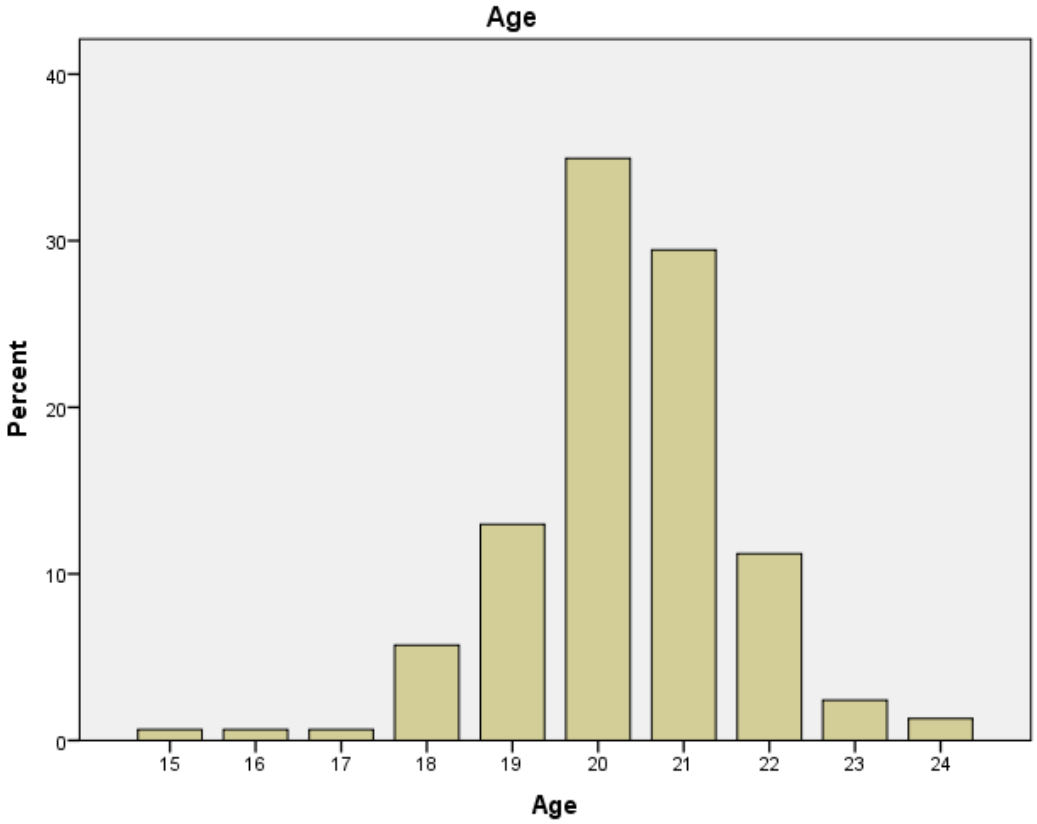

Figure 2 : Age wise distribution of the NMP-Q respondents

3.2 Results on the Basis of Gender

Most of the respondents were women (n=314, 69.01%). Men were less in number than women (n=141, 31%) [Figure3].

An effort to find any gender correlation with the presence or absence of nomophobia was also done [Table6]. It was found that women were more likely to report higher NMP-Q scores (Mean=94.14) [Table4] than men (Mean=90.04). The p-value came out to be 0.0480, which was statistically significant.

Women

Total responses	314, (69.01%)
Mean Score	94.140

Mode Score	102
Median Score	95.5

Table 4: Women Score on NMP-Q

Men

A similar basic statistical analysis was performed on the responses recorded from men and the results are as below.

Total responses	141, (31%)
Mean Score	90.04
Mode Score	100
Median Score	90

Table 5: Men Score on NMP-Q

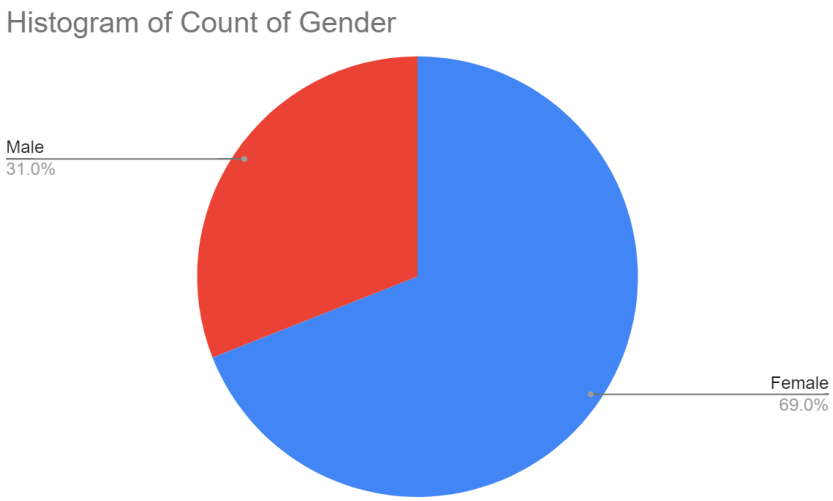

Figure 3: Gender wise distribution of the respondents of NMP-Q

Gender	No. of Respondents	Average Score	Standard Deviation	p-Value
Female	314	**94.14**	25.38	-
Male	141	**90.04**	23.66	-
Total	455	92.87	24.91	0.0480

Table 6: Evaluation of Gender correlation to total score on NMP-Q

The results were notably lower for men than for women. The finding is consistent with other reported results which were performed to find the prevalence of nomophobia in two genders.[source]

3.3 Average Score Factor wise

The original authors of the questionnaire found 4 aspects which contributed to the development of Nomophobia in an individual. Similar factors were observed by those who developed other questionnaires of similar nature, investigating similar variables, such as MPIQ. The fear of not having your phone rose from 4 factors.

1. Not being able to communicate
2. Losing connectedness
3. Not being able to access information
4. Giving up convenience

Factor	Description	Items concerned on NMP-Q	Average Score per Question (1-7)
Factor I	Not being able to communicate	Item 10,11,12,13,14,15	4.89
Factor II	Losing connectedness	Item 16,17,18,19,20	4.59
Factor III	Not being able to access information	Item 1,2,3,4	4.97
Factor IV	Giving up convenience	Item 5,6,7,8,9	4.10

Table 7: Average score corresponding to the factors contributing towards Nomophobia

Among these a significant correlation between a factor and its role in giving rise to nomophobia was observed. For example, respondents got, on an average, a score of 4.97 per question in items of factor 3, *not being able to access information.* This means that the biggest fear of respondents was that they might not be able to access information instantaneously, if they lose touch with their phone. On the other hand, the lowest average scores (4.10) were observed in responses to items of factor 4, *giving up convenience* [Table7]. This means that the fear that the respondent might have to give up convenience, in case of losing phone, is not as important.

3.4 Results of Individual Items on the NMP-Q

A similar trend was observed while analyzing the scores of respondents on individual questions. Item 2 “I would be annoyed if I could not look information up on my smartphone when I wanted to do so” elicited the strongest mean response, with respondents averaging a score of 5.60 in this question. The standard deviation was also lowest (1.54) in response to this item, again confirming that the responses did not deviate much from the mean, in reply to this question. This means that most of the respondents heavily rely on their phone to look-up information on the internet. Item 2 contributes towards factor 3 of Not being able to access information, again confirming the underlying trends.

The lowest average score (3.79) was in response to Item 16. *I would be nervous because I would be disconnected from my online identity*. This means that respondents were not really concerned with their online identity and they did not fear losing touch with their online identity, that much.

Sr. No.	Item	Mean Score	SD
1.	I would feel uncomfortable without constant access to information through my smartphone	4.88	1.73
2.	I would be annoyed if I could not look information up on my smartphone when I wanted to do so	5.60	1.54
3.	Being unable to get the news (e.g., happenings, weather, etc.) on my smartphone would make me nervous	3.85	1.92
4.	I would be annoyed if I could not use my smartphone and/or its capabilities when I wanted to do so	5.25	1.65
5.	Running out of battery in my smartphone would scare me	4.33	1.99
6.	If I were to run out of credits or hit my monthly data limit, I would panic	3.94	2.00
7.	If I did not have a data signal or could not connect to Wi-Fi, then I would constantly check to see if I had a signal or could find a Wi-Fi network	5.12	1.84
8.	If I could not use my smartphone, I would be afraid of getting stranded somewhere	4.187	2.03
9.	If I could not check my smartphone for a while, I would feel a desire to check it	5.36	1.67
	If I did not have my smartphone with me...		
10.	I would feel anxious because I could not instantly communicate with my family and/or friends	4.96	1.91
11.	I would be worried because my family and/or friends could not reach me	5.33	1.69
12.	I would feel nervous because I would not be able to receive text messages and calls	4.84	1.85
13.	I would be anxious because I could not keep in touch	5.08	1.79

	with my family and/or friends		
14.	I would be nervous because I could not know if someone had tried to get a hold of me	4.78	1.79
15.	I would feel anxious because my constant connection to my family and friends would be broken	4.79	1.81
16.	I would be nervous because I would be disconnected from my online identity	3.79	1.98
17.	I would be uncomfortable because I could not stay up-to-date with social media and online networks	4.28	1.99
18.	I would feel awkward because I could not check my notifications for updates from my connections and online networks	4.27	1.98
19.	I would feel anxious because I could not check my email messages	3.84	1.99
20.	I would feel weird because I would not know what to do	4.35	2.03

Table 8: Item-wise average scores on the NMP-Q

4. DISCUSSION

The rapid use of information and communication technologies is having a great impact in the daily personal and professional lives of people. [12] As a result of this, people are now adopting new routines to accommodate the use of technological instruments like mobile phones, laptops and other gadgets. [13] Although all these gadgets facilitate communication and help access information, it has started to develop new pathologies including phobias and addiction. One important phobia is **"Nomophobia"** which as stated before is the growing fear and anxiety associated with being without a mobile phone. [1] The gravity of this situation is so serious that the 21st century, that is considered to be the Age of Technology, is now considered to be "Disease of the 21st century". [14] Most importantly, recent researches have declared undergraduate and university going students to be the "at-risk" population of phone addiction. [15]

As far as the overall population of participants is concerned, all of them were found to benomophobic, ranging from mild to severe varieties of nomophobia, with the biggest portion of the observed sample being moderately nomophobic (221, 48.57%).

An analysis of the compounding factor indicates that following factors might be responsible for increased dependence on mobile phones in the undergraduate students.
The research was conducted during Covid-19 pandemic and similar researches [16], [17] show that trends of staying at home increased during the movement restriction imposed by the governments worldwide. In wake of restricted outdoor activities, reliance on internet and mobile phones for curricular and

extracurricular work as well as a requirement to stay abreast with the latest developments can be the responsible factors for the nomophobic behavior.
The moderate level of nomophobia is also in line with the similar researches conducted worldwide which show that the level of nomophobia observed in students was statistically higher than graduates and employed youth. [18]

In relation to gender, our results showed a direct relation of Nomophobia being more prevalent in the female population than in male population. These results are in line with the findings of other research conducted by Bhattacherjee S et al. [19] , Yildrim C. et al. [20] and Moreno-Guerrero AJ et al. [21] The findings can possibly be explained on the basis of the fact that the women are more likely to stay indoors in Pakistan for the better part of the day. The labor force participation rate for females in Pakistan stands at 21.67% , less than half as compared to the world average of 47.23% .
An increased time spent indoors means an individual is more likely to spend more time on the phone to decrease the feeling of loneliness. [22] Thus the gender bias observed in nomophobia prevalence seems to stem from the sociological and cultural structures of the observed data sample.

Regarding age as an influential factor, a distinct correlation could not be drawn since all the respondents ranged in ages from 15- 25 years. Since most of the students were undergraduate university going students, any significant correlation was not found with age. A more comprehensive research encompassing a wider variety of population needs to be conducted to evaluate the prevalence of nomophobia and if there is any statistically significant correlation with age. .

Analyzing the 4 dimensions cited above, we found out that the two biggest contributing factors of Nomophobia were

[Factor I]: The fear of not being able to communicate (Mean score per item = 4.89)

[Factor III]: The fear of not being able to access information (Mean score per item = 4.97)

The Item which elicited the strongest affirmative reaction was item 2 which reads “I would be annoyed if I could not look information up on my smartphone when I wanted to do so”. This underscores that the basic functionality associated with mobile phones i.e., Instantaneous Communication by texting and calling, is **not** the biggest reason people are dependent on their mobile phone. Mobile phones, especially smart phones have evolved to be the Man’s portal to connectivity with the world. The constant and instantaneous flow of information is crucial to people belonging to all walks of life. Similar studies conducted worldwide, corroborate the findings. [23]

In Pakistan, where most of the people belong to lower socio-economic background and the Human Development Index is amongst the lowest in the region, [24] affording multiple devices is not easy. Since smartphones are cheap plus they give cheaper access to fast speed internet compared to more expensive broadband services, it is not surprising that a mobile phone is the basic mode of accessing information for common people. Facts by Pakistan Telecommunication authority (PTA) show that users of cellphone are twice the users of broadband in Pakistan (PTA reports). Even in developed countries like the US, the reliance on mobile phones for information has shot up because of ease and accessibility. [25]

Item 9 which reads “If I could not check my smartphone for a while, I would feel a desire to check it” which elicited a high average score of 5.36 and standard deviation of 1.67 signifies that there is an impulsive and compulsive desire to check the phone for updates. Similar studies have cited OCD symptoms related to smartphone usage. [26]

Item 11 “I would be worried because my family and/or friends could not reach me” also had a high average score of 5.33 with standard deviation of 1.69. This also underlies the fact that for the average undergraduate student, use of a phone as a means of connectivity is secondary to its primary use as means of information access. When we compared this to Item 10 which elicited a mean response score of 4.99 (S.D. 1.99), it became clear that the fear of “losing **Instant** access” measured by Item 10 was less significant. This can mean that although phones are used for staying in touch (Item 11), their utility as a means to get **instant** access (Item 10) to your closed ones is somewhat disputed.

Item 16 recorded the lowest average response score of 3.69 which means that the population of Pakistan did not concern itself much with online identity and updating it continuously. In the social context of Pakistan, the undergraduate population probably does not care much about it since this factor is populated by a more settled segment of the society. The influencer culture and maintaining an online identity, distinct from offline identity, is still not a prevalent phenomenon, at least not in the undergraduate population of Pakistan.

Item 8 which reads “If I could not use my smartphone, I would be afraid of getting **stranded** somewhere” had the highest variation in responses with the standard deviation standing at a staggering 2.03. This means that use of navigation services and map utilities in smartphones is not uniform. Some people heavily rely on phones for navigation while others rarely do so. This makes sense as Pakistan does not support Street View and many other functionalities, the routes are often not accurately mapped and, the traffic data is also not always accurate

This fact of not being able to communicate with friends and family is reaffirmed by other researchers as well.[27], [28] Moreover, the prevalence and severity of nomophobia is lower with other dimensions. [11], [29], [30]

5. CONCLUSION

Our findings reached a conclusion that the majority of the undergraduate students in Pakistan suffer from Nomophobia ranging from its mild to severe form. Our results showed a greater prevalence of this phobia among females which were consistent with similar studies conducted to explore this correlation. In terms of age, since no significant prevalence was seen, we can deduce that Nomophobia could be seen equally common in adolescents and young adults. The fear of loss of communication and inability to access information were found to be the important factors contributing towards nomophobia.

The outcome of this research is to aware the educational institutes, from schools to universities, about nomophobia among the students in Pakistan. This will hopefully be utilized by the administration to adopt measures to set up awareness and prevention programs so that the current magnitude of this phobia can be minimized. Psychologists can also help understand the socio-demographic aspect of this phobia in a better manner so that it can be tackled well. Moreover, in line with similar research on the matter, Nomophobia can possibly be included as a recognized phobia in the DSM. Wider research on the subject to investigate it further and evaluate the clinical significance should be done.

LIMITATIONS

Our study was limited to only undergraduate students of Pakistan with respect to their age and gender. Moreover, the research was limited to online questionnaires with only those participants that use smartphones regularly. A better comparison can be drawn if we add the population which does not use smartphones frequently. Researchers can go to these populations and record their feedback themselves. In a nutshell, other demographics can also be added in order to study and draw conclusions about nomophobia at a larger scale.
Moreover, our study was conducted during covid-19 pandemic and many people were bound indoors and were heavily reliant on their mobile phones for access to information and communication. More studies at different times should be conducted to evaluate what responses during normal times would be like.

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