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TO STUDY THE RELATIONSHIP BETWEEN NOMOPHOBIA (FEAROF NO MOBILE PHONE) AND PERSONALITY TRAITS AMONG MEDICAL STUDENTS – A HOSPITAL BASED CROSS SECTIONAL STUDY

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ABSTRACT

- **Background**

Nomophobia, short for no mobile phobia, is the fear of being without a smartphone. Nomophobia is common, especially in the young population, with an increase in the use of technology in society.

- **Objective**

Examining the connections between nomophobia, perceived social support, and personality factors among medical students was the objective of our study.

- **Material and Methods**

A total of 380 medical students between the ages of 19 and 24 were enrolled in this descriptive and cross-sectional study. Demographic information, the NMP-Q scale, and the international personality disorder evaluation addressed in the questionnaire to collect data. They analysed the connection between their personality traits and nomophobia measures.

- **Results**

The study comprises of 57.9% were females whereas 42.1% males. Among those students, 58.4% were undergraduate (UG) in medical field. Overall nomophobia score was 26.67 ± 4.9. 18.9% severe and 64.5% moderate type of nomophobia observed among study population. Anankastic (85.17%), Schizoid (66%) and Dependent (53.47%) were major findings observed among personality traits.

- **Conclusion**

Nomophobia is a nascent behavioural issue that warrants consideration. Medical students and interns frequently exhibited mild nomophobia. The study identified three significant personality traits, namely Anankastic, Schizoid and Dependent; among medical students and interns affected by nomophobia.

KEYWORDS – Nomophobia, Personality Traits, Medical students, Behavioural issues

INTRODUCTION

Nomophobia expands to 'No Mobile Phobia', i.e., fear of being without a mobile device or out of mobile phone contact. Nomophobia, defined as a fear, discomfort, and anxiety that arise from the non-availability of these digital devices [1], has been called a disorder of the modern world and has only been used in recent times. Therefore, its proposal for addition in the updated DSM-5 is still up for debate [2], with the DSM-IV [3] stating that for an official diagnosis of social phobia disorder to be made, nomophobia must be causing a significant interference in an important area of the individual's life (leisure, social life, work). At present, it is difficult to ascertain what constitutes a full diagnosis rather than traits of the disorder [2]. Nomophobia was found in 70.76% of moderate to severe cases and 20.81% of severe cases worldwide [4], with university students being the most afflicted group. When unplugged from their smartphone, around 53% of the population in the United Kingdom (UK) suffers from anxiety and fear [5]. Similarly, several research found a high frequency of nomophobia among students and health care professionals [6]. However, data on the incidence and risk factors for Nomophobia in the Middle East's general population are scarce. Symptoms

nomophobia in the literature depict it as a disorder with both anxiety and addictive behaviours such as being anxious about being without a mobile phone or internet connection, constantly checking for notifications (known as ringxiety), preferring virtual communication over real-time communication, and incurring debt or great expense from mobile phone use. Nomophobia is also

associated with lower self-esteem and an extrovert personality [7]. Nomophobia may also exacerbate other mental disorders, such as social phobia or social anxiety [7]. Factors such as an increase in the duration of using smartphones, daily usage time, daily frequency of checking smartphones, and daily mobile internet usage time may increase the level of anxiety and fear of disconnecting from mobile phones. Nomophobia is thought to be on the spectrum of addictive disorders, and earlier research has identified personality traits and temperaments that are predisposed to addictive behaviour [8]. As a result, some psychological features may put a person at a higher risk of acquiring nomophobia. The extent to which nomophobia is linked to personality differences is unknown [9]. When compared to healthy controls, nomophobia was found to produce health concerns such as tachycardia, respiratory changes, trembling, and perspiration in those who were not using their phones [10]. According to one study, people with higher degrees of neuroticism and extraversion were more likely to be diagnosed with nomophobia [9]. Another study of personality temperaments reported that reward dependence is significantly related to nomophobia, while cooperation is a characteristic that reduces nomophobia levels [11]. Despite the huge amount of research on nomophobia, it may be claimed that the illness remains understudied due to the varied generic elements linked with it, such as personality traits, demographic factors, and substance use, all of which will be addressed in this study. The purpose of this study was to establish the prevalence of nomophobia among online questionnaire respondents and to identify the factors that contribute to it. The goal of this study was to investigate the common characteristics related with nomophobia at our facility, specifically the interaction between personality traits and other sociodemographic factors that may lead to the diagnosis.

MATERIAL AND METHODS

The cross-sectional study was conducted at MM Institute of Medical Sciences and Research (MMIMS&R) from August 2023 to May 2024. Interns, residents and students participate in the study. IPDE based on ICD-10 screening questionnaire (IPDE-ICD-10) and NMP-Q questionnaire was used for this study.

- **Sample Characteristics**

The purpose of the study was explained to all the students, and data collection forms were sent to mobile applications. Forms were sent all the students who met the inclusion criteria were recruited. The status of meeting the inclusion criteria of the students who accepted to participate in the study (marking yes on the consent form) was determined. The study was completed with 380 students.

- **Inclusion criteria**

1. Participants who are able to comprehend English language
2. Individuals over the age of 18 years
3. Medical students who are studying in MMIMS&R
4. All the students who gave consent to participate

- **Exclusion criteria**

1. Incomplete filling in the questionnaires
2. Less than 18 years
3. Unwillingness to cooperate in filling out the questionnaires
4. Not willingly to give informed consent

- **Data Collection**

Data collection forms used in the study were created from google forms. The link to the created form was shared in the medical communication groups of the students, and they were provided to fill it out based on a self-report manner.

- **Data Collection Tool**

Personal Information Form: The form includes NMP-Q scale, which helps to evaluated severity of nomophobia, and another scale based on IPDE questionnaire, which helps to evaluate different personality disorder.

- **Institutional Review Board Statement**

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of Maharishi Markandeshwar Institute of Medical Sciences & Research, Mullana, Ambala.

- **Nomophobia Questionnaire (NMP-Q)**

The 20-item questionnaire, developed by Yıldırım and Correira, is used to determine the nomophobia levels of individuals. A score within the range of 0 - 20 indicates no nomophobia; however, scores within the ranges of 21 - 59, 60 - 99, and 100 - 140 indicate mild, moderate, and severe levels of nomophobia, respectively. In the present study, the Cronbach's alpha of the questionnaire was calculated as 0.959.

International Personality Disorder Examination (IPDE) Screening Questionnaire

Screening for personality disorder was undertaken using the International Personality Disorder Examination (IPDE) Screening Questionnaire (IPDE-SQ) (ICD-10 version) (Loranger, Janca, & Satrorius, 1997). The IPDE-SQ is a self- administered form which contains fifty-nine items written at a nine years of age reading level. The IPDE-SQ asks participants to respond either 'True' or 'False' to each item and can complete the questionnaire in fifteen minutes or less. The IPDE-SQ allows a clinician to identify those patients whose scores suggest the presence of a personality disorder, thus enabling onward clinical assessment and/or intervention. This version of the IPDE-SQ measures personality disorders in accordance with operational criteria that are set out within ICD-10 and is therefore useful as both research tool and as a possible adjunct to clinical assessment.

According to the World Health Organization's International Classification of Diseases, Tenth Revision (ICD-10), personality disorder is characterized by significant disruptions in an individual's personality and behavioural tendencies. These disturbances are not caused by brain disease, injury, or other insults, nor are they attributed to another psychiatric disorder. Typically, personality disorders affect multiple aspects of an individual's personality and are associated with significant personal distress and social disruption. Furthermore, they typically emerge during childhood or adolescence and persist into adulthood (ICD-10, World Health Organization, 1992). The several subtypes are classified and designated in the International Classification of Diseases, Tenth Revision (ICD-10) as outlined below:

1. Paranoid personality disorder is characterised by pervasive distrust and suspiciousness of others, misinterpretation of the actions of others, and extreme sensitivity to setbacks.
2. Schizoid personality disorder is characterised by detachment, withdrawal and indifference to social interactions, a limited capacity to express emotions, and preference for spending time alone.
3. Dissocial personality disorder is characterised by lack of concern for others, low tolerance for expressions of aggression, callous behaviour and conflict.

4. Impulsive personality disorder is characterised by pervasive emotional instability, lack of impulse control, and a tendency towards unpredictable behaviour.
5. Borderline personality disorder is characterised by pervasive instability of affect, unstable interpersonal relationships, and impulsive and self- destructive behaviour.
6. Histrionic personality disorder is characterised by pervasive attention seeking behaviour, exaggerated emotional expression, inappropriate behaviour, and lack of consideration for others.
7. Anankastic personality disorder is characterised by pervasive perfectionism, conscientiousness, and insistent thoughts of a lesser severity than those in Obsessive–Compulsive Disorder.
8. Anxious personality disorder is characterised by pervasive social inhibition, fear of being rejected or negatively evaluated in social situations, feelings of inadequacy, and social avoidance.
9. Dependent personality disorder is characterised by pervasive reliance on other people, excessive fears of separation, and difficulty making simple decisions and enacting simple tasks.

Data Analysis

The SPSS program (version 26) was used to examine the data. Cronbach's alpha was utilized to examine the scales' reliability and percentage and mean ± standard deviation was employed to assess the results pertaining to the individuals' sociodemographic attributes. The levels of skewness and kurtosis were considered for evaluating the normalcy assumption. Given that the skewness and kurtosis values fell between 1.96 and -1.96, it was considered that the requirements for a normal distribution were satisfied. A significance threshold of less than 0.05 was applied.

OBSERVATIONS AND RESULTS

1) Demographic Details of Patients

Gender	
Male	160 (42.1%)
Female	220 (57.9%)
Age (in Years)	
< 20	77 (20.3%)
>20	303 (79.7%)
Qualifications	
Under Graduate	222(58.4%)
Graduate	59 (15.5%)
Intern	99 (26.1%)

Table 1: Patient's Demographic Details

Overall Mean Age of the study was 22.61 ± 2.60 years. Among 380 patients, 42.1% were males whereas 57.9% were females. 20.3 % patients were belonging to <20 years whereas 79.7% were belongs to >20 years. 58.4% were undergraduate, 15.5% were graduate and 26.1% were Intern observed in our study.

2) Assessment of Questionnaire and data analysis -

Reliability Statistics	
Cronbach's Alpha	No. of Items
0.959	20

Table 2: Reliability of Questionnaire

We were observed excellent consistency based on reliability statistics. (Cronbach's Alpha =0.959).

NMP-Q scores	**Description**	**Frequency (N=380)**	**Percentage value**
20	No Nomophobia	0	0
>20 to <60	Mild Nomophobia	63	16.6
60 to <100	Moderate Nomophobia	245	64.5
≥ 100	Severe Nomophobia	72	18.9

Table 3: Types of Nomophobia based on NMP-Q

Overall nomophobia level score was 73.94 ± 27.74. Among 380 patients, 18.9% was severe nomophobia, 64.5% was moderate nomophobia and 16.6% was mild nomophobia observed in our study.

Personality IP Traits	**IPDE Screening Questionnaire (n=380)**
Paranoid	969 (36.43)
Schizoid	2257 (66)
Dissocial	598 (22.49)
Impulsive	382 (20.11)
Borderline	360 (18.95)
Histrionic	917 (40.22)
Anankastic	2589 (85.17)
Anxious	843 (36.98)
Dependent	1219 (53.47)

Table 4: Types of Personality based on IPDE Screening Questionnaire

We were observed overall nine types of personality traits as followings: 1) Paranoid, 2) Schizoid, 3) Dissocial, 4) Impulsive, 5) Borderline, 6) Histrionic, 7) Anankastic, 8) Anxious and 9) Dependent. These type of personality traits was evaluated based on 59 questionnaires which was true and false type. According to these questionnaires, 85.17% was anankastic, 66% schizoid, 53.47% was dependent, 40.22% was histrionic, 36.98% was anxious, 36.43% was paranoid, 22.49% was dissocial, 20.11% was impulsive and 18.95% was border line.

Personality Traits	**Gender**		**p- values**	**Age**		**p-values**
	Male (n= 160)	**Female (n=220)**		**<20 years (n=77)**	**>20 years (n=303)**	
Paranoid	418	551	0.4382	242	727	<0.0001
Dissocial	291	307	0.0003	139	459	0.0313
Impulsive	171	211	0.2795	82	300	0.4989
Borderline	122	238	0.0008	82	278	0.1878
Histrionic	424	493	0.6454	216	701	0.0013
Anankastic	1116	1473	<0.0001	532	2057	0.0016
Anxious	324	519	0.0102	160	683	0.3753
Dependent	505	714	0.5408	259	960	0.1735
Impulsive	171	211	0.2795	82	300	0.4989
Borderline	122	238	0.0008	82	278	0.1878
Histrionic	424	493	0.6454	216	701	0.0013
Anankastic	1116	1473	<0.0001	532	2057	0.0016
Anxious	324	519	0.0102	160	683	0.3753
Dependent	505	714	0.5408	259	960	0.1735

Table 5: Types of Personality based gender and age groups

Schizoid, dissocial, histrionic, and anankastic types of personality had not significant difference between age groups. Females were highly significant observed compared to males in dissocial (p= 0.0003), borderline (p= 0.0008), anankastic (p = <0.0001) and anxious (p= 0.0102).

Schizoid, impulsive, borderline, anxious and dependent types of personality had not significant difference between males and females. Age group (>20 years) were highly significant observed compared to Age group (<20 years) in paranoid (p= <0.0001), dissocial (p= 0.0313), histrionic (p = 0.0013) and anankastic (p= 0.0016).

Personality Disorders		**Gender**		**Age**	
		Male	**Female**	**<20 years**	**>20 years**
Paranoid	N	35	50	81	4
Schizoid	D	1	1	1	1
	N	79	127	163	43
Dissocial	N	16	27	41	2
Emotionally Unstable	P	1	—	1	—
Impulsive Type	N	11	28	30	9
Emotionally Unstable	P	—	1	1	—
Borderline Type	N	8	26	26	8
Histrionic	N	50	95	141	4
Anankastic	D	1	—	1	—
	P	3	2	3	2
	N	112	156	207	61
Anxious	P	—	1	1	—
	N	33	71	80	24

Dependent	D	—	3	3	-
	P	1	3	4	—
	N	56	97	120	33

Table 6: Characteristics of Personality Disorders

DISCUSSION AND CONCLUSION

Nomophobia has been identified as a significant contributor to the development of various psychological disturbances, affecting individuals' emotional states, cognitive processes, behavioural patterns, and overall attitudes. The levels of nomophobia experienced by individuals are influenced by a multitude of circumstances [12 -15]. The primary objective of this investigation was to ascertain the levels of nomophobia among medical students, as well as to explore the potential association between nomophobia and personality factors. In this study, it was observed that none of the participants had non-homophobic tendencies. However, the findings indicated that 29.2%, 51.8%, and 17.4% of the students displayed mild, moderate, and severe degrees of nomophobia, respectively. The researchers also noted that the average nomophobia score was 73.94 ± 27.74. The data presented in Tables 26 and 28. Consistent with the findings of the present investigation, existing literature has reported moderate and high levels of nomophobia among medical students [16 -18] as well as nursing and medical faculty students [12, 19 - 21]. Nomophobia, a prevalent condition primarily observed among the younger demographic, has been found to result in various negative consequences for medical students. These consequences include the inappropriate use of smartphones during clinical practice, leading to distraction, a decline in the quality of patient care, an increased risk to patient safety, and a deterioration in students' academic performance and decision- making abilities [1, 20, 22]. Furthermore, there have been reports indicating a lack of awareness among medical students regarding the potential for distraction caused by smartphone usage. In contrast, individuals hold the belief that their reliance on mobile phones is necessary for accessing information, seeking assistance in medical settings, and experiencing a sense of security when their phones are in their possession [23]. This phenomenon has the potential to result in a rise in phone usage, a progressive reliance on phones over time, and the manifestation of numerous challenges [24]. Due to this rationale, it is widely posited that the degrees of nomophobia among medical students hold considerable importance for the institution, the patient, and the student. The incorporation of behavioural addictions into medical curricula and the implementation of preventive initiatives targeting technology addiction have the potential to yield positive outcomes in mitigating levels of nomophobia. Furthermore, it is imperative for physicians, who demonstrate a comprehensive perspective in their roles encompassing protection, prevention, therapy, and rehabilitation, to guide medical students towards health-enhancing behaviours, including maintaining a nutritious diet, engaging in physical activity, and adhering to regular sleep patterns, with the aim of mitigating their levels of nomophobia.

The prevalence of ICD-10-defined PD traits (using the IPDE screening questionnaire) was broken down into subtypes as follows: 54.92% were anxious, 51.35% were anankastic, 47.11% were impulsive, 46.85% were paranoid, 44.28% were dependent, 43.25% were schizoid, 37.37% were histrionic, 35.69% were borderline, and 22.49% were dissocial. The number of PD features discovered using IPDE screening was higher than reported in clinical interview studies. However, because the number of PD categories differs between the DSM-IV and ICD-10 frameworks, directly comparing specific PD types in this manner have certain limits. Furthermore, there are definitional changes between the DSM-IV and ICD-10 criteria that will affect identification. The incidence of Dissocial PD (ICD-10) or antisocial PD (DSM-IV) in medical student samples has been the subject of substantial student research, and this study discovered a 22.49% probable prevalence rate for Dissocial PD (DPD). Previous research, however, found that medical students had a significant prevalence of PD.

We enrolled medical students in our studies, which influenced both our data set and the bias established for our study [25]. This suggests that assessment using the broader personality criteria of DPD reflects in lower prevalence rates than some studies reporting on the DSM-IV equivalent Antisocial PD (ASPD) (31%) [26]. Nonetheless, the overall consistency supports the presence of a high rate of PD within a remand and short-term sentenced medical student population that is consistent with previously identified prevalence rates within sentenced student's populations.

This would indicate that the use of the IPDE-SQ heightens false positives but not false negatives and the levels are so similar to previous studies using screening and interview techniques that it can be assumed that the prevalence is reflective of presence.

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