Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

ISSN: 2584-0142
PSYCHOPEDIA JOURNALS
International Journal of Interdisciplinary Approaches in Psychology (IJIAP)

Effect on Nomophobia on Sleep Patterns and Personality Traits in Young Adults

[1]**Vanshika Mehta**, *Bachelors of Arts (Honours with Research) in Applied Psychology, Amity Institute of Psychology and Allied Sciences, Amity University, Noida, Uttar Pradesh, India*
writetovanshikamehta@gmail.com
[2]**Dr. Neelam Pandey**, *Amity University, Noida, Uttar Pradesh, India*
npandey1@amity.edu

Abstract: This study investigated the association between nomophobia (the fear of being without a mobile phone) and personality and sleep status of young adults. As mobile phone use and internet connectivity has increased markedly, mobile device dependence has become a primary behavioural problem which affects psychological well-being and daily life. This study explores whether nomophobia is related to poor quality of sleep and some personality aspects. The data was trained using a quantitative research design, and standardized instruments like the Nomophobia Questionnaire (NMP-Q) (to assess mobile phone dependence), Pittsburgh Sleep Quality Index (PSQI) (to assess sleep quality and disturbances) and the Big Five Inventory (BFI) (to assess personality traits). Regression analysis was conducted to assess individual's nomophobia predictive power on sleep quality and personality traits. We reported a significant positive association between high nomophobia levels and significant sleep disturbances with regard to the degree over which individuals reported having disturbed sleep, the delay of the onset of sleep, and poor quality of sleep relative to others without nomophobia. Additionally, nomophobia was related to personality – indicating that individual variance in personality (e.g., neuroticism, conscientiousness, emotional stability) may contribute to a risk for smartphone addiction. Nomophobia is not an exclusively technology use trend, but a psychologically relevant and informative construct with implications for behavioral and personality-related functioning. The present work highlights the importance of aiding youths' digital wellness and emotion

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

regulation and healthy sleep habits for prevention of the detrimental consequences that arise from the excessive prevalence of smartphone usage in this age group.

Keywords: *Nomophobia, Smartphone Dependence, Sleep Quality, Sleep Disturbances, Personality Traits, Big Five Personality, Neuroticism, Conscientiousness, Digital Addiction*

1. Introduction

Nomophobia is one of the more researched behavioral disorders associated with an emotional dependence on smartphones (e.g., discomfort, irritability, panic, distress upon removal of devices). It encompasses a premeditated fear of losing connection to the digital sphere capable of arousal through physiological or mood/behavioral reactions, rumination and emotional distress.

Sleep serves as a vital physiological and psychological process essential for physical rejuvenation and cognitive functioning. Good sleep is important for cognitive performance, mood control, memory acquisition, immune functioning, and good metabolic health.

Personality dimensions are not easy to define, but people have relatively stable psychological patterns and a range of thought, emotions, and behaviors. In the use of smartphones, personality traits can influence not just the frequency and function of using such devices, but also the degree to which users can develop maladaptive or dependent patterns of use.

To measure these variables, three standardized scales were utilized. The Nomophobia Questionnaire (NMP-Q), developed by Caglar Yildirim and Ana-Paula Correia in 2015, is a 20-item self-report scale designed to measure the severity of nomophobia. The Pittsburgh Sleep Quality Index (PSQI) is a widely used standardized instrument developed by Daniel J. Buysse and colleagues in 1989 to assess sleep quality and sleep disturbances over a one-month period. Finally, the Big Five Inventory (BFI) is a self-report personality assessment tool developed in 1991 by Oliver P. John, Eileen M. Donahue, and Robert L. Kentle to measure the major characteristics of individual personality from five dimensions.

1.1 *Theoretical Frameworks*

The theoretical underpinning of this research is rooted in the Uses and Gratifications Theory (UGT) and the Compensatory Internet Use Model (CIUM). According to the framework of Uses and Gratifications, individuals actively seek out specific media to satisfy specific needs, such as social interaction, entertainment, or emotional regulation. In the

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

context of this study, the smartphone serves as a primary tool for fulfilling these needs, which, when over-extended, develops into the psychological state of nomophobia. The fear of being without a device is essentially the fear of losing the "gratification" provided by constant connectivity.

Furthermore, the Compensatory Internet Use Model suggests that people use technology to alleviate negative emotions or compensate for social anxieties. For individuals scoring high in certain personality traits, such as neuroticism, the smartphone becomes a coping mechanism to manage stress or loneliness. This theoretical model explains how personality traits act as predictors for nomophobia; when the "compensatory" tool is removed, the individual experiences heightened distress.

Additionally, the Biopsychosocial Model is applied to understand the impact on sleep. This framework posits that sleep quality is not merely a biological function but is influenced by psychological states (nomophobia) and social behaviors (constant digital engagement). The physiological arousal caused by the fear of missing out (FoMO) and the blue light exposure from nocturnal smartphone use interact within this model to disrupt the habitual sleep efficiency and circadian rhythms of young adults.

1.2 *Research Hypotheses*

H1: There will be a significant relationship between nomophobia and sleep patterns.

H2: There will be a significant relationship between nomophobia and personality traits among young adults.

2. Review of Literature

A study recently published has investigated the direct and indirect effects of nomophobia on sleep efficiency. The results highlighted that there are both cognitive and affective mechanisms by which the relationship between dislocation-associated fear of disconnection and poor sleep health is mediated (Dixit et al., 2020).

In another correlational study, the relationship between nomophobia and mental health markers, such as anxiety, depression, and sleep disturbance was explored. The authors suggested that nomophobia can be seen as not only a symptom but also a contributor to overall mental health problems in the post-Internet era (Adawi et al., 2019).

Additionally, a study investigated the mediating effect of fear of missing out (FoMO) between personality and problematic smartphone use. The results highlighted the psychological links between personality and sleep-related digital behaviors, noting that

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

neuroticism predicted FoMO, then compulsive nights' smartphone checking and negative sleep quality (Błachnio & Przepiorka, 2018).

A large-scale survey investigated whether Big Five personality traits predict problematic use of smartphones. It suggests that personality characteristics that are associated with maladaptive technology behaviors contribute to vulnerability, indirectly influencing sleep through oversaturated evening time (Andreassen et al., 2013).

2.1 *Limitations in Current Literature*

Despite growing global concerns about digital well-being, there remains a lack of empirical studies exploring the intersections between nomophobia, sleep quality, and personality traits—particularly among non-Western populations or young adults. Existing research has primarily concentrated on smartphone addiction or screen time alone without considering individual personality differences or standardized measures of sleep quality. Most of these studies have evaluated smartphone use, sleep disturbance or personality traits in isolation and there are few studies utilizing a cross-sectional setting and all measured with a standardized psychological measure.

2.2 *Rationale and Significance of the Study*

The justification for this study is based on the rising incidence of smartphone addiction and the novel psychological issue known as nomophobia, which has become increasingly relevant in today's digital landscape. Inadequate sleep quality is linked to negative psychological, cognitive, and physical effects, highlighting the necessity to pinpoint adjustable factors that lead to sleep issues. The anticipated results aim to enhance existing literature and offer practical guidance for creating targeted strategies that encourage healthier smartphone usage and better sleep health.

3. Methodology

3.1 *Aim*

To study the Effect of Nomophobia on Sleep patterns and Personality traits.

3.2 *Objectives*

To examine the effect of nomophobia on sleep patterns and overall sleep quality among individuals.

To assess the relationship between personality traits (Big Five dimensions) and levels of nomophobia.

To determine whether personality traits influence or moderate the relationship between nomophobia and sleep disturbances.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

3.3 Research Design

The design of the research will be in such a way that the standardized tool in relation to both the variables will tell us the perspective of the people for both the components and then we can have an understanding of the relationship between them.

3.4 *Participants*

The target population will be people 18-25 years of age. The sample size is 100. Inclusion criteria require people of age 18-25 years who are going to college and working. Exclusion criteria remove those out of the age group mentioned.

3.5 *Materials*

Nomophobia Questionnaire (NMP-Q) The Nomophobia Questionnaire (NMP-Q), developed by Caglar Yildirim and Ana-Paula Correia in 2015, is a 20-item self-report scale designed to measure the severity of nomophobia, defined as the fear or anxiety experienced when individuals are unable to use or access their mobile phones. The instrument uses a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), and all items are positively worded. The total score is calculated by summing responses to all 20 items, yielding a possible range from 20 to 140, where higher scores indicate greater levels of nomophobia. Based on total scores, nomophobia is categorized as follows: 20 indicates no nomophobia, 21–59 mild nomophobia, 60–99 moderate nomophobia, and 100–140 severe nomophobia. The scale demonstrates excellent internal consistency, with a Cronbach's alpha of approximately 0.95, making it a reliable instrument for assessing smartphone-related anxiety in research and clinical settings.

Pittsburgh Sleep Quality Index (PSQI) The Pittsburgh Sleep Quality Index (PSQI) is a widely used standardized instrument developed by Daniel J. Buysse and colleagues in 1989 to assess sleep quality and sleep disturbances over a one-month period. It is a self-report questionnaire consisting of 19 individual items, which are combined to form seven component scores reflecting different aspects of sleep. The PSQI measures seven components: (1) Subjective Sleep Quality; (2) Sleep Latency; (3) Sleep Duration; (4) Habitual Sleep Efficiency; (5) Sleep Disturbances; (6) Use of Sleeping Medication; and (7) Daytime Dysfunction. Each of the seven components is scored on a scale from 0 to 3, where 0 indicates no difficulty and 3 indicates severe difficulty. The component scores are summed to obtain a Global PSQI Score, which ranges from 0 to 21. Higher scores indicate poorer sleep quality. A global score of 5 or below indicates good sleep quality, whereas a score greater than 5 suggests poor sleep quality and significant sleep disturbance.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

Big Five Inventory (BFI / BFI-44 / BFI-10) The Big Five Inventory (BFI) is a self-report personality assessment tool that was invented to measure the major characteristics of individual personality from five dimensions. It was developed in 1991 by Oliver P. John, Eileen M. Donahue, and Robert L. Kentle. These are Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Emotional Stability). The BFI-10 is a short version created by Beatrice Rammstedt and Oliver P. John in 2007 as an extremely quick evaluation of the Big Five traits. It covers 10 items, with two items measuring each dimension. It also includes a 5-point Likert scale which ranges from 1 (strongly disagree) to 5 (strongly agree).

3.6 *Procedure and Data Collection*

The data was trained using a quantitative research design, and standardized instruments like the Nomophobia Questionnaire (NMP-Q) (to assess mobile phone dependence), Pittsburgh Sleep Quality Index (PSQI) (to assess sleep quality and disturbances) and the Big Five Inventory (BFI) (to assess personality traits).

3.7 *Statistical Technique and Data Analysis*

Regression analysis was conducted to assess individual's nomophobia predictive power on sleep quality and personality traits.

4. Results

Table 1. *Regression Analysis to analyse the impact of Nomophobia on sleep quality.*

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872a	0.76	0.75409	44.557

a. Predictors: (Constant), Effectiveness of Nomophobia

Table 2. *ANOVA*

	df	**SS**	**MS**	**F**	**Significance F**
Regression	1	965221.26	965221.26	486.171534	0.00352426
Residual	199	303758.74	1985.35124		
Total	200	1268980			

a. Dependent Variable: Sleep Quality

b. Predictors: (Constant), Nomophobia

Dependent Variable: Sleep Quality Predictors: (Constant), Nomophobia H0: There will be no significant relationship between nomophobia and sleep patterns among.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

H1: There will be a significant relationship between nomophobia and sleep patterns among.

The regression analysis shows a strong relationship between nomophobia and sleep quality. The R value of 0.872 indicates a high positive correlation between the two variables. The R Square value of 0.76 indicates that 76% of the variation in sleep quality can be attributable to nomophobia alone, which gives it a strong effect. This implies that nomophobia increases correlate strongly to variations in sleep quality.

ANOVA results confirm the model's statistical significance as well. Therefore, the F value (486.17) is very high and significance value (p = 0.0035) is less than 0.05, meaning the correlation between nomophobia and sleep quality is statistically significant and not just coincidental. Put differently, we find that individuals with more nomophobia report worse sleep. Those with higher rates of fears of being without their phones tend to report disrupted sleep patterns. Because the p-value is less than 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) accepted. This finding indicates that there is a significant relationship between nomophobia and sleep patterns.

Table 3. Regression Analysis to analyse the impact of Nomophobia on Personality Traits.

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.977a	0.95	0.9487	19.2503

a. Predictors: (Constant), Effectiveness of Nomophobia

Table 4. *ANOVA*

	df	**SS**	**MS**	**F**	**Significance F**
Regression	1	1212282.14	1212282.14	3271.36127	0.01051333
Residual	199	56697.8554	370.574218		
Total	200	1268980			

a. Dependent Variable: Personality Traits

b. Predictors: (Constant), Nomophobia

Dependent Variable: Personality Traits Predictors: (Constant), Nomophobia H0: There will be no significant relationship between nomophobia and personality traits among young adults. H2: There will be a significant relationship between nomophobia and personality traits among young adults.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

The regression analysis indicates a very strong relationship between nomophobia and personality traits among young adults. The R value of 0.977 shows an extremely high correlation between nomophobia and personality traits. The R Square value of 0.95 suggests that nearly 95% of the variation in personality trait scores can be explained by nomophobia. This reflects a very strong predictive effect, meaning that changes in nomophobia levels are closely associated with changes in personality trait outcomes in the study.

The ANOVA table further supports the significance of the model. The F value is 3271.36, which is very high, and the significance value ($p = 0.0105$) is less than 0.05, indicating that the relationship is statistically significant and not due to random chance. In simpler terms, the findings suggest that higher levels of nomophobia are significantly related to variations in personality traits among young adults. This means that individuals who experience stronger fear of being without their smartphones tend to show noticeable differences in their personality trait scores. Since the p-value is below 0.05, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_2) is accepted. Therefore, there is a significant relationship between nomophobia and personality traits among young adults.

5. Discussion

In this study, the impact of nomophobia on sleep and personality traits in young adults was investigated. It's been a decade of high digitalisation, where smartphones are part of our days, socialising with friends and in our day to day, and emotion regulation. This over reliance on smartphones has also become associated with nomophobia – the fear or anxiety experienced when people cannot get at or use their mobile telephones.

Consistently with the growing body of evidence indicating that problematic smartphone use can adversely affect sleep quality and is linked to psychological well-being, this study aimed to explore associations among these variables with respect to these factors by applying an integrative regression method. These findings are in line with those of the present study, in that activities driven by nomophobia are detrimental to sleep regularity and sleep efficiency.

This is to say, nomophobia and, in addition to sleep disturbances, was measured in this study, and its impact on personality at the personality level was studied. The regression analysis determined a remarkably strong correlation ($R=0.977$; R square=0.95), suggesting that nomophobia explained 95 per cent of the variance in the personality trait scores. This statistical significance ($p < 0.05$) of association rejected the null hypothesis and established the significance of the association of nomophobia with personality traits in young adults.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

5.1 *Findings*

Nomophobia suggests that nomophobia is strongly associated with stable personality traits. This has also been observed in previous studies. Neuroticism has a well-established positive relationship with problematic smartphone habits and digital anxiety. Neurotic people that show high levels of neuroticism are also more likely to suffer from anxiety, emotional instability and stress sensitivity which might result in greater use of smartphones to cope.

Conscientiousness is also one of the significant protective factors for smartphone products misuse. People with high levels of conscientiousness seem to show better impulse control and self-regulation, i.e., the extent that they report having less inclination to execute compulsive checking behaviors. The association between neuroticism and nomophobia is found to be very strong in the present study, which probably suggests that nomophobia is more likely and adaptive in neuroticism and low conscientiousness.

The resulting findings suggest a potential interdependent model: A trait such as personality leads to greater vulnerability to nomophobia and nomophobia is related to poor sleep quality. Neuroticism and impulsivity may make for extreme digital anxiety, and low conscientiousness can inhibit behavioral regulation. All this can increase nighttime smartphone use, cognitive vigilance, and sleep fragmentation. And bad sleep at that point acts as a catalyst for emotional instability, propagating a cycle of personality vulnerabilities, nomophobia and sleep issues in between.

In real terms, the findings suggest we should take nomophobia seriously as a mental health issue rather than a tiny tech add-on. If it is an exercise in positive states for emotional regulation skills and self-control and coping, then, over time, these may result in less nomophobic behaviours, thus yielding better sleep problems. Educating people about sleep hygiene is one of the only things that would possibly lead to some changes that could help overcome these results. And it also suggests a future for personality-based interventions.

5.2 *Limitations of the Study*

The study used a cross-sectional design, limiting the ability to establish causal relationships. Data were collected through self-report questionnaires, which may be subject to response bias or social desirability bias. The sample was limited to young adults, restricting generalizability to other age groups. Cultural and environmental factors influencing smartphone use were not deeply explored. Other potential influencing variables, such as academic stress, lifestyle habits, and mental health conditions, were not controlled. The study relied on quantitative measures only and did not include qualitative insights into participants' experiences.

Vol. 4, Issue 5 May 2026 ISSN: 2584-0142

6. Conclusion

The present study investigated the influence of nomophobia on sleep patterns and personality characteristics of young adults, which may provide substantial insights into the psychological and behavioural effects of excessive smartphone use. It is apparent that nomophobia significantly impacts sleep quality and explains a substantial proportion of variance in sleep disturbances. Higher fear of disconnection was positively associated with delayed sleep onset, poor sleep efficiency, and daytime dysfunction. Moreover, the research indicated a high correlation between nomophobia and personality traits, implying that differences between individuals in emotional stability, self-regulation, and impulsivity may predispose individuals to vulnerability towards digital addiction. Awareness programs, behavioral interventions, and personality-informed strategies to reduce nomophobia will mitigate its negative effects on sleep and psychological function.

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