Trapped in Screens: The Alarming Growth of Nomophobia in Garhwal Region of Uttarakhand

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Abstract: Nomophobia has become an alarming concern globally. This study aims to investigate the presence of nomophobia in seven districts of the Garhwal region of Uttarakhand state, focusing on variations between hilly and plain regions. Data were collected from 350 adult participants from each district using the standardised Nomophobia Questionnaire (NMP-Q) via Google Forms. Statistical analyses assessed gender-based and regional differences, including ANOVA, t-tests, and correlation methods. The findings reveal that nomophobia levels are significantly lower in hilly districts (such as Chamoli and Rudraprayag) than in plain districts (such as Dehradun and Haridwar). Based on findings, people living in hilly areas are less dependent on their smartphones. Findings based on gender indicate that females reported slightly higher levels of nomophobia than males. The difference was not statistically significant. Further research is recommended to explore behavioural and psychological influences caused by nomophobia.

Keywords: Nomophobia • Behavioral aspects • Digital integration • Garhwal region • Smartphone dependence.

Introduction

In today's digital age, mobile phones have evolved far beyond their initial role as communication devices. They have become indispensable tools, seamlessly integrated into daily life by supporting access to information, entertainment, and productivity. However, this deep integration has led to the emergence of a psychological phenomenon known as *Nomophobia*—a term derived from "no mobile phone phobia"—which refers to the fear, anxiety, or discomfort experienced when an individual is unable to access or use their mobile phone (King et al 2014). This condition has rapidly become a growing concern, particularly among younger adults who display high dependency on their smartphones (Bhattacharya et al 2019).

Modern smartphone usage is often accompanied by problematic behaviors such as cyberloafing—the tendency to engage in non-work-related online activities during working hours—and compulsive phone-checking, which can trigger symptoms like anxiety, insomnia, and even panic attacks (Lim & Teo 2024). One particularly common symptom is *phubbing*, which involves ignoring people in social settings by focusing on one's mobile phone. Studies reveal that over 70% of individuals frequently engage in phubbing during social interactions (Chotpitayasunondh & Douglas 2018).

Nomophobia is closely associated with smartphone addiction, a type of behavioral addiction marked by excessive and uncontrollable phone usage. Individuals suffering from nomophobia often exhibit visible distress when separated from their devices, experiencing emotional reactions such as unease, worry, or panic—responses comparable to those seen in other clinically recognized phobias (Hasmawati et al 2020). This compulsive dependence may extend to hazardous contexts, including checking phones while driving or during face-to-face interactions (Duke & Montag 2017). Although

Bragazzi and Del Puente (2014) advocated for nomophobia's inclusion in the DSM-5 due to its growing clinical significance, it has not yet been officially recognized as a distinct disorder.

In countries like India, where digital adoption is expanding rapidly, understanding the psychological impacts of excessive smartphone use has become increasingly important. Multiple studies have highlighted the concerning prevalence of nomophobia across various demographic groups. For instance, Sharma et al (2015) found that 73% of third-year medical students from the Sri Aurobindo Institute of Medical Sciences, Indore, exhibited moderate to severe nomophobia. Similarly, Kanmani et al. (2017) assessed 1,500 Indian smartphone users and observed higher levels of nomophobia among females and individuals aged 18–24. The study identified four psychological dimensions contributing to the condition: inability to communicate, loss of connectedness, restricted access to information, and compromised convenience.

Jilisha et al (2019) surveyed 774 college students in Puducherry, revealing that 23.5% experienced severe nomophobia, with associations found between nomophobia scores and factors such as age, gender, and smartphone use. In North India, Bartwal and Nath (2020) reported that among 451 medical students, 17.3% experienced severe nomophobia, while 67.2% and 15.5% showed moderate and mild symptoms respectively. Setia and Tiwari (2021), in a study of 100 smartphone users aged 18–40, found that nomophobia prevalence was highest among students and declined with age but increased with usage intensity. Dewli and Pandey (2023) further highlighted nomophobia's biological, psychological, and social consequences, linking it to the fear of missing out (FOMO) and digital validation needs.

Despite increasing national attention, there is a significant research gap concerning the prevalence and impact of nomophobia in the Garhwal region of Uttarakhand. No existing studies have systematically examined mobile phone dependency among its residents. This study aims to address this gap by investigating nomophobia levels in the Garhwal region and offering detailed insights into its psychological, social, and behavioral implications.

Methodology

This study is based on a cross-sectional survey research design to investigate the presence and patterns of nomophobia across the districts in the Garhwal region of Uttarakhand, India.

Participants:

From the initially collected data from 438 participants, a total of 350 adult (18-25 years) participants (175 males and 175 females) were selected from seven districts of the Garhwal region of Uttarakhand: Chamoli, Dehradun, Haridwar, Pauri, Rudraprayag, Tehri, and Uttarkashi. Convenience sampling was used to maintain gender-wise representation from the seven districts of the Garhwal region. Participants were approached through community networks and social media, and their responses were collected via Google Forms. An objective of 50 participants per district (25 male and 25 female) was established to have a balanced composition.

Instruments:

Nomophobia Questionnaire (NMP-Q): The standardised Nomophobia Questionnaire (NMP-Q) developed by Yildirim and Correia (2015) is used to assess participants' levels of nomophobia. The NMP-Q is a 20-item self-report questionnaire that evaluates four dimensions of nomophobia:

1. Inability to communicate
2. Losing connectedness
3. Inability to access information
4. Giving up convenience

Each question is rated on a 7-point Likert scale ranging between 1 (strongly disagree) to 7 (strongly agree), with scores ranging from 20

to 140. Higher scores indicate greater severity of nomophobia. The NMP-Q has demonstrated strong psychometric properties, high internal consistency (Cronbach's alpha = 0.95), and established construct validity. For this study, the internal consistency of the NMP-Q was calculated at α = 0.92.

Procedure:

The survey was conducted between September 2024 and January 2025. The questionnaire was administered via Google Forms, which were distributed to students of different educational institutions, and social media platforms. Participants were informed about the purpose of the study, and digital consent was obtained before completing the questionnaire. The completion time was approximately 10-15 minutes.

For classification purposes, districts were categorised into hilly regions (Chamoli, Pauri, Rudraprayag, Tehri, and Uttarkashi) and plain regions (Dehradun and Haridwar) based on geographical characteristics and elevation. This classification allowed for comparative analysis between these distinct regional settings.

Analyses:

Statistical analyses were performed using SPSS version 25.0 and Microsoft Excel.

Descriptive statistical analyses included measures of central tendency and dispersion (mean, median, mode, standard deviation, sample variance, range, minimum, maximum and sum across the seven districts).

Inferential statistical analyses included ANOVA (Analysis of Variance) to analyse differences in nomophobia scores between the seven districts (with post hoc analysis using Tukey's HSD) and t-test to compare nomophobia levels between male and female participants. The significance level was set at $p < 0.05$.

Results & Discussion

Descriptive Statistics:

The descriptive statistics for Nomophobia scores across different districts in the Garhwal region are presented in Table 1. The table includes measures such as mean, median, mode, standard deviation, range, minimum, and maximum values, providing insights into the distribution and variability of Nomophobia levels across Chamoli, Dehradun, Haridwar, Pauri, Rudraprayag, Tehri, and Uttarkashi districts of Garhwal region of Uttarakhand. These statistics help understand each district's central tendency and dispersion of Nomophobia scores.

Table 1: Descriptive statistics for Nomophobia scores across different districts in the Garhwal region.

Districts Descriptive Statistics	Chamoli	Dehradun	Haridwar	Pauri	Rudraprarayg	Tehri	Uttarkashi
Mean	75.22	103.48	100.1	96.46	82.54	94.42	92.98
Median	70.5	104	101	96.5	81.5	94	98
Mode	69	100	98	95	63	94	101
Standard Deviation	8.40	5.07	5.74	6.32	15.75	4.59	15.04
Range	30	24	26	30	42	18	47
Minimum	60	93	88	79	62	84	69
Maximum	90	117	114	109	104	102	116
Sum	3761	5174	5005	4823	4127	4721	4649

The significant findings based on the descriptive statistics of NMP-Q survey data across different districts in the Garhwal region of Uttarakhand:

1. Central Tendency (Mean, Median, Mode): As shown in Fig: 1 below-

- Dehradun (Mean: 103.48, Median: 104, Mode: 100), Haridwar (Mean: 100.1, Median: 101, Mode: 98), and Pauri (Mean: 96.46, Median: 96.5, Mode: 95) show the highest Nomophobia levels, indicating higher smartphone dependence.

- Chamoli (Mean: 75.22, Median: 70.5, Mode: 69) and Rudraprayag (Mean: 82.54, Median: 81.5, Mode: 63) have relatively lower Nomophobia scores, suggesting lesser dependence.
- The median values closely align with the means, suggesting a relatively symmetrical data distribution in most districts.

2. Variability & Dispersion (Range, Standard Deviation, Sample Variance): As shown in **Fig: 2** -

Uttarkashi (Range: 47, SD: 15.04, Variance: 226.22) and Rudraprayag (Range: 42, SD: 15.75, Variance: 248.22) exhibit the highest variability, indicating diverse Nomophobia levels among individuals.

Tehri (Range: 18, SD: 4.59, Variance: 21.14) has the lowest variability, implying that respondents' Nomophobia levels are more consistent.

Dehradun and Haridwar have relatively low standard deviations (5.07 and 5.74, respectively), meaning Nomophobia levels are more stable within these districts.
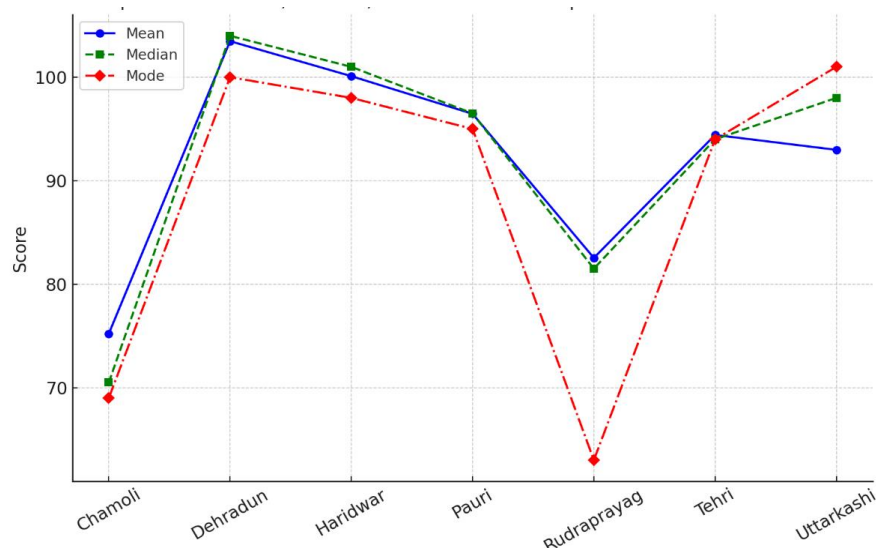

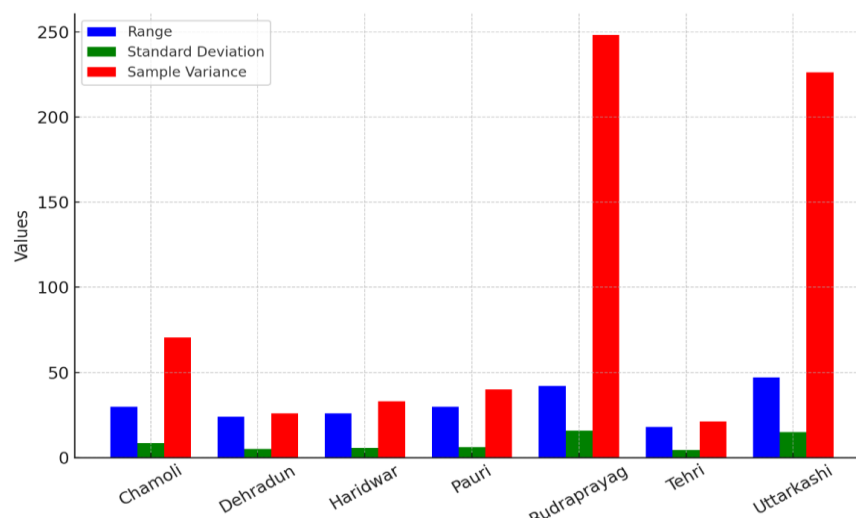Fig 1: Comparison of Mean, Median and Mode of Nomophobia Scores.

Fig 2: Comparison of Range, Standard Deviation, and Sample Variance Across Districts

3. Extremes & Total Scores:

- The lowest recorded Nomophobia score (60) is in Chamoli, while the highest (117) is in Dehradun.
- Dehradun (Sum: 5174) and Haridwar (Sum: 5005) have the highest total scores, further confirming higher smartphone dependence in these areas.
- Dehradun, Haridwar, and Pauri have the greatest levels of Nomophobia,

most probably because of urbanisation and higher smartphone accessibility, while Chamoli and Rudraprayag have the least smartphone dependence.

Inferential Statistics:

1. **ANOVA (Analysis of Variance) to examine differences in nomophobia levels across the seven districts of Garhwal, Uttarakhand:**

Table 2: ANOVA Results for Nomophobia Scores across seven districts of Garhwal, Uttarakhand

Source of Variation	SS	df	MS	F	P-value	F critical
Between Groups	29748.15	6	4958.026	52.18564	1.694E-45	2.125036578
Within Groups	32587.56	343	95.00746			
Total	62335.71	349				

As per the values in Table 2 above, F-ratio = 52.18564: This value represents the variance ratio between groups to the variance within groups. A high F-value indicates that at least one group's mean significantly differs.

P-value = 1.69E-45: This minimal value (much lower than 0.05) suggests we reject the null hypothesis, which states that all district means are equal. This implies that there is a significant difference in the mean scores across the seven districts.

F critical value = 2.125: Since the calculated F-value (52.19) is much greater than the critical F-value (2.125), it confirms that the differences between district means are statistically significant. A similar research study conducted by Kumar et al. (2021) reported that Urban students generally showed higher levels of nomophobia than their rural counterparts. The students from urban areas demonstrated greater dependency on mobile phones and experienced more anxiety when separated from their devices.

Post Hoc analysis by Tukey's HSD Test: The mean differences between district pairs and confidence intervals. As shown in Fig: 3 below, the red dashed line at zero visualise statistically significant differences, if an

interval crosses zero, the difference is not significant.

Findings:

a) *Chamoli vs. Other Districts:*
- Chamoli has significantly lower NMP-Q scores compared to Dehradun, Haridwar, Pauri, Tehri, Uttarkashi, and Rudraprayag.
- The largest mean difference is observed between Chamoli and Dehradun (-28.26, p < 0.001), indicating that Dehradun has significantly higher nomophobia levels.

b) *Dehradun vs. Other Districts:*
- Dehradun has significantly higher NMP-Q scores than Chamoli, Pauri, Rudraprayag, Tehri, and Uttarkashi.
- However, no significant difference is observed between Dehradun and Haridwar (p = 0.594), suggesting similar nomophobia levels in these two districts.

c) *Haridwar vs Other Districts:*
- Haridwar shows a significantly higher mean difference than Chamoli, Rudraprayag, and Uttarkashi.
- No significant difference is found between Haridwar and Pauri (p = 0.504) or Tehri (p = 0.058).
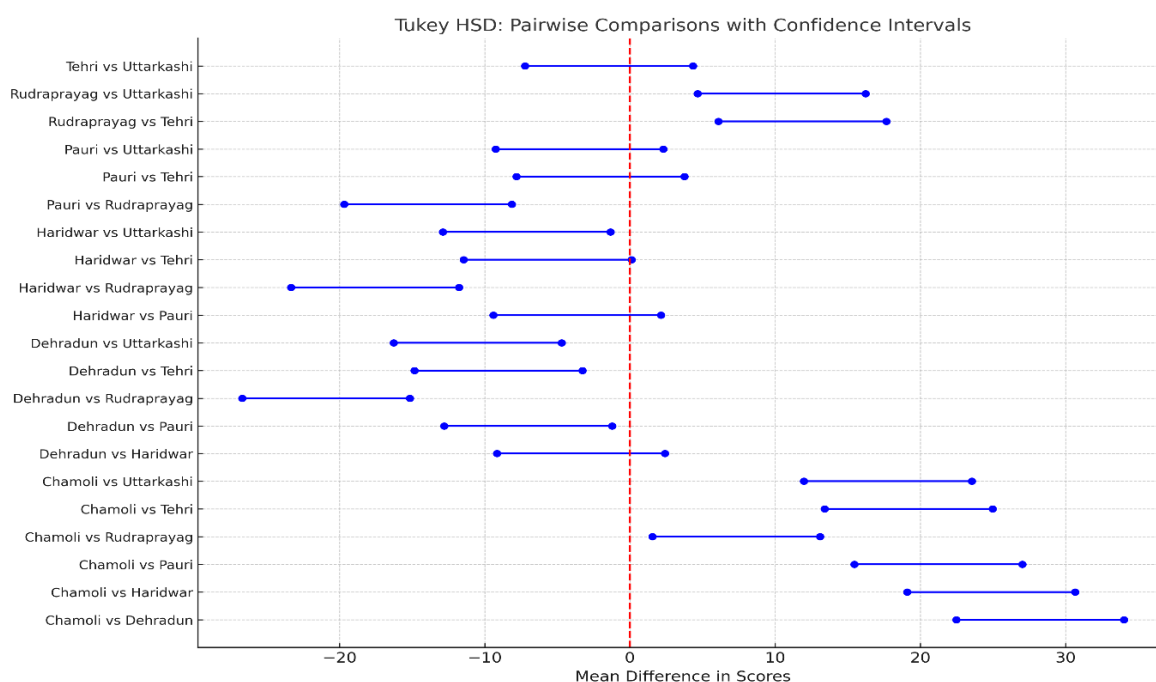
Fig 3: Tukey HSD: Pairwise Comparisons with Confidence Intervals

d) *Pauri vs. Other Districts:*

- Pauri scores significantly lower than Dehradun and significantly higher than Rudraprayag.
- However, it shows no significant difference with Haridwar, Tehri, and Uttarkashi.

e) *Rudraprayag vs. Other Districts:*

- Rudraprayag shows significantly lower NMP-Q scores than Dehradun, Haridwar, Pauri, Tehri, and Uttarkashi.
- However, it is significantly higher than Chamoli.

f) *Tehri vs. Other Districts:*

- Tehri has significantly lower scores than Dehradun and higher scores than Rudraprayag.
- However, no significant difference is found between Tehri and Pauri (p = 0.943) or Tehri and Uttarkashi (p = 0.990).

g) *Uttarkashi vs. Other Districts:*

- Uttarkashi scores significantly lower than Dehradun, Haridwar, and Pauri.
- It shows no significant difference with Rudraprayag, Chamoli, or Tehri.
Dehradun and Haridwar have the highest nomophobia levels, whereas Chamoli and Rudraprayag have the lowest. Significant differences (p < 0.05) in many pairwise comparisons indicate that nomophobia is not uniformly distributed across districts. Urban districts such as Dehradun and Haridwar exhibit higher nomophobia levels than rural ones like Chamoli and Rudraprayag, possibly due to higher smartphone penetration and internet usage.

T-test to compare Nomophobia levels between Males and females participants.

Table 3: Required values for application of T-test.

	Males	*Females*
Mean	92.15428571	92.18857143
Variance	184.6139901	173.6366502
df	348	
t Stat	-0.023962865	
P(T<=t) one-tail	0.490447982	
t Critical one-tail	1.649244024	
P(T<=t) two-tail	0.980895964	
t Critical two-tail	1.966804223	

The results of the t-Test: Two-samples assuming unequal variances suggest that there is no significant difference in NMP-Q scores between males and females.

As shown in table 3 above, the mean scores for males (92.15) and females (92.19) are almost identical, indicating minimal variation between the two groups. The t-statistic (-0.02396) is very close to zero, showing no meaningful difference in means. The p-value for the two-tailed test (0.9809) is much greater than the standard significance level of 0.05, indicating that any observed difference is not statistically significant.

The confidence interval includes zero, confirming that the difference is negligible. Thus, the analysis suggests that gender does not play a significant role in determining nomophobia levels. A similar study conducted by Bulut and Sengul (2023) explored whether gender influences the connection between nomophobia and social interaction anxiety among university students. The findings suggest that while social anxiety strongly predicts certain aspects of nomophobia, gender itself does not make a significant difference in overall nomophobia levels.

Conclusion

The study finds no significant difference in nomophobia levels between males and females, as indicated by the t-test results (p > 0.05). However, there are significant variations in nomophobia scores across different districts, with districts having majority of urban areas, like Dehradun and Haridwar, have significantly higher levels than the districts with majority of rural areas, such as Chamoli and Rudraprayag. The ANOVA test and Tukey HSD analysis confirming that nomophobia is not uniformly distributed.

Suggestions

Future research on nomophobia could explore a broader and more diverse demographics to assess how nomophobia levels vary across different life stages and occupations. Longitudinal studies would also provide valuable results for understanding whether nomophobia is a temporary phase or a persistent issue that continues for lifespan. Further researches should focus on development and testing of psychological and behavioral interventions, such as digital detox programs, mindfulness training, or Cognitive-Behavioral Therapy (CBT), to help individuals manage nomophobia. Future researches can be conducted for examining how digital infrastructure and socioeconomic factors influence nomophobia levels.

By addressing these issues, future researches can also tend to the development of interventions that promote a balanced and healthy relationship with technology.

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