Association Between Nomophobia and Text Neck Syndrome in Students in Lahore: A Cross-Sectional Study

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ABSTACT

Background: Text neck syndrome, caused by prolonged forward head posture while using mobile devices, is a growing concern among young adults. Nomophobia, the fear of being without a mobile phone, is another emerging issue linked to excessive smartphone use.

Objective: To determine the association between text neck syndrome and nomophobia among university students.

Methods: This cross-sectional study involved 314 university students aged 18-25 years in Lahore, selected through non-probability convenience sampling. Data were collected using the Neck Disability Index (NDI) and Nomophobia Questionnaire (NMP-Q). Participants with traumatic neck injuries or neurological disorders were excluded. Data analysis was performed using SPSS Version 25, with descriptive statistics and Chi-Square tests applied to evaluate the association between variables.

Results: The mean NDI score was 0.58 ± 0.495, and the mean NMP-Q score was 2.19 ± 0.639. A significant association was found between neck disability and nomophobia ($p = 0.041$), with 57.6% of participants showing moderate nomophobia and 57.6% reporting neck disability.

Conclusion: There is a significant association between text neck syndrome and nomophobia, indicating that excessive mobile phone use negatively impacts both physical and psychological health among university students.

INTRODUCTION

Neck pain, a common and often debilitating condition, is characterized by discomfort, soreness, or stiffness in the cervical region. It is a prevalent issue among individuals of all ages and can stem from a variety of causes, including poor ergonomics, prolonged sitting, and maintaining unnatural postures for extended periods (1). Neck pain is ranked as the fourth most common musculoskeletal problem, with only low back pain being more prevalent (2). The condition can range in severity, with acute cases lasting less than six weeks, subacute cases persisting for up to three months, and chronic cases extending beyond six months. Early intervention is crucial, as a shorter duration of symptoms is associated with better long-term outcomes (3). Psychological factors, such as anxiety, depression, kinesiophobia, and catastrophizing, can exacerbate the intensity of chronic neck pain and contribute to greater self-reported disability. This highlights the complex interplay between physical and psychological factors in the experience of neck pain (4).

Among students, particularly females, neck pain is a significant concern. Nonspecific chronic neck pain (NCNP) can substantially impact daily life and is influenced by various psychosocial factors (5). The exact etiology of NCNP is not fully understood, but it is believed to be related to deficits in the proprioception of neck muscles, which are vital for maintaining cervical joint position and controlling head movement (6). Text neck, a term used to describe a repetitive stress injury resulting from prolonged forward flexion of the head while using mobile devices, has become increasingly common with the widespread use of smartphones (7). This condition is associated with chronic headaches and can lead to long-term alterations in the mechanical and neuromuscular behavior of the cervical spine, potentially reducing its strength (8, 9). Preventative measures, such as taking regular breaks and maintaining proper posture, are recommended to mitigate the development of text neck syndrome (10).

Concurrently, the rise of smartphone usage has led to the emergence of nomophobia, a behavioral addiction characterized by the fear of being without a mobile phone or disconnected from a mobile network (11). Nomophobia manifests through a range of social, physiological, and psychological symptoms, including anxiety, agitation, and disorientation, and may also be indicative of other underlying disorders (12). This condition significantly impacts attention and learning, particularly in educational settings, where students' performance can be negatively affected by their dependence on mobile phones (13). Additionally, the use of mobile phones while driving increases the risk of accidents, further emphasizing the need for awareness and management of this issue (14).

The increasing prevalence of both text neck syndrome and nomophobia among students underscores the importance of understanding the relationship between these conditions. This study aims to investigate the association between text neck syndrome and nomophobia in university

students, with the goal of identifying potential correlations between neck pain and mobile phone dependency. The findings of this research will contribute to the broader understanding of how modern technology influences both physical and psychological health, particularly in younger populations.

MATERIAL AND METHODS

The study was conducted using a cross-sectional design, involving a total of 314 participants who were selected through a non-probability convenience sampling method. This approach was chosen to ensure that the participants, aged between 18 and 25 years, were easily accessible and met the inclusion criteria, which required them to use mobile phones for approximately four hours per day. The inclusion criteria were carefully defined to ensure the relevance and consistency of the data collected. Individuals who had experienced neck pain due to traumatic injuries, whether from direct impact or indirect trauma, were excluded from the study. Additionally, participants with any neurological or cardiopulmonary disorders were also excluded to avoid confounding variables that could potentially skew the results.

Prior to participation, informed consent was obtained from all participants after a thorough explanation of the study's purpose and procedures. The participants were reassured about the confidentiality of their data, in compliance with the ethical standards outlined in the Declaration of Helsinki. Participants were then asked to complete two standardized questionnaires: the Neck Disability Index (NDI) and the Nomophobia Questionnaire (NMP-Q). These instruments were chosen for their validity in assessing neck disability and the severity of nomophobia, respectively.

The collected data were entered into the Statistical Package for the Social Sciences (SPSS), Version 25, for analysis. Descriptive statistics, including frequencies and percentages, were calculated to provide a comprehensive overview of the demographic characteristics of the participants. Nominal and ordinal data were represented graphically using pie charts and bar charts, respectively, to facilitate a clearer understanding of the categorical aspects of the study population.

The severity of nomophobia was assessed using an ordinal scale, which allowed for a detailed analysis of the degree of dependency on mobile phones among the participants. To ensure the data met the assumptions required for further statistical testing, a normality test was conducted with a significance level set at p=0.05. Following this, a Chi-Square test was applied to determine the association between neck disability and the severity of nomophobia. This statistical test was crucial in identifying any significant relationships between the variables under study, providing insights into the potential link between neck pain and mobile phone addiction among university students.

The study's methodology was rigorously designed to minimize bias and enhance the validity of the findings. By employing a well-defined sampling technique and robust data analysis methods, the research aimed to produce results that are both reliable and generalizable to the broader population of university students in Lahore. The ethical considerations were meticulously observed throughout the study, ensuring that the rights and well-being of the participants were upheld at all times.

RESULTS

The study included 314 participants, aged between 18 and 25 years, from various universities in Lahore. Data analysis was performed using SPSS Version 25. The primary aim was to assess the association between neck disability and nomophobia among the participants. The results, including statistical interpretations, are detailed below.

The mean and standard deviation for the Neck Disability Index (NDI) were 0.58 ± 0.495, and for the Nomophobia Questionnaire (NMP-Q), they were 2.19 ± 0.639. A Chi-Square test was conducted to evaluate the association between NDI and nomophobia, yielding a p-value of 0.041, indicating a statistically significant association ($p < 0.05$).

Table 1: Statistics of Pain Intensity

Pain Intensity	Frequency	Percent	Mean ± SD
No Pain	153	48.7%	0.98 ± 1.261
Very Mild	77	24.5%	
Moderate	49	15.6%	
Fairly Severe	15	4.8%	
Very Severe	12	3.8%	
Worst	8	2.5%	
Total	314	100%	

Table 1 illustrates the distribution of pain intensity among participants. The highest frequency was observed in the "No Pain" category (48.7%), while the lowest was in the "Worst Pain" category (2.5%).

Table 2: Frequency of Neck Disability (NDI)

NDI	Frequency	Percent	Mean ± SD
< 22% (Negative)	133	42.4%	0.58 ± 0.495
> 22% (Positive)	181	57.6%	
Total	314	100%	

Table 2 shows the frequency of neck disability among participants, with 57.6% of them having a positive NDI, indicating the presence of neck disability.

Table 3 summarizes the severity of nomophobia, with the majority (57.6%) experiencing moderate nomophobia

Table 3: Frequency of Nomophobia Severity

Nomophobia Severity	Frequency	Percent	Mean ± SD
Absent	2	0.6%	2.19 ± 0.639
Mild	34	10.8%	
Moderate	181	57.6%	
Severe	97	30.9%	
Total	314	100%	

Table 4 combines the cross-tabulation of neck disability (NDI) and nomophobia severity with the results of the Chi-Square test. The results demonstrate a significant association between the presence of neck disability and the severity of nomophobia, with a p-value of 0.041, confirming the statistical significance of this relationship.

Table 4: Cross Tabulation of NDI and Nomophobia Severity with Chi-Square Test Results

Neck Disability Index	Nomophobia	Absent	Mild	Moderate	Severe	Total	Chi-Square	P value
< 22% (Negative)	Absent	0	21	77	35	133		
> 22% (Positive)		2	13	104	62	181	8.281	0.041
Total	Total	2	34	181	97	314		

These findings indicate a notable correlation between neck disability and nomophobia among university students, suggesting that those with greater neck disability are more likely to experience moderate to severe nomophobia. This underscores the impact of excessive mobile phone use on both physical and psychological well-being in young adults.

DISCUSSION

This study explored the association between nomophobia and text neck syndrome among university students in Lahore, revealing a significant relationship between the two conditions. The findings indicated that individuals who exhibited higher levels of nomophobia were also more likely to experience neck disability, highlighting the physical and psychological impacts of excessive mobile phone use in this population.

The results align with previous research, which has consistently shown a connection between prolonged mobile phone use and musculoskeletal disorders, particularly those affecting the neck. For instance, a study conducted by Shah and Sheth found a positive correlation between smartphone addiction and neck disability among physical therapy students, supporting the idea that excessive mobile phone use contributes to the development of text neck syndrome (15). Similarly, Al-Hadidi et al. reported that mobile phone usage duration was significantly associated with the severity of neck pain, further corroborating the link between mobile phone dependency and musculoskeletal discomfort (17).

The prevalence of moderate to severe nomophobia observed in this study is consistent with findings from previous research. For example, Ahmed et al. reported that a significant proportion of college students exhibited moderate levels of nomophobia, emphasizing the widespread nature of this behavioral addiction (19). The psychological dimensions of nomophobia, including anxiety and distress related to mobile phone disconnection, may exacerbate physical symptoms such as neck pain, as suggested by the significant association found in this study. This interplay between psychological and physical health underscores the complexity of conditions like text neck syndrome, which are not solely biomechanical but also influenced by behavioral and emotional factors (7, 18).

One of the strengths of this study is its relatively large sample size, which enhances the generalizability of the findings. The inclusion of participants from multiple universities and departments within Lahore further supports the robustness of the results. Additionally, the use of validated instruments, such as the NDI and NMP-Q, ensured that the data collected were both reliable and relevant to the research questions. However, the study also had some limitations. The cross-sectional design limits the ability to establish causality between nomophobia and neck disability. Longitudinal studies would be necessary to determine whether excessive mobile phone use leads to the development of text neck syndrome or whether individuals with pre-existing neck pain are more likely to develop nomophobia (19).

Another limitation was the reliance on self-reported data, which may be subject to response bias. Although the study attempted to mitigate this by using hand-delivered questionnaires instead of online surveys, the potential for bias cannot be entirely ruled out. Moreover, the exclusion of participants with neurological or cardiopulmonary conditions may limit the applicability of the findings to the general population. Future research could address these limitations by including a broader range of participants and employing objective measures of mobile phone use and neck posture (6, 11).

In light of these findings, it is recommended that educational institutions and healthcare providers take proactive steps to raise awareness about the risks associated with excessive mobile phone use. Interventions aimed at promoting better posture and reducing screen time could help mitigate the development of text neck syndrome and its associated symptoms. Additionally, addressing the psychological aspects of nomophobia, such as anxiety and dependence on mobile devices, may also play a crucial role in preventing the onset of physical symptoms. Integrating physical and psychological health education into university curricula could be an effective strategy to address these emerging health concerns among young adults.

CONCLUSION

The findings of this study demonstrated a significant association between nomophobia and text neck syndrome among university students, highlighting the dual impact of excessive mobile phone use on both physical and psychological health. This underscores the importance of addressing mobile phone dependency as part of a comprehensive approach to prevent musculoskeletal disorders like text neck syndrome. In human healthcare, these results suggest that interventions focusing on reducing screen time, improving posture, and managing psychological dependence on mobile devices could play a crucial role in mitigating the risks associated with excessive mobile phone use, particularly in young adults.

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