

Digital Dependency Nomophobia and Smartphone Addiction among Community Healthcare Professionals

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ABSTRACT

Background of the study: Nomo phobia (NMP) – fear of being without mobile phone, is a rising concern in today's digital age. This psychological disorder driven by excessive use of digital media is impacting the younger generation, leading to symptoms such as anxiety, nervousness and panic attacks. In 2019, global smartphone users reached 2.5 billion, with evidence showing its increasing effects on daily life. This study aims to identify the prevalence and correlation of NMP and smartphone addiction among Community healthcare professionals.

Methodology: This cross-sectional study was conducted to assess Nomo phobia and smart phone addiction among 389 participants using the NMP questionnaire and the SAS-SV questionnaire. Participants were included in this study using convenience sampling technique and after evaluating the designed inclusion and exclusion criteria, consent form was obtained for enrollment. For data collection, NMP questionnaire and SAS-SV questionnaire were used. The data was analyzed using descriptive (means, SD & percentage) and inferential statistics (Pearson Correlation analysis) at the significance level of $p < 0.05$ using SPSS (version 22).

Results: Findings showed that out of 389 participants, 229 (58.9%) exhibited severe nomophobia, while 319 (35.90%) showed moderate levels of smart pone addiction. The average age of participants was 27.81 years. The statistical analysis revealed a significant correlation ($r = 0.52$, $P = 0.01$) between nomophobia and smart phone addiction among healthcare professionals.

Conclusions: The extensive use of smart phones among healthcare professionals may lead to addiction and significant levels of nomophobia. It is crucial to conduct further research to explore preventive strategies for nomophobia and smartphone addiction across diverse populations. Comprehensive studies should be undertaken throughout Pakistan, engaging various subspecialties, to gain a deeper understanding of this issue and its implication for Community healthcare professionals.

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Introduction

Growing concern regarding the negative effects of cellphones, its excessive use, and Nomophobia which represents the fear of living without mobile phone is affecting the younger population worldwide. In 2019, the number of worldwide smartphone users reached approximately 2.5 billion accounting for 97% of the global population. In 2019, 64% of the population in the United States owned

smartphones, while in India only 36% have access to these devices because of low

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socioeconomic status (Oviedo-Trespalacios et al., 2019). In Switzerland, a staggering 98% of the young adults reported to be addicted to smartphones (Haug et al., 2015). Recent data from China indicates a rapid inclination in the smartphone users, around 1.306 billion, raising concerns that continued excessive use of telecommunication may lead to smartphone addiction (Bragazzi et al., 2019). The high prevalence of smartphone usage has given rise to a significant complication known as nomophobia, the fear of being without one's mobile phone (Mb et al., 2015). A study conducted in UK revealed that 53% of the population suffers from this condition (Bhattacharjee et al., 2017).

Excessive use of mobile phones can diminish individual's concentration and attentiveness. This addictive behavior is particularly pronounced among young adults, with nomophobia reflecting anxiety over the loss of access to information and communication, as the challenges associated with mobile phone use increase (Kim et al., 2018). Research indicates that nomophobia can be viewed as a form of psychopathology, as it often results in anxiety and distress. Among a large sample of College students, females were found to be more prone to nomophobia (Prasad, 2017). Several studies have shown that individuals dependent on their call phones often experience stress in their lives (Panova & Carbonell, 2018). As reliance on mobile phones increases, these devices can provide temporary relief during stressful times. Over the past decade, advancements in technology have made cell phones essential for easy access and information sharing (Ahmed et al., 2019). While virtual communication and high technology offer benefits, they also contribute to social isolation and economic challenges.

Today, mobile phones have largely replaced traditional workstations, allowing for usage anywhere. However, prolonged smartphone use can lead to adverse effects, such as visual display terminal vision syndrome and carpal tunnel syndrome. The impact of nomophobia on employees remains unclear in term of work engagement, emotional exhaustion, and job productivity (Arpaci et al., 2017). There is growing concern that many children and adolescents may face mental health challenges related to nomophobia (Anshari et al., 2019). The radiation emitted by smartphones, ranging from 3kHz to 3000 kHz, can have harmful effects with prolonged use. The absence of a mobile phone can disrupt students' concentration levels, leading to symptoms such as irritation and agitation. Nomophobic behaviors often emerge when individuals are without their, causing them to avoid places where mobile phone use is restricted (Hamutoglu et al., 2018). Dependency on cell phones among young students negatively affects educational performance, increasing internet dependency, depression, and sleep deprivation, ultimately reducing their quality of life. According to WHO, excessive smartphone usage disrupts personal lifestyles and can lead to negative behaviors and mood swings (Kim et al., 2018).

Furthermore, web use via smartphones has been associated with dangerous behaviors, including violence and cyber bullying (Hamutoglu et al., 2018). If the current trend continues, with individuals increasingly attached to their devices and relying on virtual communication, it may result in further isolation from the real world. Consequently, the purpose of this study is to examine the prevalence and correlation between nomophobia and smartphone addiction among community healthcare professionals.

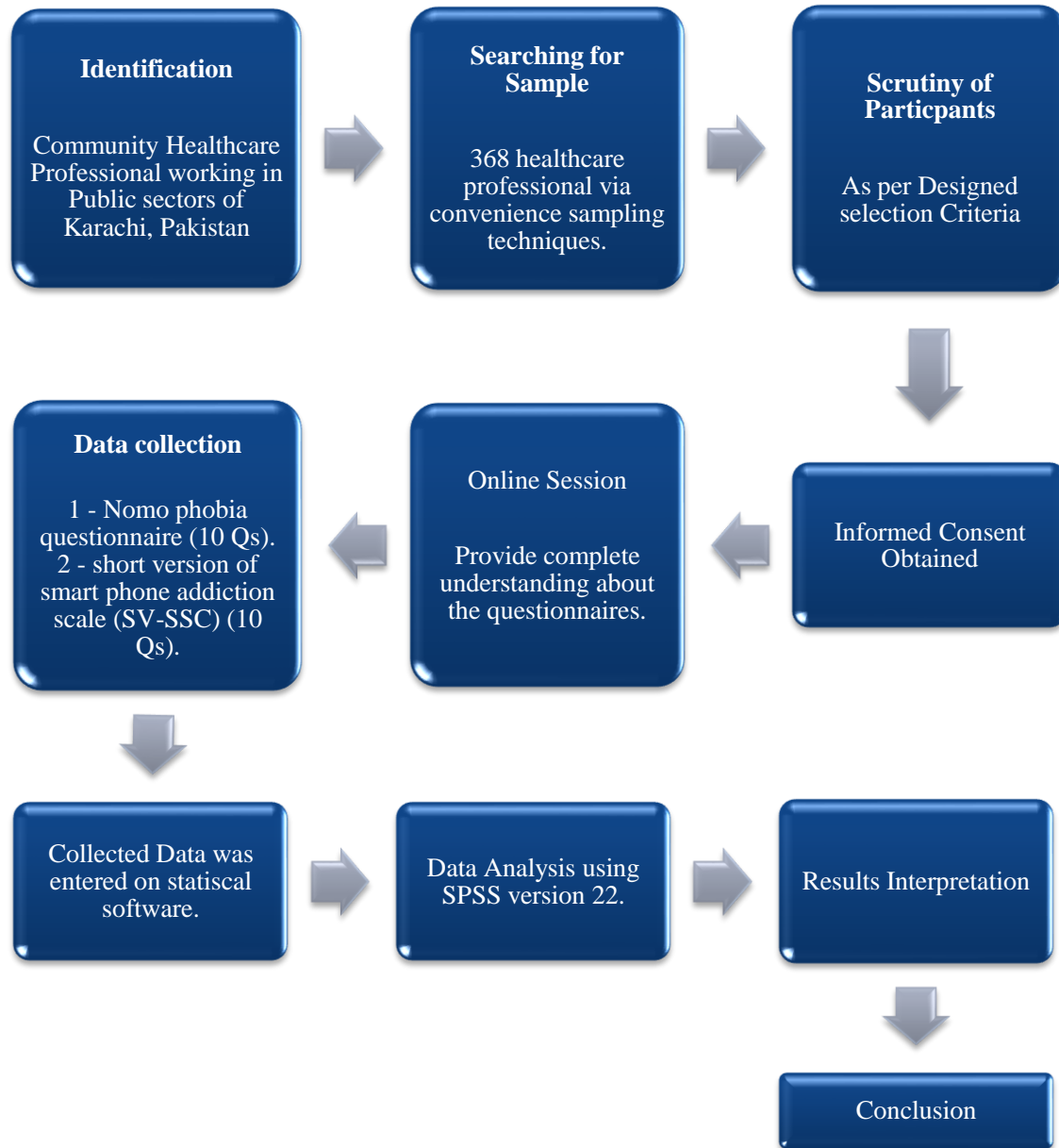
Literature Review

Nomophobia and smartphone addiction have become increasingly prevalent among healthcare professionals. Studies have documented high levels of smartphone dependency and nomophobia across diverse population, with some reports indicating that over half of the healthcare professionals experience moderate to severe nomophobia (Arpaci et al., 2017). Research suggests that smartphone dependency exacerbated by frequent exposure to digital technology. Gender differences in nomophobia and smartphone addiction are frequently noted. Although males generally report higher levels of smartphone addiction indicate that females often show higher levels of nomophobia (Yildirim & Correia, 2015). These gendered patterns of phone dependency reflect broader trends in technology use are influenced by social and psychological factors unique to healthcare environments as well especially among clinical practitioner and interns (Bhattacharjee et al., 2017).

On the other hand, another study reported that individuals with nomophobia often avoid real-life situations, personal relationships & are busy on their phones, due to which they were left under confident without their smartphones (Nikolic et al., 2023). Research showed 52.6% of clinical practitioners and 32.2% interns expressed nomophobia which determined that the level of nomophobia or smartphone addiction is highest among community healthcare professionals (Bhattacharjee et al., 2017). Evidence revealed that those who scored highly on the nomophobia scale were more anxious about their mobile when it was not present and develop a reason for an association between musculoskeletal discomfort of poor posture neck, thumb and hand during prolonged use but no studies showed among young adults complains of wrist, thumb pain or stiff neck can contribute to continuous using on smartphones (Shah & Sheth, 2018). Studies have also reported that Smartphone addiction prevalence rates are higher among females (Bhattacharjee et al., 2017; Kim et al., 2018). Several other studies show that mobile phones are harmful to men's health and endanger from brain tumors, infertility, heart diseases, fetal harm, hearing impairment with no specification (Nikolic et al., 2023). Correspondingly, a clinical study reported that 38.1% of the participants consulted complaints on sleep related to smartphone use at night with only an average fewer than four hours' sleeping per day by 35.8% (Jahrami et al., 2021). High levels of smartphone usage have been associated with higher general anxiety and concerted bio-psychosocial stress (Busch & McCarthy, 2020).

Corroborating this finding by a review showed that female college students had high anxiety and neurotic personality traits associated with smartphone addiction, this was also observed. Additionally, a recent systematic review and meta-analysis nomophobia was significantly associated with anxiety ($r = 0.31$), smartphone addiction ($r = 0.39$) and insomnia ($r = 0.56$), therefore driving an urgent need for increasing awareness on its short & long-term effects (Keles et al., 2019). Existing literature highlights a strong need of evaluating association between nomophobia and smart phone addictions among community healthcare professionals who are serving population by dealing wide range of physical and psychological health challenges.

Theoretical Framework



Methodology

This cross-sectional study was conducted in public sectors (Civil hospital, Jinnah Hospital, Sindh Institute of Physical Medicine and rehabilitation) of Karachi, Pakistan on 389 healthcare professionals aged 18 to 35 years using convenience sampling techniques. Participants using smartphone with internet at least five days a week were included in this study. If participants don't use smartphone or if they use phones less than five days per week, then they were excluded (Gore, Balasubramanian, & Paris, 2019). For data collection, 2 questionnaires were used. First one was Nomo phobia questionnaire comprising of

10 questions with total score of 70, using seven-point Likert scale various grades i.e. Absent (<10), mild (11 - 30), moderate (31 - 50), and severe (51 - 70). The questionnaire was showing excellent reliability (Cronbach’s alpha = 0.94) (Yildirim & Correia, 2015). The second questionnaire was short version of smart phone addiction scale consisting 10 questions using six-point Likert scale for assessing the scores. This questionnaire was valid (0.78, ICC = 0.94) in analyzing the smart phone addiction of community healthcare professionals (Kwon et al., 2013). For data collection, informed consent was obtained prior to enrollment in July 2024 and then complete understanding about the questionnaires was given to the enrolled participants through online and physical meetings. After collecting the data from participants, data was entered and analyzed using SPSS version 22. For descriptive analysis, mean, median and mode were used whereas for inferential statistics, Pearson correlation analysis was used.

Results

Findings showed that out of 389 participants, the average age of participants was 27.81 ± 3.305 years with the age range between 18 to 35 years. Among all participants, 39.2 % (n = 153) were male and 60.8% (n = 236) were female, as illustrated in Figure 01.

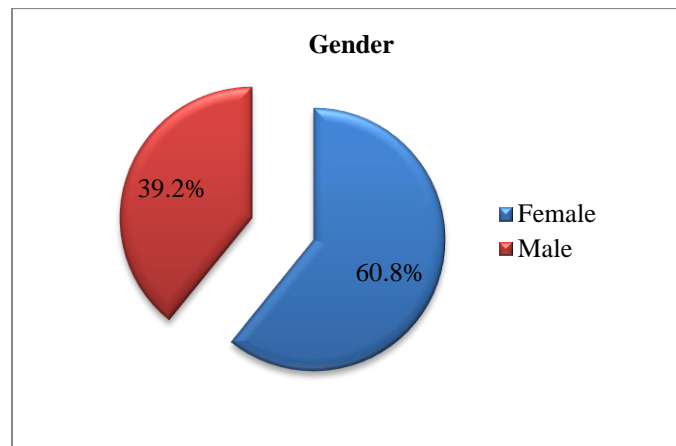


Figure 01 - Demographics of study Participants

For Nomophobia, 5.1% community healthcare professionals (n = 20) reported experiencing mild, 36.0% (n = 140) reported moderate, whereas 58.7% (n = 229) reported severe, as shown in Figure 2. Detailed description of participants responses regarding nomophobia is presented in Table 1, concerning various aspects of nomophobia, defined as the irrational fear of being without a mobile phone or being unable to access information. The responses are categorized into three levels of nomophobia: mild, moderate, and severe. A significant portion of participants (43.7%) reported severe discomfort regarding the lack of information access, indicating a strong dependency on their smartphone for information access. Similarly, 46% of the respondents expressed severe panic over data limitations, reflecting heightened anxiety levels when faced with restrictions in smartphone functionality. The fear of being stranded an anxiety over communication barriers also exhibited high severe nomophobia rates, at 43.7% and 56.3%, respectively, demonstrating a critical reliance on smartphones for both connectivity and

reassurance. Overall, these findings highlight profound impact of smartphones on emotional wellbeing and interpersonal connections, with a substantial majority of participants exhibiting symptoms of severe nomophobia.

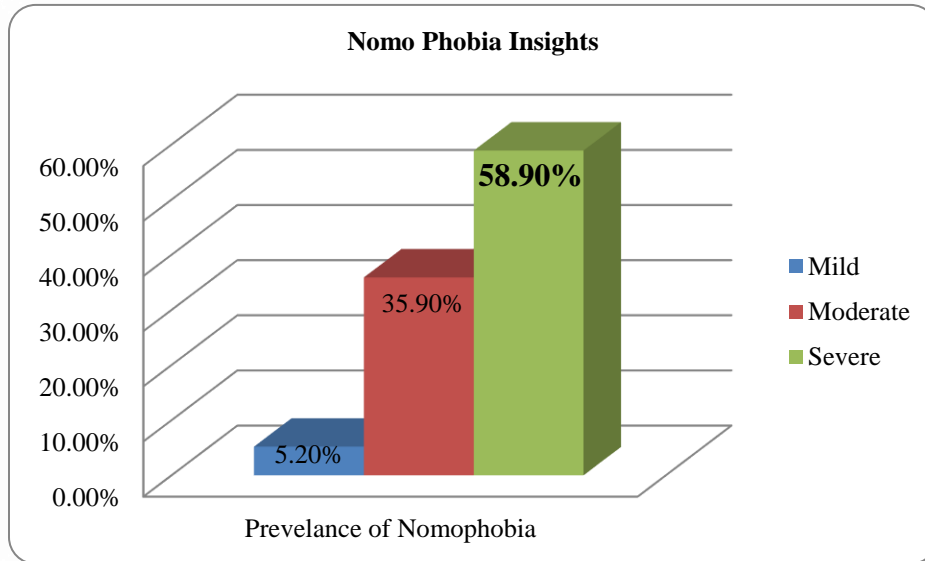


Figure 02 – Participants Nomophobia Insight: Percent Distribution

Questionnaire	Mild	Moderate	Severe
Discomfort on lack of information access	132 (33.9)	87 (22.4)	170 (43.7)
Annoyance at limited access	106 (27.3)	65 (16.7)	174 (44.6)
Panic over data limitation	135 (34.7)	75 (19.3)	179 (46.2)
Fear of being stranded	119 (30.6)	100 (25.7)	170 (43.8)
Nervousness over News inaccessibility	147 (37.8)	88 (22.6)	154 (39.7)
Nervousness from Communication Barriers	111 (28.7)	59 (15.3)	219 (56.4)
Anxiety from disconnectedness with Friends and family	86 (22.1)	83 (21.3)	220 (56.7)
Concern over broken connections	91 (23.4)	89 (22.9)	209 (53.7)
Anxiety from Email inaccessibility	114 (29.3)	81 (20.8)	194 (49.9)
Weirdness in the absence of smartphone	112 (28.8)	79 (20.3)	198 (50.9)

Table 01: Distribution of Nomophobia Responses N (%)

Responses of participants regarding smartphone addiction is representing the Figure 03, which illustrates the extent to which smartphone users’ affects various aspects of their lives. The responses are classified into 6 categories strongly disagree, disagree, weakly disagree, weakly agree, agree and strongly agree. Notably, 23.3% of participants strongly disagreed that smartphones usage impacts their work productivity, while 19.4% acknowledged a negative impact indicating a significant proportion of respondents recognizing challenges to their productivity. Concentration difficulties were reported by considerable percentage of participants with 29.4% agreeing to weakly disagree and 17.8% weakly agree, suggesting that smartphone distractions are prevalent in academic and work settings. Additionally, physically discomfort associated with smartphone use was reported by 29.1% of participants underscoring the health implication of prolonged smartphone engagement. The responses further indicates

that a majority of participants expressed impatient and a reluctance to give up their smartphone despite acknowledging the negative impact, reflecting the pervasive nature of smartphone addictions in their daily life. These findings revealed a concerning trend where a substantial number of participants experience both psychological and physical changes linked to their smartphone usage.

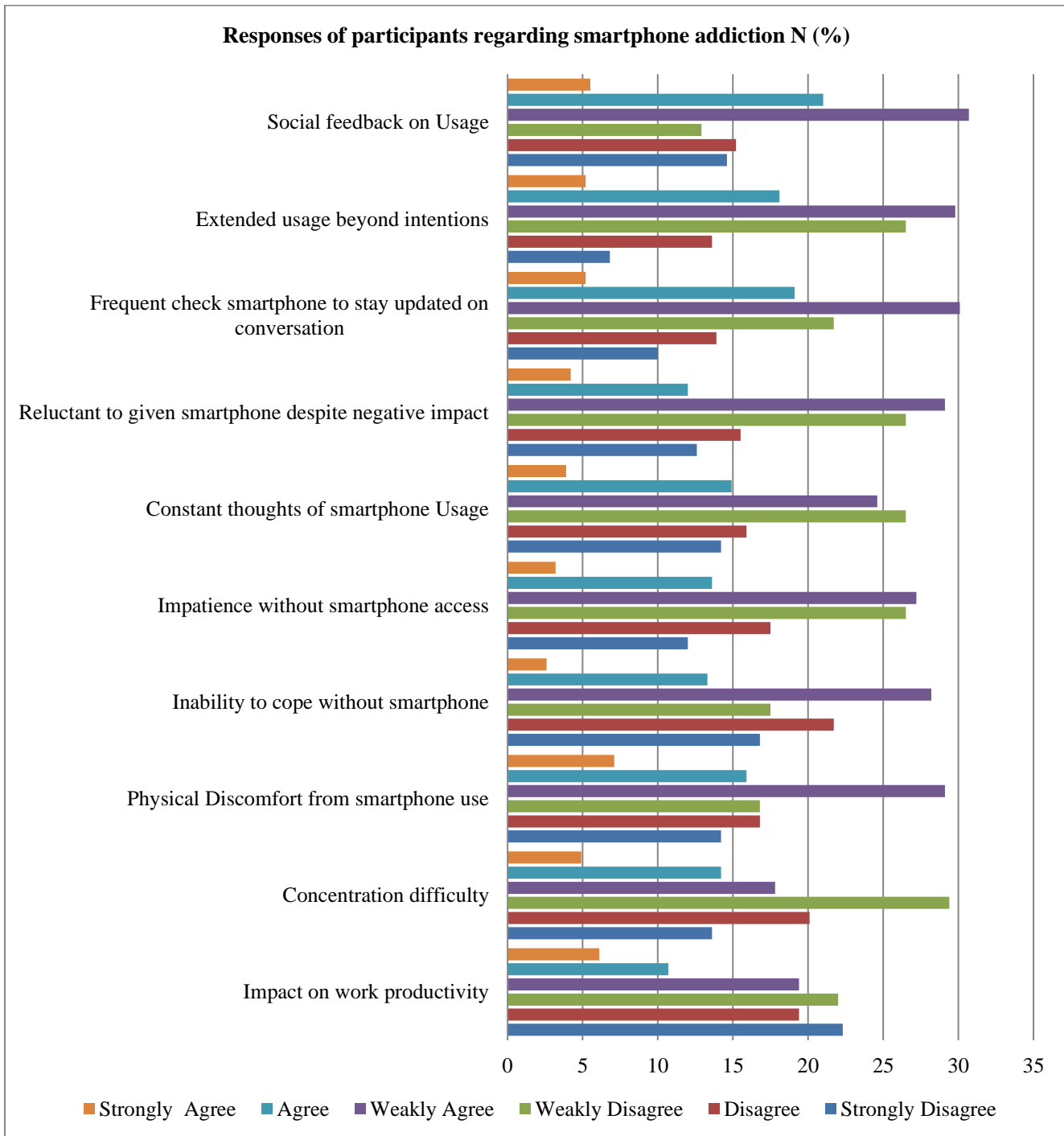


Figure 03: Responses of participants regarding smartphone addiction

For inferential statistics, the Person’s correlation analysis was used, which evaluate the coefficient of correlation between smartphone addiction and nomophobia. Finding revealed a moderate relationship between both variables (coefficient of correlation $r = 0.52$) with significant p value which is 0.01, as depicted in Table 02.

Variables	r	P- value
Nomophobia	0.52	0.01
Addition of Smartphone	0.52	
Coefficient of correlation – Significant P-value < 0.05		

Table 02 – Correlation Analysis of Nomophobia and Smartphone Use

Strengths & Limitation

This study had several strengths, such as the use of a combined approach (Hybrid study) by using diverse data collection methods that provided extensive and exact information. The study has a clearly described methodology, which increases its reproducibility and can help other researchers to continue this line of studies. However, there are various reasons to challenge such demand. Lastly, use of self-reported data is a limitation itself because participants may give biased responses and underreport or over report information for social desirability bias. This indicates the importance of larger-scale studies that include populations with a broader representation, reduce reliance on self-report methods and longitudinal designs to offer more complete findings.

Discussion and Conclusion

This study shows that there is quite a large percentage of physical therapists experiencing severe nomophobia (58.9%) and moderate smartphone addiction (35.90%); with positive correlation between these factors in young healthcare professionals of Karachi, as shown by the results. Evidence has reported that males have higher levels of smartphone addiction as compared to females, but our study showed that Females have high values for severe nomophobia and Smartphone Addiction.

The research found a negative correlation between mindfulness and nomophobia showing relation with high levels of nomophobia which is particularly relevant to individuals low in trait mindfulness (Arpaci, Baloğlu, & Kesici, 2017). On the other hand, in our study all participants with severe nomophobia had a huge mobile phone addiction as well. More recently, another study reported that individuals with nomophobia often avoid real-life situations, personal relationships & are busy on their phones (Moattari et al., 2017). This is in contrast to our participants, who suffered from nomophobia due to which they were left under confident without their smartphones. Severe Nomophobia and smartphone addiction were present in more than half of the participants in our study. Whereas another study showed 52.6% of clinical practitioners and 32.2% interns expressed nomophobia; however, in our similar studies we determined that the level of nomophobia or smartphone addiction is higher among female community healthcare professionals than males (Yildirim & Correia, 2015).

This study reveals unawareness of a significant number of community healthcare professionals about their nomophobia and smartphone addiction. By highlighting these issues, the survey has increased awareness among them. For community healthcare providers, understanding the risks associated with excessive smartphone use is essential, as they play a crucial role in modeling healthy behaviors and supporting individuals at risk for similar dependencies. Future research should focus on exploring preventive strategies to address nomophobia and smartphone addiction across various populations. Additionally, further studies are needed to examine the effective interventions for managing these issues. Through continued education and proactive approaches, healthcare professionals can work toward healthier technology use and improved mental well-being.

Author's Contribution:

Conception or Design: Uroosa Amin, Meer Bilawal, Muhammad Haris Raza Memoona Taj

Data Collection and processing, Analysis or Interpretation of Data: Shamoel, Uroosa Amin, Memoona Taj, Meer Bilwal

Manuscript Writing & Approval: Uroosa Amin, Fasiha Lareb, Shamoel, Muhammad Haris Raza

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Disclosure Statement:

The authors report there are no competing interests to declare.

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