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ROLE OF SMARTPHONE TYPE IN DETERMINING NOMOPHOBIA: A DIFFERENTIAL PERSPECTIVE OF UNIVERSITY STUDENTS

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Abstract
The study explored how the type of smartphones, Android versus iPhone affects students' dependence, or Nomophobia. A cross-sectional study surveyed 700 students (aged 18–25) at the University of Gujrat, a group predominantly featuring Android users (520 vs. 180 iPhone users). Using the reliable Nomophobia Questionnaire (alpha = .95), we found a significant difference in phobia levels. Android users reported notably higher Nomophobia scores (M = 92.02) compared to iPhone users (M = 86.14), a difference confirmed by t(698) = 2.92, p = .004. This suggests the device's operating system, perhaps tied to cost or design, plays a key role in psychological dependence. The results highlight an urgent need for targeted digital well-being programs, particularly for the large Android user community on campus.

1. INTRODUCTION

Smartphone ownership has exploded globally during the last decade, changing how young adults experience life. For university students, smartphone use becomes a vital process in academic, social, and entertainment experiences. Students engage with their smartphones for basic communication and for information purposes and more academic and social connections to create an increasing reliance on smartphones (Pew Research Center, 2024).

The Concept of Nomophobia

Nomophobia is an acronym for "No-Mobile-Phone Phobia" and it is defined as a fear, anxiety, or distress of an individual's inability to use their smartphone or get services (Yildirim & Correia, 2015). It first originated with a study in the UK in 2010, and it is a relatively new psychological phenomenon, situated in excessive technology use.

Signs and symptoms include:

- Extreme anxiety or panic when the phone is not with you or running low on battery or dead.
- Fear of something happening that disconnects you from your phone (i.e. lost signal or data).
- Checking the phone compulsively to see missed notifications or calls.
- Carrying a charger at all times or avoiding places to limit usage (Yildirim & Correia, 2015).

Relevance to University Students

University students are a high-risk group for nomophobia and problematic smartphone use for multiple reasons:

There are multiple academic and social pressures associated with always being connected (Tavolacci et al., 2015). They spend a lot of time learning online and socializing online, both of which are linked to the smartphone. In study after study, those aged 18-24 have a higher prevalence of nomophobia compared to other age groups (Kazem et al., 2021)). Growing research establishes an association between dependency on smartphones and negative psychological outcomes, including anxiety, stress, sleep disruption, and poor academic performance (Tuco et al., 2023; Sharma et al., 2019).

Rationale for Examining Smartphone Type

Smartphone types (primarily categorized by operating system; Android vs. iPhone/iOS) represent different ecosystems that offer different features, interfaces, and user experiences. The current study proposes that these are not simply aesthetic but may influence the user's level of psychological and behavioral dependency due to differences in the following:

1. **Perceived Prestige and Status:** Ownership of certain brands (particularly, iPhone) can be associated with higher perceived social status or group identity, which can increase emotional attachment and fear of losing the symbolic representation (Kayakuş et al., 2024).
2. **Usability and Ecosystem Lock-in:** The proprietary aspect and smooth interaction in an established ecosystem (i.e., Apple's ecosystem of devices and services) can create stronger lock-in than for users accustomed to using more open or less integrated systems (Kayakuş et al., 2024).
3. **Functionality and Features**: Default apps, notification systems, and the extent to which operating systems support customization (or lack of features) can also play a role in influencing the way users tend to check their phones and their dependence on these rewards during the day (Kayakuş et al., 2024).

Need for the Study

While a link between smartphone use and nomophobia is evident, there is little empirical research that assesses whether smartphone type creates differential levels of nomophobia. Understanding whether one smartphone type has a differential impact is important to ascertain whether device features or demographic groups are more susceptible to developing nomophobia. This will be important to develop targeted and digital well-being programs that are device specific in terms of usage, attachment, and ecosystem.

Nomophobia: Conceptual and Theoretical Background

Nomophobia is typically understood through two primary psychological models that capture reliance on technology:

1. Addiction Model: Envisions nomophobia as an example of a behavioral addiction, where individuals feel compelled to use their devices in order to experience an immediate reward and/or avoid an emotional state (e.g., sadness or anxiety; Tran, 2016).

2. Cognitive-Behavioral Model: Emphasizes the role of maladaptive cognitions (e.g., "I need to check my phone immediately") and also negative reinforcement (e.g., the phone provides relief from anxiety or loneliness, reinforcing the behavior) (Argumosa-Villar et al., 2017).

Research demonstrates a high prevalence of nomophobia among young adults and college students. A systematic review and meta-analysis found a pooled prevalence of moderate nomophobia of 56% and severe nomophobia of 17% among college students worldwide, indicating the public health significance of the topic (Tuco et al., 2023).

Patterns of Smartphone Use among Students

Students use their phones mostly for social networking, messaging, and entertainment; school-

related use is often secondary to general use (Wang et al., 2023). There is a strongly confirmed negative relationship between using a phone and mental health; excessive phone use has been linked to anxiety, depression, insomnia and poor long-term retention. High rates of compulsive checking behavior and a persistent online presence were reported; almost half of teens reported being online "almost constantly (Pew Research Center, 2024).

Type of Smartphone and User Behavior

Research has begun to examine the link between device type and user behavior, but results are context-dependent and mixed.

1) **User Experience Variations:** Operating systems determine the basic interface design, which can vary by ease of use, level of app interaction, and access to information - all factors that contribute to dependence (Gao et al., 2024).
2) **Brand loyalty and perceived status:** Studies show that users tend to form emotional ties and brand loyalty to their type of smartphone, particularly about perceived status and expression of identity. The psychological value placed on the device (e.g. as a status symbol) may correlate directly with the anxiety experienced without the associated symbol (Gao et al., 2024).
3) **Overuse:** Research suggests that a device-type may be related. For example, in one study, the device type that the majority of students reporting nomophobia was Android, but again, this would need to be confirmed (Gao et al., 2024).

Possible smartphone features linked to dependence

Nomophobia is a function of not only the type of smartphone but also features of the smartphones and designs of apps that encourage ongoing use:

Push Notifications and User Interface Design: These aspects are designed to implement a reward-based system that encourages checking behavior, which is a fundamental part of nomophobia.

Digital Ecosystems: The differences across the Apple (iOS) and Android ecosystems (e.g., app design principles, integration with other hardware, data privacy models) may create differences in both frequency of use and dependency upon usage; the more embedded a system (like Apple), the higher the level of "loss of convenience" and/or "loss of connection" (two sub-dimensions of nomophobia) when a primary device is not available.

Existing Evidence on Smartphone Type and Nomophobia

Direct evidence is limited, but preliminary insights suggest a connection: While most of the research focuses on smartphone use as a whole device type, few studies examining device type have shown mixed results. A study comparing possible nomophobia profiles between university students in Pakistan and Turkey (Ozdemir et al., 2018) is unique because it does not examine device type directly, but that's an important reminder of possible socio-cultural context in this work and how it informs usage and value/brand decision making. Finding significant overlap between self-reported nomophobia and likelihood of using an Android versus iPhone, seems interesting because those purchasing an iPhone are often choosing for perceived brand prestige or functional or other value. This would lead to more questions related to the study's findings and why some students are deemed lower risk based on operating system, (e.g. capabilities, notifications, interaction styles, etc.) (Ren et al., 2023).

The literature reviewed reveals the serious issue of nomophobia in university students but does not account for its mechanism of development. Gaps this study will begin to address include: No local data or comparison studies of how the different smartphone types (Android vs. iPhone) influence dependency in other university students. Not enough exploration on the psychological mechanisms connecting characteristics of devices (e.g., ecosystem dependence, perceived status) with the four facets of nomophobia (no ability to communicate, losing connectedness, no ability to access information, and giving up convenience) Need comparative studies with other university student disciplines in order to test whether the device-type effect can be found across varied cultural and demographic groups.

Objectives of the Study

To determine the difference of nomophobia on smartphone type among university students.

Methods

Research Design

A cross-sectional research design was employed in the current research, here participants are taken as sample at a single point in time. This was chosen to study the difference of nomophobia on type of smartphone in university students.

Setting of the study

The investigation took place at a public academic institution, the University of Gujrat that is located in Punjab Pakistan. The university offers a diverse educational background as students enter a range of different disciplines, thus representing a suitable place for the investigation of the psychological construct of nomophobia with respect to type of smartphone in young adults attending higher education.

Target Population

The research target individuals were registered graduate and undergraduate university students. The logic behind the choice of university students as a target population was the more use of smartphone so it was a dynamic group experience the phenomenon of nomophobia that may directly affect their emotional and mental well-being.

Sampling technique

A non-probability sampling technique was utilized in order to select the students for the present study. Although there was a sampling frame of students available, a non-probability sampling approach was selected since it allows the researcher to obtain readily available and willing participants to collect data from. The total number of 700 students across the different departments and academic discipline of the university took part in the study.

Inclusion standards

The study included both undergraduate and graduate students and were enrolled students at the University of Gujrat. In addition, participant had to be user of smartphone and finally, participant age range in between 18 and 25.

Exclusion Criteria

Participants were excluded from the study, if they were undergraduate or graduate students but were unwilling to give the consent to the research, further, if students were unavailable at the time data was collected or if participants were not enrolled at University of Gujrat. Similarly, if the participants encountered any physical disability or mental health issues, they were also excluded from the study.

Sample Size

The difference of nomophobia on smartphone type among university students was assessed from the 700 university students.

Measures

The demographic form and nomophobia scale was used for data collection. The demographic information includes the participants' gender, age, enrolled degree program, residence type, family system, internet usage time, types of smartphone, and number of social media platforms used.

The Nomophobia Questionnaire (NMP-Q) was developed by Yildirim and Correia in 2015. The NMP-Q consists of 20 items that can be rated on a 7-point Likert scale. The scale ranging from 1 (strongly disagree) to 7 (strongly agree). Based on the score from the NMP-Q, a suggested score interpretation is as follows, a score of 20 indicates an absence of nomophobia, the score of 21 to 59 indicates a mild level of nomophobia, a score of 60 to 99 correlates to a moderate level of nomophobia, and a score above 100 to 140 indicates a severe level of nomophobia. The NMP-Q provides a reliability coefficient that is Cronbach's alpha, of .95.

Procedure

The present research study utilized a non-probability sampling strategy and specifically convenience sampling to recruit participants. The population sampled in the study consisted of both undergraduate and graduate students who possessed smartphones, and who experienced no physical or mental constraints. The researchers included students who were ages 18-25 years in order to include a diverse population.

Prior to beginning the study, students received information regarding the study objectives and procedures. Written and oral informed consent was

received from all students and students were assured that their responses would be kept confidential and anonymous. Participation in the study was completely voluntary and students were provided the opportunity to withdraw from the study at any time.

To create a relaxed environment, the researcher first develop rapport with the participants, and explained the objectives of the research study prior to administering the scale. The students were then given the Nomophobia Questionnaire (NMP-Q), in combination with a demographic form. The appropriate approval for the NMP-Q was obtained through email correspondence with the authors. After the participants completed the scale, they were thanked for their participation and support to the research study.

Analysis of data

The formal data analysis was conducted with SPSS (Statistical Package for Social Science) version 25. Descriptive statistics were used to analyze the demographics. Independent sample T-test were used to compare smartphone types on nomophobia.

Results

This section reports the findings of the research study to identify the demographic characteristics and differences on nomophobia on the basis of smartphone type in students of University of Gujart. The data were analyzed by using descriptive statistics such as frequency and independent sample t-test according to the research aims.

The demographic analysis indicates that a greater number of female students were included in the study in comparison to male students. In addition, the students were largely in the age group of 18-21 years, and were enrolled in a BS program. Almost the same number of students lived in urban and rural environment. More students lived in nuclear families. Of the 700 students, most were online for 1-8 hours a day. The majority of students had android mobile devices compared to iPhone. Most of the students where engaged with 1-4 social media platforms and their family income was between 25,000 - 50,000. Most of the student's parents had a matric level education.

Table 1 Independent Sample T-Test Comparing Nomophobia between Android and iPhone Users

Smartphone Type	***n***	**Mean**	**SD**	SD
Android Users	520	92.02	23.08	1.01
iPhone Users	180	86.14	23.84	1.78

An independent samples t-test was employed to study whether nomophobia vary between Android **and I**Phone **users.** Android smartphone users (M = 92.02, SD = 23.08) **exhibited** greater nomophobia scores **than I**Phone smartphone users (M = 86.14, SD = 23.84) as indicated by the means.

Table 2 T-test for Equality of Means for Nomophobia

Variable	Levene's Test F	Levene's p	*t*	*df*	p (2-tailed)	Mean Difference	95% CI (Lower, Upper)
Nomophobia (Equal variances assumed)	0.169	0.681	2.92	698	**.004**	5.88	1.93, 9.84

The Levene's test results shows that equal variances assumption was met (F = 0.169, p = .681). As the equal variances was confirmed and the t-test exposed a statistically significant difference between the Android and iPhone groups $t(698) = 2.92$, $p = .004$. Here, Android smartphone users scored on average 5.88 points higher on nomophobia than iPhone smartphone users.

Discussion

The research from the University of Gujrat provides evidence of a distinct, statistically significant disparity in Nomophobia (No-Mobile-Phone Phobia) levels between individuals using Android and iPhone (iOS) devices. Additionally, the results are contextualized by demographic data, and are in line with extant psychological and technological literature.

The demographic data suggest that the sample is a high-risk population for nomophobia: young adults (18-21 years of age) that spend a considerable amount of time online (1-8 hours per day) and are highly engaged with social media (1 - 4 platforms). The high mean scores overall (higher than the sample scores) signal that the majority of students fall in the moderate nomophobia range (Yildirim & Correia, 2015) as has been implied by several systematic reviews conducted in South Asia and elsewhere, noting that in most settings between 70-80% of students report moderate to severe levels of nomophobia (Al-Mamun et al., 2025; Tuco et al., 2023). Most importantly, Android users' nomophobia scores were at least statistically significantly higher than iPhone users. Android users scored on average 5.88 points higher than iPhone users, ($t(698) = 2.92$, $p = .004$). This points to an operating system and related user profile that are not neutral to, but rather meaningfully related to, a form of dependence (Götz et al., 2017).

The difference can be partially explained because device market share, income, and financial anxiety are tightly connected. The vast majority of our sample were Android users (n=520 vs. n=180) and Android devices have a more significant market presence in the region because of their affordable price and accessibility to income levels. Based on the moderate family income level and lower parental education (Matric), it is reasonable to assume that Android users are likely to come from a socio-economic strata where the investment in a mobile phone, despite it being the less expensive option, nonetheless is a significant financial investment (James et al.,2017). The worry of being without the phone, specifically the aspect of the worry of having less convenience/access (Yildirim & Correia, 2015), may enhance the worry of not having the finances to get it replaced or repaired quickly. The open-source platform that the Android platform has to offer creates greater opportunities for customization and app variety, leading to a generally more unmanageable stream of notification alerts compared to a more controlled environment that the iOS platform provides. This may reinforce the obsessive checking cycle necessary to momentarily alleviate the anxiety (Argumosa-Villar et al., 2017). While symbolic attachment (status and self-enhancement in the case of the iPhone) may be a characteristic of ownership, the prevalence of nomophobia in the Android group indicates that their anxiety was being driven more by functional dependency, a need for the device as a tool for communication and access to information. The anxiety was not just about losing a specific brand; loss of function was much of the anxiety.

Implications

The research provides site-specific evidence that smartphone type is a salient variable in investigating nomophobia severity. Based on the results, the University of Gujrat should consider implementing prevention and intervention programs that are:

1. **Device-Specific:** Counseling and digital wellness campaigns should explicitly address the habits and vulnerabilities of the actuating, predominately Android user base and should focus on managing notifications and minimizing distractions effectively.
2. **Socio-Economically Mindful:** Interventions should address not only psychological dependence, but address the anxiety related to device loss and replacement for students who may be in the moderate-to-low income category which may amplify the anxiety of device loss.

This study adds to the empirical base needed to continue developing models of technology addiction that reflect behavioral patterns that rely on the specific features of the device ecosystem (Tuco et al., 2023).

Conclusion

The study concluded that a difference in nomophobia based on smartphone type. Further, Android smartphone using university students experience higher levels of nomophobia as compared to iPhones smartphone users.

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