



University students' nomophobia prevalence, sociodemographic factors and relationship with academic performance at a University in Oman

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ABSTRACT

Background: Nomophobia “no mobile phone” and phobia” is a pathological fear of being out of contact with a mobile phone, has no mobile networks, or has insufficient balance or battery.

Purpose of the study: To determine the prevalence of nomophobia, demographic factors affecting nomophobic behaviors, and the relationship between nomophobia and academic performance among university students in Oman.

Methods: A descriptive correlational study design was chosen to describe the prevalence of nomophobia among Sultan Qaboos University students. A convenience sampling technique was used to select 735 students based on defined inclusion criteria. Nomophobia was identified using a self-report instrument, the Nomophobia Questionnaire, which includes 20 Likert scale items rated from 1 (“strongly disagree”) to 7 (“strongly agree”). Descriptive analysis and a Pearson correlation statistical test were used to determine the possible relationship between nomophobia and academic performance.

Results: The prevalence of nomophobia among students was 99.33%, most with a moderate level of nomophobia. Students with severe nomophobia reported weak academic performance ($p = .706$), but this was not statistically significant.

Conclusion: This study found a high prevalence of nomophobia and a weak relationship with academic performance. More studies should be conducted in this area to inform policy on cellphones within academic premises, to avoid serious ill effects of chronic use.

1. Introduction

New technologies have become an integral part of our lives. Rapidly spreading all over the world, smartphones and their applications now play a key role in social connections, expression, information sharing, and achievement development (Schwab & Davis, 2018). Smartphones have become essentials rather than accessories, due to their capacity to perform many tasks with features including advanced operating systems, touch screens, and internet access (Alosaimi, Alyahya, Alshahwan, Al Mahijari, & Shaik, 2016).

Information is easily transmitted and received through text messages, phone calls, emails, faxes, games, movies, videos, and social media (Lundquist, Lefebvre, & Garramone, 2014). Smartphones can also combine services, such as “commutainment” (entertainment and

communication) and “edutainment” (education and entertainment) (Kalaskar, 2015). Like other modern technologies, many variables must be considered in evaluating their overall benefit and utility. For example, while smartphones provide ready, convenient access to the internet, and a sense of comfort and connection to others, they may also result in an unhealthy, negative psychological dependency, anxiety, and possible fear (Abu-Shanab & Haddad, 2015; Al-Khlaiwi & Meo, 2004; Demirci, Akgönül, & Akpınar, 2015; Ifeanyi & Chukwuere, 2018; Kim et al., 2015; King et al., 2013; Park et al., 2015). Smartphones have countless impacts on our lives, potentially including problematic health issues that may develop as a consequence of overuse (Jena, 2015).

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1.1. Nomophobia

Nomophobia – from “no mobile phone” and phobia” – is a pathological fear of being out of contact with a mobile phone, having no mobile network, or having insufficient balance or battery (Dixit et al., 2010). It refers to a situational phobia, where assistance in unpleasant situations is absent (King et al., 2013). People with nomophobia may also protect themselves from social interactions by using their devices; they find themselves more comfortable, safer, or more successful when using electronic connections compared to interacting with the physical world (Bragazzi & Del Puente, 2014; Gezgin, Şumuer, Arslan, & Yildirim, 2017). Smartphones play the role of a protective shield when used to avoid direct personal connections (King et al., 2013). People with nomophobia may escape direct social activities, relationships, and connections via the online world (Shalom, Israeli, Markovitzky, & Lipsitz, 2015). Self-confidence may be improved when using smart devices compared with face-to-face interactions, and the social features of these devices reduce distances between people and bring them together despite demographics (El Kiweri & Al Ghamdi, 2015).

1.2. Effects of smartphones

People who are excessively out of control in their smartphone use may experience “technostress”, “ringxiety”, phantom vibration syndrome, nomophobia, and other issues (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007). Technostress, for example, refers to technology’s direct or indirect effects on productivity, job satisfaction, exhaustion, and commitment (Tarafdar et al., 2007).

According to Bragazzi and Del Puente (2014), nomophobia can manifest as excessive use of a smartphone instead of direct human connections, acquiring more than one device, continuously carrying a mobile charger, and feeling anxious when unable to use the phone due to its unavailability, lack of network coverage, technical problems, or insufficient credit. Individuals may also excessively check for messages or missed calls, and avoid places where mobile phone use is prohibited or coverage is limited (Bragazzi & Del Puente, 2014). Smartphones are more widely used among youth due to their greater capacity to handle the rapid developments of technology than other generations (Gezgin, Cakir, & Yildirim, 2018). Young people are at risk of developing nomophobia (Abraham, Mathias, & Williams, 2014; Dixit et al., 2010). A study conducted in India found that most participants aged 16–23 years felt isolated, lonely, and less connected when they were away from their smartphones (Yoğurtçu, 2018).

Smartphones may adversely affect students’ psychosocial wellbeing, causing anxiety, depression, stress, and sleeplessness. They can have physiological health impacts such as not eating regularly and not exercising, as well as leading to poor academic output (Maurya et al., 2014) and performance (Aman et al., 2015). A study of 200 medical students in Bangalore found that nearly 43% of participants experienced severe adverse effects on their study and academic performance (Pavithra & Madhukumar, 2015). Similarly, another investigation of 150 art students showed that academic performance, concentration on study, and practical work were negatively affected by smartphone dependency (Rabiu, Muhammed, Umaru, & Ahmed, 2016).

1.3. Prevalence of nomophobia

Nomophobia has been found to occur in 18.5–73% of college students (Abraham et al., 2014; Dixit et al., 2010; Kaur & Sharma, 2015; Vanitha, 2014), depending on factors including age, gender, self-image, self-esteem, self-efficacy, impulsivity, and extroversion (Bianchi & Phillips, 2005). People with nomophobia may never turn their phone off or stay away from it even at bedtime, and tend to carry an extra phone, battery, or charger as a precaution should they lose their phone, run out of battery life, or lose service connectivity (Abraham et al., 2014). One study showed 95% used smartphones to watch YouTube,

WhatsApp, or other media to induce sleep; 72% could not stay away from their smartphones, and usually kept their phones just five feet from them (Ozdemir, Cakir, & Hussain, 2018). The prevalence of nomophobia is similar between developed and developing countries; both show prevalence of between 77 and 99%, and highest among young adult populations (Ozdemir et al., 2018).

1.4. College students and smartphones

College students are more proficient in using smartphones compared to other subpopulations (Jeong & Lee, 2015). They spend considerable time using their devices, depending on them for the simplest daily tasks (Alosaimi et al., 2016). Students excessively use smartphones for watching the news, social connection, academic tasks, games, shopping, and information searching (Alosaimi et al., 2016; Kuss, Griffiths, & Binder, 2013). Search engines (such as Google) and social media are the most common applications used for information, social connection, academic work, and entertainment (Al-Hariri & Al-Hattami, 2015).

New students finding themselves away from familiar social connections and wishing to establish new contacts may spend considerable money on device or service upgrades (Hingorani, Woodard, & Askari-Danesh, 2012). A study of Turkish university students found a significant relationship between mobile phone use and loneliness (Tan, Pamuk, & Dönder, 2013). Other studies have illustrated that maladaptive perfectionism (Long & Liu, 2015), depression, aggressiveness, impulsiveness, and other psychological problems also influence the development of nomophobia (Kim et al., 2015).

Smartphone use influences students’ academic life and achievement (Kibona & Mgaya, 2015; Parasuraman, Sam, Yee, Chuon, & Ren, 2017; Pellowe, Cooper, & Mattingly, 2015), and has a holistic effect on their health and social connection. Studying this phenomenon may help to identify its extent among Omani nursing students. Findings may inform the efforts of the nursing school, faculty, and administrators to implement a preventive plan to overcome potential problems and improve student health and academic performance (Parasuraman et al., 2017).

Students at Sultan Qaboos University Oman, use communication technologies to regularly update on the program in which they are enrolled, as well as completing assignments and participating in course activities. These technologies have become essential to student life and may lead to modified behaviors. To our knowledge, limited literature in the Arab world, particularly in Oman, has addressed the pattern of use of smartphones and potential risk for nomophobia among students, particularly as it may influence academic performance (Ahmed, Pokhrel, Roy, & Samuel, 2019). This study has been conceptualized to investigate the pattern of smartphone use and the extent of nomophobia among Sultan Qaboos University students, and any correlation with academic performance.

1.5. Purpose of the study

- To determine the prevalence of nomophobia, the demographic factors affecting nomophobic behavior, and the relationship between nomophobia and academic performance among university students in Oman.

1.6. Specific objectives

The objectives of the study are to:

- assess the prevalence of nomophobia among university students in Oman
- identify the sociodemographic factors associated with nomophobic behaviors
- determine the relationship between nomophobia and academic performance.

1.7. Research questions

- What is the distribution of nomophobia among Sultan Qaboos University students in Oman?
- What nomophobic incidence differences exist based on socio-demographic differences exist among Omani University students?
- What is the relationship between nomophobia and academic performance?

2. Methodology

2.1. Research design

A descriptive correlational study design was chosen to describe the prevalence of nomophobia among Sultan Qaboos University students and its relation to academic performance and wellbeing using their demographic backgrounds.

2.2. Setting

This study was conducted at Sultan Qaboos University, with students from selected bridging, diploma, bachelor, and Master Degree Program in the College of Nursing and College of Science and Economics as participants.

2.3. Sample size

To estimate the nomophobia among the girls and boys in Sultan Qaboos University

Z-score = 1.96 for confidence level 95%

From the past literature (Abraham, Mathias, & Williams, 2014; Dixit et al., 2010; Kaur & Sharma, 2015; Vanitha, 2014) it was estimated 18.5% to 73%. Therefore, in this study to maximize the sample p can be taken as 0.5.

The total sample for the study was 740 students, comprising 370 women and 370 men. After data cleaning, the investigators arrived at 735 samples.

2.4. Sampling technique

A convenience sampling technique was employed to select the study participants.

2.5. Eligibility criteria

Inclusion criteria:

Students from the College of Nursing and College of Science and Economics, of any gender, who had:

- enrolled in a diploma, undergraduate, bridging, or Master Degree Program
- completed their foundation programs
- at least one smartphone device continuously connected to the internet.

Exclusion criteria:

Students who:

had not passed their foundation programs (including six English courses, two mathematic courses, and two informatics courses) were suffering from a specific diagnosed phobia were not willing to participate in this study.

2.6. Study instruments and description

A self-report instrument was used to address the research questions,

divided into two sections: (1) demographic data, and (2) the Nomophobia Questionnaire (NMP-Q). This will take around 25 to 30 min to fill the questionnaire.

The demographic data section had three parts. The first assessed sociodemographic data such as age, gender, marital status, living arrangements, and habits. The second asked about academic information such as grade point average (GPA), type of enrolled program, and academic year. The third assessed each student's pattern of mobile use and associated behaviors.

The NMP-Q tool, developed by Yildirim and Correia (2015), includes 20 Likert scale items that range from 1 ("strongly disagree") to 7 ("strongly agree"). The reliability coefficient of the original scale was calculated as 0.95 using Cronbach alpha. The scale has four sub-dimensions: not being able to communicate (six items), losing connectedness (five items), not being able to access information (four items), and giving up convenience (five items). In the original scale, the reliability coefficients of these subscales were reported as 0.939, 0.874, 0.827, and 0.814, respectively (Gezgin et al., 2018). The investigators obtained permission from the original author and agreed to use the tool without making any changes.

2.7. Scoring procedure and interpretation

Total scores were calculated by totaling responses to all items, resulting in a nomophobia score between 20 and 140, with higher scores corresponding to greater nomophobia severity. A score of 20 suggests the absence of nomophobia, scores 21–59 suggest mild nomophobia, scores 60–99 suggest a moderate level of nomophobia, and scores of 100 and up correspond to severe nomophobia.

2.8. Translation

The NMP-Q was translated from English to Arabic by a professional translator for the Oman culture. Back-translation to English was conducted by another professional to verify the translation.

2.9. Pilot study

A pilot study was conducted using approximately 10% of the sample (71 participants), using the translated Arabic questionnaire to ascertain cultural adaptability, clarity, reliability, validity, and the time required to complete it. Participants who participated in the pilot study were excluded from the main study.

2.10. Data collection procedure

Research Assistants (RAs) collected data from February 2018 to March 2019. Participants were provided with two self-report questionnaires for their demographic background and smartphone use. The questionnaires were distributed over a one-month period by the research team at the selected colleges during a designated time after lectures. After one month of time, the research assistants went and collected back all the questionnaire. There were two research assistants (Total 6 RAs) represented each College. This method has been stretched out for one full year among three colleges in the same University.

2.11. Ethical clearance and data collection procedure

After obtaining the approval from the Institutional Research Ethics committee, and Deans of Colleges, the investigator approached the students and screened for inclusion criteria and obtained written informed consent from the students to maintain their autonomy and confidentiality. They were provided with two self-report questionnaires detecting their demographical background and their use of a smartphone. The questionnaires were distributed within one-month duration by the research team in the selected Colleges of Sultan Qaboos

University during a designated time (after lecture) while students were in class at their respective colleges.

2.12. Statistical analysis plan

The data were analyzed using the Statistical Package for the Social Sciences (SPSS 23) software, at a 0.05 level of significance. Means and standard deviations represented students' age, GPA, and NMP-Q score, while percentages and frequencies were used to describe gender, marital status, habits, type of academic program, and academic year. A Pearson correlation statistical test was used to determine the possible relationship between nomophobia and academic performance as measured by GPA.

3. Results

Nomophobia was assessed using the NMP-Q tool developed by Yildirim and Correia (2015), using the 740 samples obtained after applying the exclusion criteria discussed in the methodology. After statistical analysis, five students were assessed as having no nomophobia, and the remaining 735 had mild to severe levels of nomophobia. The prevalence of nomophobia in the present study was 99.33%. The numbers of participants of each college and gender are shown in Fig. 1.

The reliability of assessing nomophobia with the NMP-Q was calculated as 0.9235 using Cronbach alpha.

The nomophobia scores of the three colleges are shown in Table 1. No significant difference was found in the score between the colleges ($p = .215$). The mean score across participants was 82.90 (95% CI: 81.35–84.41), reflecting moderate nomophobia on average. Overall, 20% of students had mild nomophobia, 15% had severe nomophobia, and 65% had moderate nomophobia, represented in Fig. 2.

The relationship between academic performance (GPA) and nomophobia is shown in Table 2. No strong association was found, but the standardized residual of 1.0573 for weaker academic performance among students with severe nomophobia suggests a marginal relationship. The difference of the sample proportion of students with weaker performance between severe nomophobia and other categories was also not significant ($P_{Severe} - P_{Othercategories} = 0.033, p = .290$).

3.1. Association between nomophobia and selected demographic variables

The mean nomophobia score for males and females was 81.2 and 83.8, respectively, with no significant difference between these groups ($p = .108$). The mean nomophobia score for students living on campus (84.1) was marginally higher than those living away which was statistically significant ($81.3; p = .080$).

No significant difference in nomophobia was found between students according to habits such as smoking and drinking alcohol ($p = .887$) and sleeping duration ($p = .479$). However, the highest average nomophobia score of 87.21 was found in students who sleep less than three hours per day.

No significant difference in nomophobia was found between students in different academic years ($p = .859$). However, the lowest average nomophobia score of 73.29 was found for the students in the

Table 1
Nomophobia Score for College (N = 735).

College	Nomophobia Score	p Value
Nursing (n = 244)	83.04	0.215
Science (n = 251)	81.17	
Economics (n = 240)	84.50	
Mean Score	82.90	

Level of Nomophobia

■ Mild ■ Moderate ■ severe

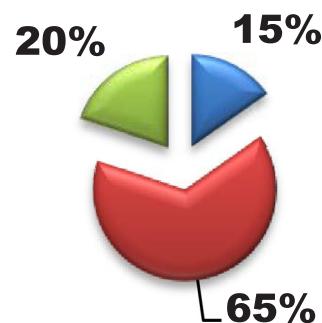


Fig. 2. Percentage of the Level of Nomophobia (n = 735).

Table 2
Academic performance and presence of Nomophobia (N = 735).

Level of Nomophobia	Academic Performance		
	Good	Moderate	Weak
Mild	20 17.7%	77 68.8%	15 13.4%
Moderate	85 17.8%	328 69.2%	62 13.0%
Severe	22 13.7%	102 69.9%	24 16.4%

Pearson Chi-Square = 2.159, DF = 4, p-Value = 0.706.

first year. This value was not significant because variation among first-year students was high (SD = 31.63).

No significant difference in nomophobia was found between students who were on probation and others ($p = .191$). However, a lower average nomophobia score of 80.3 was found among the probation students compared to others, who had a mean score of 83.3.

3.2. Discussion

Smartphones are ubiquitous due to their user-friendliness and low price (Bhattacharya, Bashar, Srivastava, & Singh, 2019). They are especially popular among college students. The huge changes smartphones have brought to society may include ill effects among young adult populations (Bhattacharya et al., 2019).

The prevalence of nomophobia is between 77% and 99% in both developed and developing countries, and highest among young adults (Harish & Bharath, 2018; Ozdemir et al., 2018). The present study found a prevalence of 99.33% among university students; it was highest among female students (83.3%). In this study, 20% of students had mild nomophobia, 15% had severe nomophobia, and the majority (65%) had moderate nomophobia. A study by Sethia reported similar findings, with most of the university students showing a moderate level of

Gender

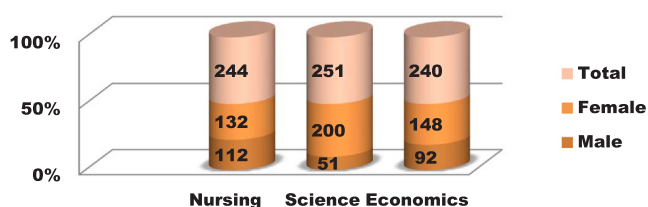


Fig. 1. Frequency of Gender in Each College (n = 735).

nomophobia (Sethia et al., 2018).

This study found no strong association between academic performance and nomophobia. A marginal relationship was suggested by the academic performance of the students with severe nomophobia students, who reported a weaker academic performance of 16.4%, though this was not statistically significant. A similar finding was reported recently by Ahmed et al. (2019).

The present study found the nomophobia score for students living on campus was marginally higher (84.1) than for students living away (81.3; $p = .080$). Similar findings were reported in a 2017 study in South India (Madhusudan, 2017).

In the present study, no significant difference was found in nomophobia between students according to habits such as smoking, drinking alcohol, and sleep duration ($p = .887$). A recent review by Thomée reported similar results, finding no statistically significant association between long-term use of smartphones and behaviors such as smoking and drinking alcohol (Thomée, 2018).

3.3. Implication of the study

There were many studies addressing the prevalence of nomophobia among college going students globally and in Gulf Corporation Council. But there is no much studies are available to address the same issue in Oman and its teaching institution. Hence, this study is expected to reveal the prevalence of nomophobia among selected college students in Sultan Qaboos University. This study also brought about the influence of Nomophobia on the student's academic performance. Based on the findings, the investigators can intervene the issues if any to improve the academic performance and to overcome some of the emotional and other psychological issues pertaining to nomophobia.

3.4. Strength of the study

- This is the first study to address nomophobia in Oman.
- Brought out the high prevalence of nomophobia among University students.
- Highlighted the importance of making policy on usage of cellphones within university premises.ed the importance of making policy on usage of cellphones within University premises.
- Use of standardized tool to address the problem and the generalizability of the findings.

3.5. Limitations of the study

- Inclusion of students only from a particular University.

4. Conclusion

The prevalence of nomophobia among university students was high at 99.33%, and especially among female students. Findings showed evidence of an association between weak academic performance and severe nomophobia, which was not statistically significant. No significant association was found between nomophobia and academic year, but first-year students reported lower levels of nomophobia than others.

The study findings clearly demonstrate the effect of smartphone use among students. Academic administrators should sensitize about the potential adverse effects of smartphone usage in the classroom and on campus, and develop policies on how to use smartphones constructively in the study context.

5. Sources of financial support

This study was funded by Internal Grant 6359.59 USD, Sultan Qaboos University, Muscat, Oman. The project has been assigned the code number IG/CON/CMHD/18/01.

6. Ethical clearance

After obtaining approval from the Institutional Research Ethics Committee and Deans of Colleges, the investigator approached students to screen for inclusion criteria and obtain written informed consent, maintaining autonomy and confidentiality.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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