PREVENTION OF NOMOPHOBIA AMONG STUDENTS IN HIGHER EDUCATION USING NOMINAL GROUP TECHNIQUE (NGT)

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Abstract: *Nowadays, mobile phones have become an essential necessity for people of all ages, including students. Due to its diverse range of features and ease of use, it has become addictive, leading to psychological issues commonly referred as nomophobia. Nomophobia (acronym of "no-mobile-phobia") induces heightened anxiety and worry in individuals who cannot tolerate being separated from their mobile phones. Nomophobia has exerted a detrimental impact on students, compromising their academic achievement, social connectivity, and overall well-being. Hence, it is imperative to identify an early prevention to address nomophobia. This study aims to address prevention on nomophobia among students in higher education by employing the nominal group technique (NGT). NGT is a systematic approach employed to gather ideas and solutions from expert perspectives. Focusing on a specific area and consulting five academics experts, several solutions were proposed. The most agreed-upon strategies to prevent nomophobia among students include raising awareness about health impacts, establishing phone-free zones, and promoting outdoor activities. These are followed by setting usage boundaries, encouraging face-to-face interactions, and emphasizing the important role of parents in advising and managing their children's phone use, particularly at home. Additionally, peer support and counselling services are essential solutions to help prevent students from experiencing severe levels of nomophobia. Acknowledging the harmful effects of nomophobia on students, the proposed preventive measures offer important guidance for fostering a healthier and more balanced relationship between students and their mobile phones. Future research may expand this study by obtaining preventions suggested from non-*

academics' experts such as counsellor or medical doctors. Another area to be included in future research is to compare the current method with others such as interview or focus groups technique to obtain enrich results and findings.

Keywords: *Nomophobia, prevention of nomophobia, Student higher education, Nominal Group Technique (NGT)*

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Introduction

The emergence of the mobile phone was one of the most significant technological developments of the last three decades. Mobile phones are essential for a variety of purposes, including communication, education, emergency situations, social media, and business promotion (Al-Mamun et al., 2023). Global mobile phone usage increased from 6.95 billion in 2020 to 7.1 billion in 2021 (Statista, 2023). The data also showed that more than 6.6 billion people use mobile phones for communication, web browsing, and entertainment (O'Dea, 2021). Due to its numerous benefits, mobile phones have become an indispensable part of people's daily lives.

Technological advancements have yielded numerous benefits, however it also created new psychological challenges (Al Ali & Matarneh, 2024) such as, the excessive use which may be associated with a new psychiatric term called nomophobia (acronym of "no-mobile-phobia") (Sosa-Delgado et al., 2023). The condition is characterised by intense anxiety, fear, stress, and discomfort caused by the thought of being unable to use a cell phone or being without one (Gergely, 2022). Gezgin et al. (2018) highlighted those individuals with nomophobia tendencies experience distress when separated from their mobile phones, faced with a low battery, or without network connection. Consequently, this heightened anxiety can impair their concentration and performance in everyday tasks.

According to Gergely (2022), excessive dependent on mobile phone, also caused sleep disturbance, depression, and attention deficits. Furthermore, excessive smartphone use has been linked to potentially addictive behaviour and dangerous antisocial behaviour among higher education students (Anshari et al., 2019). Devi and Dutta (2021) demonstrated a link between excessive and compulsive mobile phone use and a variety of symptoms such as interpersonal anxiety, low self-esteem, loneliness, and depressive symptoms. Consequently, addressing these issues is critical, particularly for students.

Nomophobia has been increasingly studied among university students globally (Sosa-Delgado et al., 2023; Thomas et al., 2023). For instance, Al-Mamun et al. (2023) conducted a study with 585 university students in Bangladesh, revealing a 9.4% prevalence of mild nomophobia, 56.1% for moderate nomophobia, and 34.5% for severe nomophobia. Another study conducted by Ahmed et al. (2018) involving 157 physiotherapy students in India revealed that the average nomophobia score, assessed through the NMP-Q, was 77.6.

Numerous authors recognize the detrimental effects of excessive mobile phone use on students. For instance, Tian et al. (2021) discovered that mobile phone addiction negatively affects the academic performance of Chinese medical students. Similarly, Qutishat et al. (2020) explored the link between nomophobia and academic achievement at a university in Oman. Their study revealed that 99.33% of students experienced at least moderate nomophobia, with those suffering from severe nomophobia showing lower academic performance.

Studies have demonstrated that nomophobia can have a negative impact on a person's mental health and social relationships because of their excessive reliance on mobile phones (Kumar, 2023). This supported that excessive mobile phone use has a negative impact on students (Devi & Dutta, 2021). It is an alarming sign for the public, health care professionals, and academic institutions that requires them to prioritise early detection and intervention for nomophobia. Kumar (2023) highlighted the importance of implementing strategies to help college students manage their smartphone usage and thus, reduce the negative impacts of nomophobia.

Rather and Rather (2019) proposed that parents play an important role in preventing their children from using mobile phones excessively, including motivating and raising awareness about the psychological problem of nomophobia. Furthermore, Essel et al. (2021) recommend that university academic administrators and policymakers take the initiative in ensuring the effective implementation of smartphone usage policies for both learning and teaching, as well as during students' time on campus. Based on the literature, it is crucial to give attention not only for prevalence of nomophobia but also exploring solutions and preventive measures. As a result, this study aims to proposes several solutions to effectively address nomophobia among students in higher education through the use of nominal group techniques (NGT). This approach is critical for obtaining solutions from experts particularly in this study from academics, to ensure that problems do not directly impact on students' well-being, academic performance, and overall development.

Nomophobia among students in Higher Education

Mobile phones are powerful communication tools, especially for the younger generation, and their use has become widespread globally (Anjana et al., 2021). However, the excessive usage of mobile phone may lead to the issue of nomophobia. In medical observation, the usual symptoms and signs of nomophobia are anxiety, respiratory alterations, trembling, perspiration, agitation, disorientation and tachycardia (Bhattacharya et al., 2019). According to Fadhilah et al. (2021), a person is considered to have nomophobia if they already experience feelings of anxiety and fear when they are away from their mobile phone.

In referring to university students, several studies have been conducted on prevalence of nomophobia using NMP-Q scale (Akun & Andrean, 2017; Bartwal & Nath, 2020; Iscan et al, 2021; Torpil et al., 2021; Tuco et al., 2023; Schwaiger & Tahir, 2020). For instance, Torpil et al. (2021) studied on 181 undergraduate students in Turkey. The findings shown that, 52.5% of the respondents are in the moderate degree of nomophobia. Similarly, Bartwal and Nath (2020) involved 451 medical students in India rating as moderate degree of nomophobia (67.2%). However, Akun and Andrean (2017) found that, 71.4% of the 42 students in Indonesia stated they were in severe level of nomophobia. The study revealed by Tuco et al. (2023) among the nine countries, Indonesia had the highest prevalence of severe nomophobia (71%; 95% CI, 55%–84%) and Germany had the lowest prevalence (3%; 95% CI, 1%–8%). Given the severity of nomophobia, it is imperative that interventions and strategies be found to prevent long-term impact on students' academic performance, mental health and well-being.

Addresing Nomophobia issue among students in Higher Education

Nomophobia is a significant issue among young smartphone users particularly students. Thus, it is crucial to address this issue as its varying grades of severity will give negative impact to students (Tuco et al., 2023; Schwaiger & Tahir, 2020). Among these are affecting on students' mental health (Anjana et al., 2021; Devi and Dutta, 2021), academic performance (Alkalash et

al., 2023; Fadhilah et al., 2021) and social interactions (Al Ali & Matarneh 2024; Anshari et al., 2019).

According to Anshari et al., (2019), excessive mobile phone usage will give impact on health issues, easily panic, fear, anxious and anti-social. The authors highlight several solutions including set boundaries from phones. This intervention will limit the use of smartphones on daily life by creating phone-free zones. Essel el at., (2021) supported this prevention where establish phone-free zones will balances connection between technology use and general well-being among students.

Meanwhile, research conducted by Fadhilah et al. (2021) found that, the use of mobile phones is linked to reduced concentration on learning, resulting in lower academic achievement. Qutishat et al. (2020) recommend that in the classroom, it should be more face-to-face interactions between teachers and students. This involves promoting social intereactions, group discussions, and cooperative projects to reduce dependency on mobile phone usage among students. Anshari et al. (2019) also highlighted that the conversations with people around should involve real life conversations rather than having to be virtually active. In fact, finding new hobbies without involving the use of smartphone will reduce the nomophobia issues.

As referred to suggestion by Syaputra et al., (2023), the high level of nomophobia among students can be prevent through guidance and counseling service programs at Islamic higher education in Indonesia. Based on the research findings of 988 students drawn from six different faculties, the overall degree of nomophobia across faculty members and gender falls into the high category of nomophobia. Thus, it is crucial for universities to plan appropriate counseling interventions, particularly in dealing with the issue of nomophobia. This is also supported by several studies such as (Al Ali & Mataerneh, 2024; Anshari et al., 2019). The role of counsellors is crucial as they are responsible for providing personalised therapeutic interventions, developing coping strategies, and creating a supportive environment in which students can explore and address the underlying causes of their nomophobia.

Another prevention of nomophobia is conducting educational workshops that highlight the consequences of excessive use of mobile phone (Al Ali & Mataerneh, 2024; Alkalash et al., 2023; Anjana, 2021; Rather & Rather, 2019). According to Rather and Rather (2019) that emphasize the importance of educating students about the health impacts of excessive smartphone use. The initiative aims to raise awareness among students regarding the potential adverse effects of excessive smartphone usage on their mental health, sleep quality, and overall well-being.

Additionally, parental and peer support can help prevent nomophobia (Tian et al., 2021; Rather & Rather, 2019). Rather and Rather (2019) argued that parental involvement significantly reduces nomophobia in their children. Encouraging parental involvement can be achieved by establishing limits on their children's smartphone usage and promoting non-tech activities. According to the past studies, it is crucial to implement preventive measures to address the increasing issue of nomophobia among students. This paper aims to obtain expert verification and insights on the issues related to nomophobia among students through the NGT method.

Methodology
This study utilises the NGT method as its primary research approach. The study included 5 experts who specialise in addressing nomophobia among students in higher education. The

experts are academics who offer their opinions and solution on issues of nomophobia among students in higher education. The process of gathering experts is done in person. A session lasting one hour was conducted. Experts convened and utilised the NGT method to generate ideas and solutions based on their expert opinions. By the end of the session, the researcher performed a precise calculation using the NGT method to obtain results that would address the study's objectives.

Table 1: Answer Scale

Scale	Represent
1	Not Agree
2	Neutral
3	Agree

NGT techniques step

NGT is a systematic process that helps to determine a group's shared viewpoints on a specific matter. The concept was initially conceived as a "participation approach for social planning scenarios" (Delbecq et al., 1975), where social planning situations were defined as exploratory research, citizen engagement, the involvement of interdisciplinary specialists, and proposal assessment (Kennedy & Clinton, 2015; Mustapha et al, 2022). Subsequently, this method has been employed in diverse group contexts, including empirical investigations in the field of social sciences. Although it has been utilised to a certain degree in educational research (O'Neil and Jackson, 1983; Lomax and McLeman, 1984), it seems to be predominantly employed in social science research within the realm of health studies. This technique facilitates the process of identifying problems, exploring solutions, and establishing priorities. It is particularly effective in "stranger groups," where maintaining a balance between status and verbal dominance among members is crucial.

NGT usually involves four steps:

1. Brainstorming (silent generation of ideas in writing): Participants work independently and quietly to write down their answers to a prompt question.
2. Round Robin session: Each participant is asked to provide one idea, which is then documented on a large flip-chart. Debating the ideas is prohibited. Completed sheets are affixed to the wall for visibility. The group facilitator keeps calling the participants until all ideas are recorded or the group decides they have produced enough ideas.
3. Discussion of the list of ideas: The participants discuss each idea on the list to ensure everyone comprehends its meaning.
4. Voting: Participants will pinpoint the key ideas, prioritise them if desired, cast their votes on the flipchart, and analyse the voting trends. It promotes authentic outcomes and dedication to them by mandating anonymous voting along with the aforementioned guidelines.
5. By documenting all inputs and approved changes on flipchart pages, NGT ensures a lasting record of the group process and outcomes. When presented, these sheets help a group resume from where it stopped in a previous meeting, and they are also a great way to inform those who were absent from all or part of a meeting (Fox, 1989).

Sampling

There is a discussion about the most suitable sample size for conducting studies using NGT techniques. Some scholars suggest that NGT can be carried out with either a single cohort or a large group (Lomax & McLeman, 1984; Dobbie et al., 2004; Muqsith et al, 2017). Alternatively, it can be divided into smaller groups to facilitate effective communication based

on the study's requirements. For that purpose, the sample sizes used by previous researchers are outlined in Table 2:

Table 2: Sample size in conducting studies using NGT techniques.

Author	Sample
Van de Ven dan Delbecq (1971)	5-9 experts/participants
Horton (1980)	7-10 experts/participants
Harvey and Holmes (2012)	6-12 experts/participants
Abdullah & Islam (2011)	7 – 10 experts/ participants
Carney et. al (1996)	Min. 6 experts/participants

Due to the aforementioned reference, the researcher chose 5 experts to take part in the NGT process of this study. Considering the current situation that restricts interactions, this amount is deemed suitable for this study.

Findings and discussion

Table 3 presents eight proposed approaches for effectively handling this issue. The suggested strategies were: (1) educate about health impacts, (2) create phone-free zones, (3) set boundaries, (4) encourage outdoor activities, (5) peer support, (6) counselling services, (7) encourage face-to-face interaction and (8) parental involvement. Table 3 displays the voting results from the domain experts (DEs) and the corresponding findings. The results show that the DEs came to an agreement that all components were suitable for addressing this issue. The DEs then agreed that the top priority should be assigned to the three elements among the approaches which are (1) educate about health impacts, (2) create phone-free zones and (3) encourage outdoor activities. This is based on the percentage shown in Table 3 that the three elements received absolute support from all DEs, resulting in a 100 percent vote.

Educating about health impacts highlights the significance of increasing awareness about the negative health consequences linked to the issue. By informing people about the possible outcomes of their activities, the goal is to stimulate changes in behaviour and encourage healthy habits. Meanwhile, the element of creating phone-free zones entails assigning designated places where the use of electronic devices, especially smartphones, is limited or forbidden. Establishing certain areas that are free from digital interruptions promotes folks to detach from their electronic devices and immerse themselves more completely in their environment. Further, encouraging outdoor activities provides a different option from screen-based entertainment and motivates people to participate in physical fitness and recreational activities. Outdoor activities have been associated with several health advantages, such as better mood, decreased stress, and increased general health.

Next, another three elements which set boundaries encourage face-to-face interaction and parental involvement fall in number two in the priority ranking given by DEs. Table 3 showed that these three elements acquired 93.33% of votes from the DEs. The element sets boundaries, emphasizing the significance of establishing precise and consistent limits on device usage. Creating protocols and regulations for managing screen time assists individuals in controlling their digital behaviours and achieving a harmonious equilibrium between online and offline pursuits. Then, encourage face-to-face interaction element prioritised promoting face-to-face interaction due to the importance they placed on interpersonal connections. Emphasizing face-to-face communication enhances authentic human relationships, encourages empathy, and

reduces the adverse impacts of overreliance on digital platforms on social abilities and mental health. Whilst parental involvement emphasized the importance of parents in shaping their children's behaviour and attitudes towards technology, advocating for active parental involvement as a critical aspect of resolving the issue. Parents may effectively help their children build healthy interactions with technology by demonstrating positive digital habits, setting home rules, and encouraging open communication. Finally, according to DEs, the third priority with result as 86.67% votes were peer support and counselling services.

Table 3: NGT Data Findings Table based on DEs vote

Items / Elements	DE 1	DE 2	DE 3	DE 4	DE 5	Total item score	Percentage	Rank Priority	Voter Consensus
Educate about health impacts	3	3	3	3	3	15	100.00	1	Suitable
Create phone-free zones	3	3	3	3	3	15	100.00	1	Suitable
Set boundaries	3	3	3	3	2	14	93.33	2	Suitable
Encourage outdoor activities	3	3	3	3	3	15	100.00	1	Suitable
Peer support	2	3	3	3	2	13	86.67	3	Suitable
Counselling services	2	2	3	3	3	13	86.67	3	Suitable
Encourage face-to-face interaction	3	3	2	3	3	14	93.33	2	Suitable
Parental involvement	2	3	3	3	3	14	93.33	2	Suitable

Conclusion

Nomophobia, or the fear of being without a mobile phone, has become a widespread issue, especially among students who rely heavily on mobile devices for communication, socialization, and academic purposes. The findings highlight that excessive smartphone use negatively impacts students' mental health, academic performance, and social interactions, leading to anxiety, stress, and decreased focus. The NGT method facilitated the identification of effective prevention strategies by gathering insights from academic experts. The highest-priority strategies include:

- Educating students about the health impacts of excessive mobile phone use.
- Creating phone-free zones to encourage mindfulness and reduce dependence on technology.
- Promoting outdoor activities to foster a balanced lifestyle.

Additionally, setting boundaries on mobile phone use, encouraging face-to-face interactions, involving parents in managing children's technology use by specific parental actions, and providing peer support and counselling services were recognized as crucial measures for addressing nomophobia. Overall, this study underscores the importance of a multi-faceted approach to mitigate the adverse effects of nomophobia, emphasizing the need for educational institutions to implement targeted interventions and policies that promote healthier digital habits among students.

Future research recommendations should not only expand beyond academic experts but also actively include perspectives from a broader range of stakeholders, such as counsellors, healthcare professionals, students, and parents. This collaborative approach will provide a more holistic understanding of nomophobia and enable the development of more comprehensive prevention strategies. Moreover, future studies should investigate the role of digital literacy programs in reducing nomophobia. Educating students about the responsible use of technology and the potential risks associated with excessive use could be a proactive measure to prevent nomophobia from developing. to assess the long-term effectiveness of the proposed interventions.

By addressing these areas, future research can be extended on the current findings and further contribute to understanding and preventing nomophobia in higher education settings. While there may not be specific Malaysian government initiatives dedicated to addressing nomophobia currently, several broader efforts and policies can help mitigate its impact indirectly. For example, digital literacy programmes promote digital literacy through various educational programs. These programs often cover responsible technology use and might indirectly address excessive reliance on mobile devices. Secondly, initiatives to improve mental health awareness and support individuals who struggle with nomophobia. Collaborative efforts with other organizations like the Malaysian Mental Health Association (MMHA) and government health departments may run tour campaigns and provide resources to address mental health issues, including those related to technology use in higher education institutions. Lastly, revisit the guidelines for work-life balance policies in higher education institutions. Incorporating aspects of digital well-being and responsible technology use into their curricula, helping students understand and manage their reliance on mobile devices. These can help mitigate the negative effects of excessive technology use and bring about a more positive digital future.

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