https://doi.org/10.48047/AFJBS.6.5.2024.01-20

African Journal of Biological Sciences

Impact of Self-Regulation Management Program on NOMOPHOBIA among University Nursing Students: A Randomized Controlled Trial

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Article History
Volume 6, Issue 5, Apr 2024
Received: 01 Apr 2024
Accepted: 08 Apr 2024
doi:10.48047/AFJBS.6.5.2024.01-20

Abstract

Background: Nomophobia is the abbreviation of the term "No Mobile Phobia". This term describes a new phenomenon of a desire of affected personnel to constantly keep using their smartphones with sever fear of being detached from. This desire consequently causes them to loose self-control over its use.

Design: A randomized controlled trial design was used in this study. Participants were randomly assigned to either the study group or the control group. The study group received the self-regulation program, while the control group did not receive any interventions. By comparing the outcomes of the study group with those of the control group, the researchers were able to assess the specific impact of the self-regulation program.

Sample: 1182 participants were initially recruited for the study. However, after applying the pre sample selection criteria, 1,122 participants were excluded from the program leaving a final sample size of 60 university nursing students who had lower scores in self-regulation and higher scores in NOMOPHOBIA. These participants were randomly allocated to two equal groups: a study and control group.

Setting: The study was carried out at the Faculty of Nursing - Cairo University.

Tools: Three tools for data collection were used: Demographic & Electronic Dependence Data, Self-Regulation Questionnaire & NOMOPHOBIA Questionnaire.

Results: The study utilized SPSS version 21, and the Chi-square test was employed to examine the differences and similarities between the pre-program and post-program tests. The results indicated highly significant statistical differences at ($p \leq 0.05$) in the total levels of self-regulation and total levels of NOMOPHOBIA at the post-test between the nursing students of both the study and control groups. However, there were no significant statistical differences at ($p > 0.05$) in the total levels of self-regulation and total levels of NOMOPHOBIA at the pretest between the nursing students of the study and control groups. Also, there was a highly significant negative correlation between total levels of self-regulation and total levels of nomophobia among the study group in the post-test.

Conclusions: The study concluded that the Self-Regulation Program had significant positive impact on reducing the prevalence and symptoms of NOMOPHOBIA among the study group as compared to the control group.

Recommendation: Application of Self-regulatory Program for university nursing students is needed to reduce the current phenomenon of high dependency level on smartphones and the

Introduction:

In the past few years, there has been a significant increase in the global usage of smartphones. Smartphones offer users various opportunities, including internet access and social connectivity (Notara et al., 2021). These devices have become an essential aspect of contemporary living (Bragazzi et al., 2019). However, many smartphone users develop detrimental habits such as incessantly checking their phones for missed calls and messages, constantly verifying internet connectivity, keeping their phones always switched on, and never leaving home without their smartphones (Ayar et al., 2017).

NOMOPHOBIA, which is derived from the term "no-mobile-phone-phobia," refers to the fear or anxiety individuals experience when they are separated from or unable to access their mobile phones. This condition negatively affects individuals, leading to dependence and a loss of self-control over their smartphone usage (Copaja-Corzo et al., 2022). It can also give rise to various health-related disorders, including anxiety, increased heart rate, respiratory changes, trembling, sweating, restlessness, and confusion (Bhattacharya et al., 2019).

Additionally, the constant attachment to mobile devices and the compulsion to frequently check them can disrupt sleep patterns and hinder the ability to achieve restful sleep. This can have adverse effects on sleep satisfaction and potentially contribute to the development of insomnia (Jahrami et al., 2022). Moreover, excessive smartphone use can lead to a decrease in family socialization and a reduced engagement in social activities outside of virtual environments (Ding and Li, 2017; Aguilera-Manrique et al., 2018; Yavuz et al., 2019).

NOMOPHOBIA can have detrimental effects on the academic achievement, work, and quality of healthcare among nursing students, as it has the potential to negatively impact their academic performance and learning process (Gutiérrez-Puertas et al., 2020). It is possible that NOMOPHOBIA may influence decision-making among nursing students, leading to increased levels of procrastination, hypervigilance, and a tendency to shift responsibility onto others throughout their training. These factors can subsequently affect their academic performance as well as their relationships with patients and colleagues (Márquez-Hernández et al., 2020).

NOMOPHOBIA has been found to have several negative effects on medical students. It increases the likelihood of distraction and impairs their ability to learn effectively (Aguilera-Manrique et al., 2018). Furthermore, NOMOPHOBIA increases the risk of making medical errors, which is a significant concern in the field of medicine (Fiorinelli et al., 2021). These consequences are particularly detrimental for medical students, as they require constant knowledge acquisition and updating, which can be compromised in cases of NOMOPHOBIA (Güneş and Gücük, 2020).

NOMOPHOBIA is one of many addictive behavioral disorders that require the implementation of self-control strategies. It is crucial to examine the role of self-control as a mediator in the relationship between basic psychological needs and nomophobia (Günlü and Bas, 2022). One such strategy is the theory of Self-regulation proposed by Albert Bandura in the 1990s, which highlights individuals' abilities to control undesirable behaviors. Self-regulation is defined as the process of turning goals into actions (Carver and Scheier, 2011).

Bandura brought together behavioral and cognitive components of humans so that they become able to control their behavior through a cognitive process known as" Self-regulation.". Self-regulation involves the use of cognitive processes to set goals, receive feedback, and adjust behavior based on rewards or punishments for meeting or failing to meet established standards

(Bandura, 1991). Self-regulation has been found to be effective in addressing addictive behaviors, including internet addiction (Dawe et al., 2004), smartphone addiction (Van Deursen et al., 2015), and media addiction (LaRose and Eastin, 20). Insufficient self-regulation can lead to increased media usage, which can eventually result in dependence on media platforms. The Self-regulation Program is viewed as the gold-standard management for NOMOPHOBIA.

In the current study, the objective of the Self-regulation Management Program is to assist nursing students in developing and enhancing their self-regulation skills, with the aim of reducing their excessive reliance on smartphones. The program seeks to provide strategies, techniques, and support to help students gain better control over their smartphone usage, promoting a healthier balance between their academic responsibilities and personal smartphone use. By fostering self-regulation skills, the program aims to empower nursing students to effectively manage their smartphone habits and improve their overall well-being and academic performance.

Significance of the Study:

The prevalence of nomophobia among Egyptian nursing students is undeniable, highlighting the substantial reliance on mobile devices that associated significantly with impulsive sensation-seeking behavior. El-Ashry et al. (2024) conducted a study involving 1626 undergraduate students from the Colleges of Nursing at Alexandria, Mansoura, and Damanhur Universities during the 2023-2024 academic year. Their findings indicate that a significant 40% of nursing students experience severe nomophobia. This highlights the substantial reliance on mobile devices among nursing students in Egypt.

Additionally, the study conducted by Mahgoub et al. (2019) on nursing students in the Faculty of Nursing at Cairo University revealed alarming results, indicating that a significant proportion of students in that faculty, specifically 90%, suffer from high levels of nomophobia. This finding stresses the profound impact of NOMOPHOBIA on the lives of nursing students, highlighting them as victims of the new digital dependency. The high prevalence of nomophobia among nursing students emphasizes the urgent need for further investigation and support in managing this issue. The results highlight the importance of addressing NOMOPHOBIA to mitigate its negative impact on the well-being and academic performance of nursing students.

Therefore, the study aimed to evaluate the impact of a developed "Self-Regulation Management Program" on controlling the NOMOPHOBIA among Cairo University nursing students by applying effective self-regulation strategies to promote healthier smartphone usage habits among nursing students at Cairo University. Overall, the study calls for attention and intervention to address and manage NOMOPHOBIA and its consequences among nursing students.

Research Null Hypotheses.

- **H0**: There is no statistically significant difference in total Self-regulation scores between the study and control groups before and after implementation of the Self-regulation Program.
- **H0**: There is no statistically significant difference in total NOMOPHOBIA mean scores between the study and control groups after implementation of the Self-regulation Program.

Materials And Methods

Research Design: A randomized controlled trial design was employed in this study to ensure a rigorous and scientifically valid investigation. In this study, participants were randomly assigned to either the study group or the control group. Randomization helps to minimize biases and ensures that each participant has an equal chance of being assigned to either group. This helps to establish a baseline similarity between the groups, increasing the reliability of the study results.

The study group received the self-regulation program, while the control group did not receive any intervention or treatment. By comparing the outcomes of the study group with those of the control group, the researchers were able to assess the specific impact of the self-regulation program. The randomized controlled trial design allows for causal inferences to be drawn regarding the effectiveness of the intervention. It provides a strong foundation for evaluating the impact of the self-regulation program on relieving NOMOPHOBIA symptoms and contributes to the overall body of evidence in this area.

Sample: To ensure a representative sample, the study included a purposive sample of nursing students from all four academic levels. 1182 students of both genders were initially screened using the study tools. However, some participants were excluded from the program leaving a final sample size of 60 university nursing students who had lower scores in self-regulation and higher scores in NOMOPHOBIA. These participants were randomly allocated using the double-blind method to two equal groups: a study and control group.

Setting: This study was carried out in 2 phases. The first phase of the study was conducted at the Faculty of Nursing -Cairo University for screening survey of all target population of this study to select students affected by the disorder of NOMOPHOBIA. The 2nd phase of data collection and implementing the study was done using online Zoom application to communicate with all the studied sample (nursing students) to receive the training sessions of the Self-regulation Program and fill the post program questionnaires.

Data Collection Tools

1) **Demographic and Electronic Dependance Data**: The demographic and electronic information of the study subjects consists of age, gender, educational level, and number of hours spent on mobile.
2) **Self-Regulation Questionnaire**: by (Brown et. al., 1999). It is composed of 63 items divided into 7 subscales. (1) Informational input (9 items); (2) Self-evaluation (9 items); (3) Instigation to change (9 items); (4) Search for alternatives (9 items); (5) Planning for change (9 items); (6) Implementation of strategies for change (9 items); and (7) Goal attainment evaluation plan (9 items). The reverse items were inverted during data tabulation. The scale is rated on a 5-point Likert scale format ranged from (1 = strongly disagree to 5 = strongly agree). Scores of >239 high self-regulation capacity, scores 214-238 intermediate self-regulation capacity and sores of < 213 low self-regulation capacity. The original English version was used in this study. This tool is an open access.

   3) NOMOPHOBIA Questionnaire: by Yildirim, and Correia (2015). It consists of four subscales of 20 questions measured on 7 points Likert scale from 1 to 7, with 1 being "Totally disagree" and 7 being "Totally agree". Scores (100-140) is high degree of NOMOPHOBIA, scores (60-90) moderate degree of NOMOPHOBIA, and scores (21-59)

indicate mild degree of NOMOPHOBIA. Content validity was assessed by Mahgoub, et.al., (2019) and its reliability is accepted at = 0.95.

Procedure:

Participants were assigned randomly to the either the study and control group with repeated assessments at base line and immediately after 12 sessions. All questions related to the tool and the implemented program were answered and detailed explanation given to obtain the participant's acceptance and cooperation during conducting the assessment session.

1. Introductory and Assessment phase (one session October 2022):

- **It included introduction about the study aim. Program of self-regulation** objectives**,** researcher's role, participants expectations, benefits gained from attending the program, regulatory information such as the place of sessions, time schedule for the program, compliance with attendance of sessions. Baseline assessment data were taken before the program implementation through filling the relevant selected tools (Personal data Questionnaire, Self-Regulation Questionnaire and NOMOPHOBIA Questionnaire). Data were statistically analyzed to detect the students who got lower scores of self-regulation and higher scores of NOMOPHOBIA. Students who showed lower scores of self-regulation and higher scores of NOMOPHOBIA, were (60) nursing students. They were divided into two groups randomly one is study group, and the other one is control group.

- **Implementation Phase (10 sessions November 2022 - December 2022)**:

- . These students were briefed about aim, objectives, content of the program, and number of sessions, type of activities and their responsibility to abide with the program rules. The program was implemented in 10 sessions online on Zoom meetings as two sessions per week for 60-90 minutes. The following techniques were used during the program application: Group discussion, Feedback, Exercises, Homework, Role play and Self-rehearsal.

3) Evaluation phase:

- Upon termination of the program, all subjects were reassessed by assessment tools of Self-regulation Questionnaire and NOMOPHOBIA Questionnaire to evaluate the effect of the program.

Ethical and legal considerations:

A written ethical approval was obtained from "Ethics of Scientific Research Committee" at the Faculty of Nursing - Cairo University. As well as an official permission to conduct the proposed study was obtained from Vice Dean for Education and Students Affairs. A complete description of the purpose and nature of the study were explained to all students, and they were informed that participation in the current study is entirely voluntary, and written informed consent was obtained from them, anonymity and confidentiality were protected by coding the data sheets.

Data Analysis: A Statistical Package for Social Science (SPSS) version 21 was used for statistical analysis of data; Chi square test was used to examine the differences and similarities between the study variables. Probability (p-value) less than 0.05 was considered significant and less than 0.001 considered as highly significant.

Results

Table 1: Nursing students' socio-demographic characteristics in study and control groups.

Demographic characteristics	Categories	Study group (n=30)		Control group (n=30)		Chi square test	
		No.	%	No.	%	$\chi 2$	p
Age	18 years	2	6.7	3	10	1.87	.87
	19 years	4	13.3	5	16.7		
	20 years	8	26.7	10	33.3		
	21 years	12	40	8	26.7		
	22 years	3	10	2	6.7		
	23 years	1	3.3	2	6.7		
	Mean ±SD	20.43± 1.17		20.23± 1.30			
Gender	Male	9	30	8	26.7	.08	.77
	Female	21	70	22	73.3		
Educational level	1st level	5	16.7	4	13.3	3.86	.28
	2nd level	6	20	13	43.3		
	3rd level	11	36.7	8	26.7		

	4th level	8	26.7	5	16.7		
Number of hours spent on mobile	< 2 hours/ day	0	0	2	6.7	10.14	.06
	2< 4 hours/ day	4	13.3	4	13.3		
	4<6 hours/ day	13	43.3	21	70		
	6-8 hours/ day	4	13.3	1	3.3		
	>8 hours/ day	9	30	2	6.7		
	Mean ±SD	5.32± 1.07		4.89± .84			

Table (1) showed no significant statistical differences at (p>0.05) in demographic characteristics between study and control groups so that both groups were matched and homogenies.

Table 2: Nursing students' self-regulation levels and NOMOPHOBIA levels at pre and post program test between intergroup of study and control.

Variables	Time	Study (n=30)						Control (n=30)						Chi square test	
		Mild		Moderate		Severe		Mild		Moderate		Severe			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	No.	$\chi 2$	p
Self-regulation scores	Pretest	14	46.7	14	48.1	2	5.2	14	46.7	15	49.0	1	4.3	5.80	.26
	Posttest	2	5.2	12	40.0	16	54.8	13	43.3	16	51.9	1	4.8	9.99	.00**
Total Nomophobia scores	Pretest	0	0.8	10	33.3	20	65.8	1	1.7	9	30.0	21	68.3	.30	.58
	Posttest	15	48.3	12	39.2	4	12.5	1	3.3	9	28.3	21	68.3	17.05	.00**

P. value is significant at ≤0.05.

Table (2) revealed highly significant statistical differences at (p≤0.05) in total levels of self-regulation and total levels of NOMOPHOBIA at post-test between nursing students of both the study and control group. It also showed no significant statistical differences at (p > 0.05) in total levels of self-regulation and total levels of NOMOPHOBIA at pretest between nursing students of the study and control group. This indicates that prior to the intervention, the levels of self-regulation and nomophobia were similar in both groups.

Table 3: Correlation between self-regulation and NOMOPHOBIA

Study variables		Total self-regulation
Total nomophobia	r	-.565
	p	.001*

P value is significant at ≤0.05*

Table (3) presented a highly significant negative correlation between total levels of self-regulation and total levels of nomophobia among the study group in the post-test. This means that as self-regulation skills improve, nomophobia levels decrease. The correlation coefficient (r=-0.565) suggests a moderate negative relationship between self-regulation and nomophobia levels.

Table 4: Relationships between Self-regulation and NOMOPHOBIA at posttest among the nursing students in study group with their demographic characteristics.

Demographic characteristics	Post test Study group			
	Self-regulation		NOMOPHOBIA	
	F	P	F	P
Age	1.54	.21	.41	.87
Gender	.60	.44	.002	.96
Educational level	2.24	.11	.93	.44
Number of hours spent on mobile	2.21	.11	2.92	.05*
Internet Gaming Hours per day	1.21	.33	2.97	.04*

P value is significant at ≤0.05*

Table (4) indicated that there was significant statistical relationship at (p ≤0.05) between NOMOPHOBIA with number of hours spent on mobile and numbers of internet gaming hours per day. However, there were no significant statistical relationships at (p >0.05) between NOMOPHOBIA with age, gender, and educational level. Additionally, there were no significant statistical relationships at (p >0.05) between Self-regulation with age, gender, educational level, number of hours spent on mobile, and internet gaming hours per day in post-test among study group.

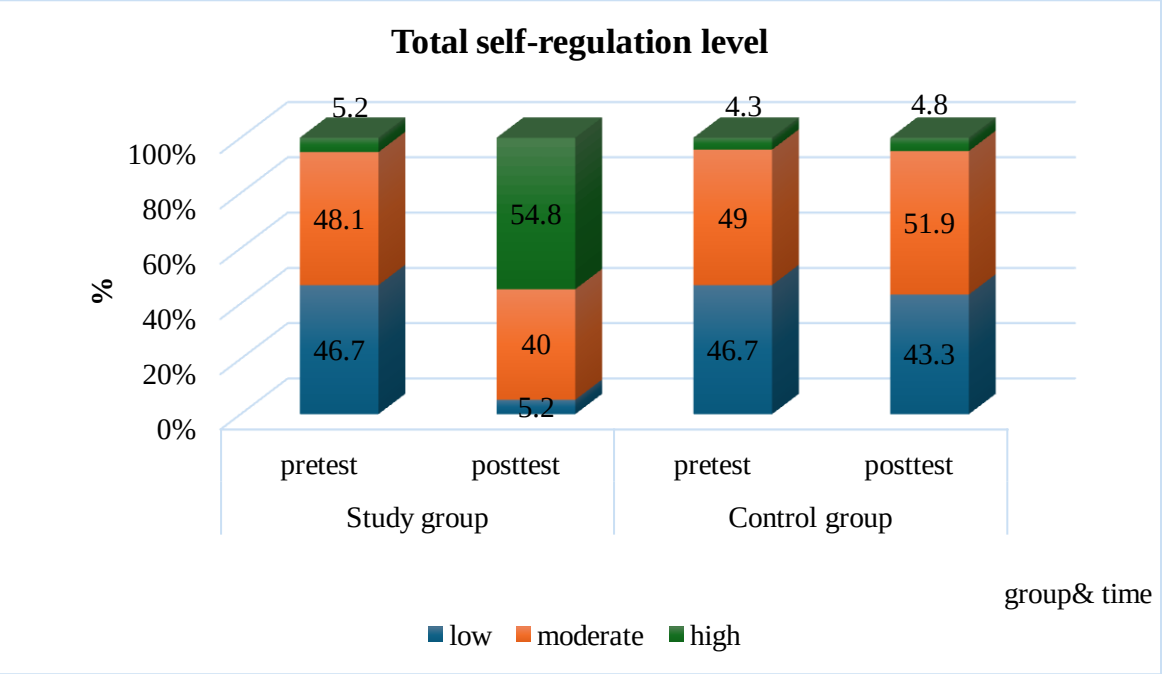

Figure 1: Self-regulation levels at pre and post-test in study and control groups.

Figure (1) indicates a significant increase in self-regulation levels in the study group from pretest to post-test, while the control group's levels remained relatively stable. These findings suggest that the self-regulation program had a positive impact on enhancing self-regulation skills in the study group compared to the control group. It also indicates a significant difference in self-regulation levels between the study and control groups. This further supports the notion that the self-regulation program had a beneficial effect on improving self-regulation skills in the study group.

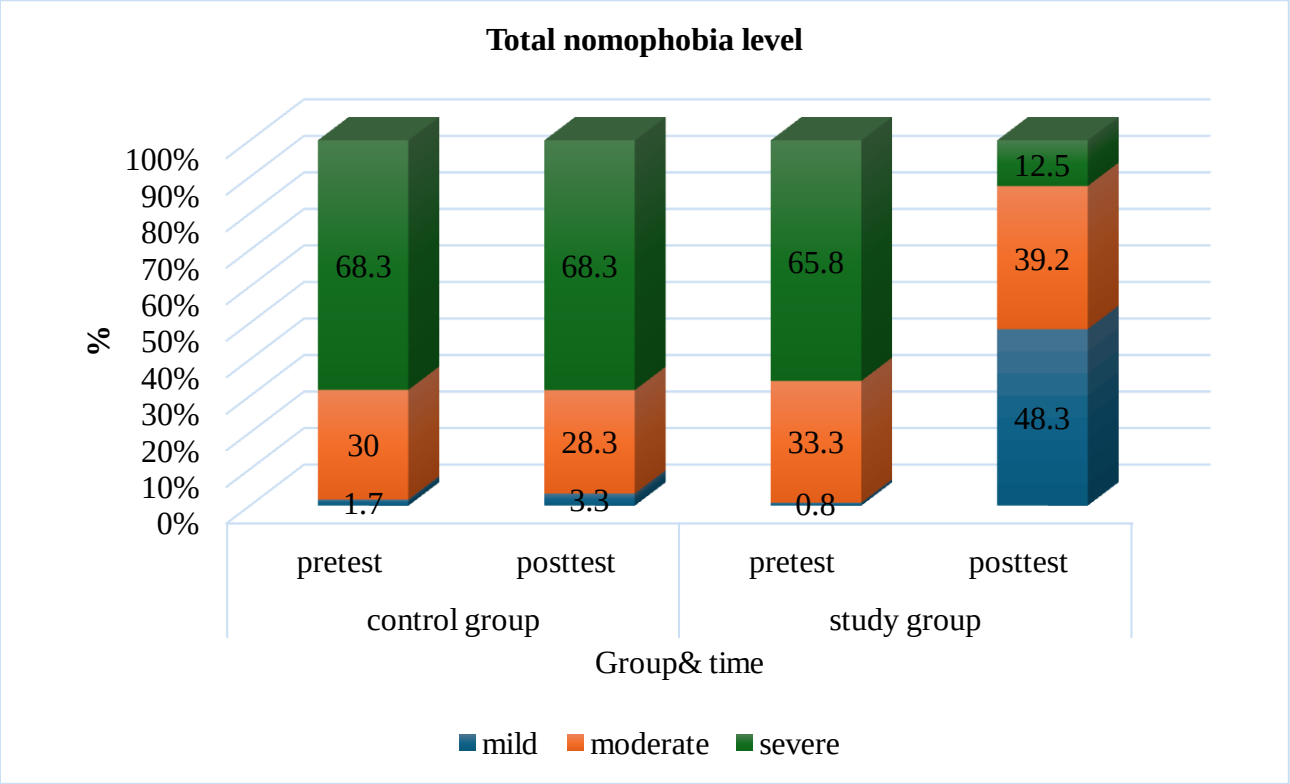

Figure 2: Nomophobia levels in study and control groups at pre and post-test.

Figure (2) displayed notable decrease in the total nomophobia levels in the study group at the post-test, suggesting that the self-regulation program had a positive effect on reducing nomophobia. In contrast, the control group's nomophobia levels remained relatively unchanging, indicating that there was no significant change in their levels of nomophobia. Additionally, the figure highlights a significant difference in the total nomophobia levels between the study and control groups, further emphasizing the effectiveness of the self-regulation program in reducing nomophobia.

Discussion

The increased accessibility of mobile phones and the emergence of "NOMOPHOBIA" can be attributed to the regular use of these devices by individuals. While smartphones have undoubtedly brought convenience to our lives, their excessive usage has led to a growing number of negative consequences. This includes the development of various health issues such as stress,

anxiety, sadness, and reduced self-esteem, which have been associated with the overuse of smartphones (King et al., 2017; Tams et al., 2018; Romero-Rodríguez et al., 2020).

In the present study, the sample mostly consisted of female nursing students who constituted most participants in study and control groups i.e., 70 % and 73.3% consequently (table1). The age of the selected sample ranged from 18 years old to 23 years old. The obtained results showed that nursing students aged 20 and 21 years old constituted the highest percentage 63.3% of the selected sample suffering from Nomophobia with mean age 20.43 for study group and 20.23 for control group. As well as the majority of both sample groups study and control were females. These results showed that nomophobia was in higher prevalence among them.

These findings are congruent with Safaria et al., (2023) who studied loneliness and smartphone use intensity as a mediator of self-control, emotion regulation, and spiritual meaningfulness in nomophobia. Their results revealed that the majority of the sample (88.03%) were female university students. Similarly, approximately half of their studied sample's age group ranged from 20 to 21 years old.

Regarding the Self-regulation skills, the total scores of Self-regulation levels after the program increased that showed significant improvement in study group who ensured that they acquired and gained self-regulatory skills. The control group, in contrast, did not exhibit any significant change in their self-regulation skills. This finding suggests that the intervention or treatment provided to the study group had a specific impact on enhancing self-regulation abilities. (table 2). It also ensures the importance of applying Self-regulation program to nursing students who lack self-regulatory skills.

The reasons behind this result can be attributed to several factors observed in the study group. Firstly, the study group demonstrated a high rate of compliance in attending the program, showing their dedication and commitment to improving their self-regulation skills. Additionally, their constant desire to receive feedback about their performance in the training sessions further contributed to their engagement and motivation. Another factor was their proactive approach of listening to all recorded training sessions, allowing them easy access to review the material whenever it was suitable for them. This active involvement in the learning process helped reinforce their understanding and retention of the concepts and techniques taught.

Furthermore, by addressing their queries and concerns, the study group gained an increased awareness of the importance of self-regulation skills and recognized the direct link between improving their self-regulation abilities and achieving higher academic success. This heightened awareness served as a motivation for them to actively apply and integrate these skills into their daily lives. Overall, the combination of compliance, feedback, self-reflection, self-motivation toward the desired change and increased awareness played a significant role in the study group's positive outcome in terms of enhancing their self-regulation skills.

This finding is consistent with Öztürk, (2022) who reported that self-regulated programming learning process can contribute positively to students' academic performance and motivation compared to traditional methods. Students in his study stated that self-regulated learning strategies positively affected their academic performance. Conversely, the study's findings were incongruent with Kanthawongs et al., (2016) who did not find a statistically significant effect from the application of self-regulation skills on smartphone dependence in their sample.

Regarding nursing student' NOMOPHOBIA scores, there were highly significant statistical differences in the study group at pretest and posttest, indicating a decrease in the intensity of NOMOPHOBIA symptoms (Table 2). Likewise, there were highly significant negative correlation between total levels of self-regulation and total levels of nomophobia among the study group in the post-test (Table 3). These findings showed that the study group was able to have low nomophobia scores, which may be related to the advantages the study group experienced from participating in the self-regulation program. As a result of increased student awareness of the possible dangers and unfavorable effects of excessive smartphone use, nomophobia is declining. It may be due to growing awareness of mental health issues, including technology related problems, has encouraged the nursing students to seek of smartphone dependency, setting time limits, and digital well-being apps has empowered users to manage their smartphone usage more effectively.

The study findings align with Günlü and Bas (2022), who investigated the relationship between nomophobia, self-control, and basic psychological needs among university students. Their research demonstrated a direct association between self-control levels and nomophobia. Additionally, they revealed that self-control acts as a mediator between basic psychological needs and nomophobia. These findings underscore the significance of self-control in managing

nomophobia and highlight the importance of interventions that address basic psychological needs to enhance self-control and reduce nomophobia among university students. By considering the mediating role of self-control, interventions can be developed to target nomophobia, promoting healthier smartphone use and overall well-being among university students.

Similarly, Akyol et al., (2022) explored the relationship between smartphone addiction, nomophobia, anxiety, and self-control in high school students. Their findings indicated that self-control is indeed affected by smartphone addiction, specifically nomophobia. As a result, they recommended the implementation of evidence-based interventions to minimize smartphone dependence and support the development of self-control skills.

The study conducted by Çiçek (2020) provides additional support to the findings discussed earlier. Çiçek found that self-control has a significant impact on nomophobia, with individuals who possess strong self-control exhibiting lower levels of nomophobia compared to those with weak self-control. This finding reinforces the importance of self-control in managing and mitigating the negative effects of nomophobia. It suggests that developing and strengthening self-control skills can be an effective strategy for reducing nomophobia and promoting healthier relationships with mobile devices. By recognizing the correlation between self-control and nomophobia, individuals can focus on enhancing their self-regulation abilities to regain control over their smartphone usage and reduce the fear of being disconnected.

The study findings indicate that there is a significant relationship between nomophobia and the number of hours spent on mobile devices and internet gaming per day (Table 4). This suggests that as the amount of time spent on mobile devices and internet gaming increases, nomophobia levels also tend to increase. However, the study did not find any significant relationships between self-regulation and demographic factors such as age, gender, educational level, or the amount of time spent on mobile devices and internet gaming. This suggests that self-regulation skills are not significantly influenced by these demographic factors, or the amount of time spent on technology. Similarly, there were no significant relationships between nomophobia and age, gender, or educational level, indicating that these demographic factors do not significantly influence nomophobia levels.

The study provides insights into the factors influencing nomophobia and self-regulation in the study group. It suggests that the amount of time spent on mobile devices and internet gaming

may contribute to nomophobia, while age, gender, and educational level do not significantly impact self-regulation or nomophobia levels. These findings align with the results from Alkalash (2023) regarding the lack of a significant association between gender and nomophobia and the absence of significant age and educational level differences in nomophobia scores. However, studies by Patrao et al., (2013) and Bianchi and Phillips (2005) suggest a potential link between age and internet dependence or problematic use of mobile phones, although no significant relationship was found between age and nomophobia or self-regulation in the specific context of this study.

The findings of El-Ashry et al. (2024) contradict the results presented in Table (4) in terms of the significant association between the number of hours spent on mobile devices per day and nomophobia. El-Ashry et al. reported that they did not find a significant correlation between the frequency of checking smartphones and nomophobia. On the same line, the study results demonstrated a significant relationship between nomophobia and numbers of internet gaming hours per day. Findings from Ayar and Bektas (2021) are consistent with the results presented in Table (4). They studied the effect of problematic internet use and digital game addiction on nomophobia levels among 668 nursing student adolescents and found that internet addiction and digital game addiction were significant factors affecting nomophobia levels. They also reported a positive, moderate, and significant correlation between digital game addiction and nomophobia levels.

Conclusions: The study findings demonstrate that the implementation of the self-regulation program had a significant positive impact on the study group in relieving symptoms of NOMOPHOBIA, as compared to the control group. This highlights the effectiveness of the self-regulation program in addressing and mitigating the negative effects of NOMOPHOBIA among the participants. The results suggest that the self-regulation program provided valuable support and strategies for the study group, enabling them to better manage their smartphone usage and reduce their fear of disconnection. This, in turn, contributed to a reduction in NOMOPHOBIA symptoms and an improvement in their overall well-being.

Recommendation: continuing application and testing the Self-regulation program for university nursing students is needed to reduce Nomophobia levels and improve the self-regulation skills. Furthermore, it is important to conduct additional research in this area to gain a deeper understanding of the relationship between self-regulation and nomophobia in university settings.

This research could focus on developing and evaluating effective strategies and interventions to address nomophobia and enhance self-regulation among nursing students. Such insights would provide valuable guidance for educational institutions in promoting healthy technology use and supporting students in managing nomophobia.

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