QLANTIC JOURNAL OF SOCIAL SCIENCES AND HUMANITIES

OPEN ACCESS

Pages: 393 – 406
ISSN (Online): 2791-0229
DOI: 10.55737/qjssh.vi-i.25324
Vol. 6 | No. 1 | Winter 2025

Research Article | Qlantic Journal of Social Sciences and Humanities (QJSSH)

Examining Relationship Between Nomophobia and Academic Performance; Moderating Role of Academic Motivation

Fatima Sattar [1] Nasreen Rafique [2]

Abstract: *Using internet and electronic gadegets for information, socialization, and gaming purposes has tremendously increased mobile phone dependence among students. This has resulted in the experiences of nomophobia which adversely affects students' academic achievements. However, those who have higher academic motivation can ovrcome their mobile gadget dependence, reduce their nomophobia, and increase their academic performance. The current study has examined the relationship between nomophobia and perceived academic performance while focusing on the moderating role of academic motivation. A sample of 305 students from different colleges and universities was surveyed. The Nomophobia Questionnaire, the Academic Performance Scale, and the Academic Motivation Scale were used to achieve the study objectives. Results revealed a significant negative relationship between nomophobia and academic performance indicating that students having higher levels of nomophobia had perceived their academic performance as lower. Additionally, academic motivation had a positive impact on the perceived academic performance but failed to moderate the relationship between nomophobia and perceived academic performance. Moreover, students who spent more time on their mobile phones reported higher nomophobia. These findings suggest that there might be several other factors associated with perceived academic performance that could reduce the negative effects of nomophobia on perceived academic performance.*

Key Words: *Nomophobia, Perceived Academic Performance, Academic Motivation, Academic Performance*

Introduction

The mobile invention is not just a tool of communication it has many other features including entertainmen such as taking pictures, listening to music, gaming, and social media usage besides academic purposes, and data storage (Bragazzi & Puente, 2014; Adebo, 2018; Nikolopoulou, 2022). However, recent research has revealed that smartphone usage has a negative impact on several aspects of human life such as reduced sleep quantity and quality (Demirci, Akgönül, & Akpinar, 2015), decreased satisfaction with life (Samaha & Hawi, 2016) and increased levels of anxiety, loneliness, and depression (Boumosleh & Jaalouk,2017), academic problems (Seo et al., 2016) and behavioral addictions (Hamilton & Rugai, 2016). The higher the frequency of smartphone usage, the higher the risk of developing a reaction close to the concept of phobia or fear of not having a smartphone (Yildirim & Correia, 2015). The Diagnostic and Statistical Manual 5- TR (DSM5-TR) defines phobia as an intense fear of a specific object or a situation causing significant distress and avoidance. The term nomophobia relates to the construct of phobia in the sense that individuals with this type of phobia always carry a charger with them, feel anxious at the thought of losing their phone or its misplacement, compulsively check their mobile phones for calls and messages, keep their mobile phone always switch on and keep it close to themselves all the time even when they are sleeping (Bragazzi and Del Puente, 2014). The construct of nomophobia has been measured by Yildrim & Correia (2015) with four dimensions (a) not being able to communicate- reflects the fear that

[1] Masters in Clinical Psychology, Shifa Tameer e Milat University, Islamabad, Pakistan.
✉ khanfatima488@gmail.com
[2] Associate Professor, Department of Clinical Psychology, Shifa Tameer e Millat University, Islamabad, Pakistan.
✉ nasreen.dcp@stmu.edu.pk

- **Corresponding Author:** Fatima Sattar (✉ khanfatima488@gmail.com)
- **To Cite:** Sattar, F., & Rafique, N. (2025). Examining Relationship Between Nomophobia and Academic Performance; Moderating Role of Academic Motivation. *Qlantic Journal of Social Sciences and Humanities, 6*(1), 393-406. https://doi.org/10.55737/qjssh.vi-i.25324

arises when an individual is unable to connect with others via mobile phones., (2) losing connectedness - deals with fear of losing access to information and connection to online networks., (3) fear of not being able to reach information available through mobile phone., (4) giving up convenience- feelings of giving up the convenience provided by the mobile phones. (Corzo et al., 2022) have reported increased levels of nomophobia among students who spent more than five hours on smartphone usage for social networks and entertainment purposes.

It has been found that addiction to smartphone usage strongly relates to nomophobia (Oraison & Wilson, 2024). Tran (2016) states that nomophobia is not only a specific type of phobia, it also signifies the withdrawal symptoms of mobile phone addiction, and both cannot be treated as unrelated. Both emerge due to the excessive usage of mobile phones, though they differ in the way the individuals behave with the mobile phone.

Effects of Nomophobia

The use of the internet and gadgets for information, socialization, and gaming increases the usage of mobile phones causing an increased level of nomophobia and addiction in students (Naik et al., 2023) which negatively influences academic performance (Prasad et al., 2017), increase the level of anxiety, sleep problem (Veerapu et al., 2019), depression (Korat. 2020). According to Vagka et al. (2023), there is a positive association between low self-esteem and nomophobia. A greater number of hours spent on smartphones is found to be positively associated with nomophobia among university students (Soleymani et al., 2019). Moreover, social media usage and nomophobia negatively influence students' focus, concentration towards studies, motivation, and academic performance (Barton et al., 2021; Berdida & Grande, 2023 and Gutiérrez-Puertas et al., 2019). Nomophobia among young adults increases feelings of inadequacy, inferiority, obsessive-compulsive use of mobile phones, and time spent on mobile phones (Gonçalves et al., 2020).

Academic Motivation

The Self Determination Theory (SDT) developed by Deci and Ryan (1985) provides a framework for understanding how innate abilities and biological, social, and cultural aspects influence behavior and performance. According to this theory theory, individuals have innate psychological needs for autonomy (the feeling that one has the choice to get involved in an activity), competence (experience of mastery and effectiveness in one's activity), and relatedness (the need to feel connected and belonging). The motivation of an individual is based on varying degrees of their perceptions of autonomy. The theory divides the types of motivation may affect students' motivation towards their studies.

Intrinsic Motivation: According to Ryan and Deci (1985) intrinsic motivation is engaging in tasks and activities for internal satisfaction. Individuals with intrinsic motivation are involved in tasks because they find them enjoyable and interesting. The subtypes of intrinsic motivation provided by Ryan & Deci (1985) are: 1)Intrinsic Motivation to Know is driven by the desire to gain knowledge and to engage in activities for satisfaction and pleasure for learning. 2)Intrinsic motivation to accomplishment is derived from mastering and the pleasure of achieving goals for the development of competence and skills. 3)Intrinsic Motivation to stimulation is driven by the desire to be involved in experiences that provide excitement and enjoyment.

Extrinsic Motivation: Ryan & Deci (1985) define extrinsic motivation as driven by external factors. This refers to engaging in activities to gain separable outcomes such as avoiding punishment and earning a reward. The subtypes of extrinsic motivation are divided in accordance with the level of autonomy and internalization: 1) External Regulation is at least an autonomous level in which the behaviors are derived by external punishment, rewards, and demands. The individual engages in activities to comply with demands.2) Introjected regulation: This involves internal pressures such as shame, guilt, and anxiety. The individual engages in activities to avoid negative emotions. 3)Identified Regulation: This type of motivation is more autonomous because the individual motivation shifts towards the personal importance of tasks. They engaged in actions due to their values and alignment with their personal goals. 3) Integrated Regulation is the highest form of autonomy in which the individual integrates their own values and needs with the external regulations. The activities are performed for external reasons but the behaviors are

congruent with the sense of self. A third type of modtivation is termed as amotivation. According to Deci & Ryan (1985) individuals who feel amotivated have no intentions to engage in tasks and they see no interaction between their actions and outcomes leading to a lack of effort and persistence. Research (Atasaver et al., 2022) has revealed that the increased usage of technology causes digital addiction which reduces the positive impact of intrinsic and extrinsic motivation for studies and increases amotivation which negatively impacts life satisfaction. Problematic mobile phone usage, nomophobia, and internet addiction have been found to cause students to delay and procrastinate their tasks causing negative consequences on academic motivation and performance (Malik & Rafiq, 2016; Paterna et al., 2024; O'Hare, 2023 and Berdida & Grande, 2023).

The Self-determination theory provides a suitable framwork for the present study as it includes both intrinsic and extrinsic types of motivation in making students more self-determined and more Inclined to achieve higher academic performance. However, excessive mobile phone usage may cause dependency and nomophobia. As students waste more time on mobile phones, their self discipline and motivation towards studies reduce which negatively affect their academic performance (Irna, 2020). In this state of affairs, enhancing academic motivation may reduce the harmful effects of nomophobia on academic performance. Hence, this study Intends to focus on examing the moderating role of motivation in the relationship between nomophobia and academic performance.

Academic Performance

Academic motivation plays a pivotal role in students' academic performance (Atasaver et al., 2022). Academic performance/ achievement is defined as the extent to which a student has achieved knowledge assessed by their academic scores or grades awarded by teachers or institutions through continuous assessment or cumulative grade point average procedures (Narad & Abdulla, 2016). Perceived Academic Performance is students' perceptions regarding their grades and attitude toward studies (Fuente et al., 2017). It is the outcome of students' personal features such as motivation and skills as well as environmental factors (Dennis et al. 2005). Academic motivation towards studies is linked with higher levels of academic achievement among students (Gupta & Mili, 2017). On the contrary higher levels of nomophobia are linked with higher levels of stress and anxiety, which are associated with lower academic performance among students (Kubrusly, et al., 2021). Similarly, a study conducted on students of four different universities in southern Jordan revealed that more than half students reported symptoms of nomophobia at a severe level and the students who showed poor academic performance in terms of lower grades, more absenteeism, or had used their mobile phone daily for longer periods showed higher levels of nomophobia (Kraishan et al.,2024). Al Husaini & Shukor (2022) have revealed that the factors that influence student's academic achievement consist of their previous academic performance, GPA, students' internal assessment of their grades, gender, accommodation, and family support. Another research was conducted on senior high school students to measure the factors that have an impact on the performance level of students are absenteeism, parental education level, and income level (Brew, Nketiah, & Koranteng, 2021). Students' usage of social media is associated with poor academic performance (Chowdhury, 2024) in general, however, females perform better in academics as compared to males (Workman & Hyder, 2020).

Research in Pakistan

A study conducted in Pakistan on about 600 students, selected from 20 schools in the district of Lahore showed that academic motivation was positively related to academic engagement (Muhammad et al.,2023). Bano (2023) found that students with high levels of academic motivation exhibited enhanced relational and functional motives for communication which helped them to perform better whereas students having low levels of academic motivation demonstrated a decline in these communication motives which negatively impacted their studies. According to Khan et al. (2021), smartphone addiction is related to the development of nomophobia and social anxiety. A cross-sectional study was conducted by Farooq et al. (2022) in which students of age between 15-25 years participated. Findings revealed 40.88% of students had severe, 48.77% moderate and 10.55% had mild nomophobia. According to another research finding (Nisar, 2018) about 10 % of students spent less than 1 hour on mobile phones, 50% used 1-2 hrs, 20% spent up to 4 hours, and 20% more than 5 hours. Similarly, according to Nawaz et al. (2017), the probability of nomophobia increases with longer hours of smartphone usage and is positively related to poor decision-

making among students (Niazi et al., 2021). Another study conducted on private and public colleges in Pakistan showed that nomophobia among students was positively associated with insomnia and negatively with academic performance (Awan et al., 2022).

From the research evidence stated above, this study assumes a positive relationship between academic motivation and academic performance and a negative relationship with nomophobia which has been evidenced by Abukhanova et al.,2024 and Berdida & Grande, 2023. Academic motivation can influence the relationship between nomophobia and academic performance. Similarly, motivation increases productivity (Brenner, 2022) but nomophobia negatively influences productivity (Mamun et al., 2023) which means that an increase in motivation may increase productivity thus reduce the effect of nomophobia.

The current study intends to examine the relationship of nomophobia with students' perceived academic performance and the moderating role of academic motivation (Intrinsic and Extrinsic motivation) among private college and university students of Islamabad and Rawalpindi.

Objectives

The objectives of the present study are as follows:

1. To examine the relationship between nomophobia and perceived academic performance among college and university students.
2. To examine the relationship between academic motivation and academic achievement among college and unversity students
3. To study the role of academic motivation as a moderator in the relationship between nomophobia and the perceived academic performance of college and university students.
4. To explore the effect of gender, age, educational level, and time spent on mobile phones among students in relation to perceived academic performance.
5. To investigate whether students who spend more time on their mobile phones have
6. higher nomophobia compared to students who spend less time on their mobile phones.

Hypotheses

The hypotheses of the present study are as follows:

1. There is a negative relationship between nomophobia and perceived academic performance among college and university students.
2. There is a positive relationship betweenaAcademic motivation and academic achievement among college and unversity students
3. The academic motivation (intrinsic and extrinsic motivation) buffers the negative relationship between nomophobia and the academic performance of college and university students.
4. Students who spend more time on their mobile phones would have higher nomophobia compared to students who spend less time on their mobile phones.

Method

The survey-based cross-sectional research design was used to test the stated hypotheses. The convenient sampling technique was used for data collection with three questionnaires. Colleges and university students serves as participants on voluntary bases. SPSS 25 version was used for testing the stated hypotheses with multiple correlation, multiple hierarchical regression, and Hayes Process Macro analyses.

Participants

The sample consisted of 305 students including 160 males and 145 Females. The convenient sampling technique was used to gather data. All participants were mobile phone usersan d students of the different private colleges and universities of Islamabad and Rawalpindi. Participants ranged in age from 15-26 years (M = 2.43, SD=1.23). They belonged to Intermediate, BS, and MS classes. Students who were non-users of mobile phones, and who were not enrolled in any educational institution at the time of data collection were not invited to take part in the study.

Measures

The following four measures were used in the study.

The Demographic Sheet

A demographic sheet was prepared to collect information about the participants' gender, age, name of educational institutions they belonged to, number of hours per day they spent on mobile phones every day. This sheet also introduced the purpose of the study and a Consent Form to obtain participants' willingness to take part in the study. It included the relevant ethical considerations approved by the APA such as participants' right to withdraw if they did not find the study interesting or did not wish to participate at any time during the data collection process. Confidentiality and anonymity of their personal information were also ensured.

Nomophobia Questionnaire (NMP-Q):

The Nomophobia Questionnaire, introduced by Yildrim & Correia (2015), consists of 20 items. On a seven-point Likert-type scale, the responses can be recorded from strongly disagree (Score 1) to strongly agree (Score 7). The total score ranges from 20 to 100. The 20 scores indicate absence of nomophobia and 21 to 59 indicate mild nomophobia, more than 60 shows moderate nomophobia and score of more than 100 depicts severe nomophobia. The scale has four subscales naming a) not being able to communicate, 2) losing connectedness, 3) not being able to access information, and 4) giving up convenience. The Cronbach alpha scale given by the original author was 0.95 and a study in Pakistan on students showed a good internal consistency of 0.91 (Schwaiger & Tahir, 2020).

Academic Motivation Scale

The Academic Motivation scale prepared by Vallerand et al., (1992) was used for measuring Academic Motivation of students for the Intermediate, Bachelor's, and Master's classes. The scale assesses 7 types of constructs, 3 of which measure intrinsic motivation (intrinsic motivation towards knowledge, accomplishments, and stimulation), 3 constructs measure extrinsic motivation (external, introjected, and identified regulations), and 1 construct measures amotivation, depicting a lack of motivation. The scale contains 28 items (4 items per sub-scale), assessed on a 7-point Likert-type scale. Points in the Likert scale range from 1 = does not correspond at all to 7= corresponds exactly. For the current study only the intrinsic motivation and extrinsic motivation scales were used to measure the academic motivation of students. Amotivation did not fall in the domain of the current study, hence its items were not included. The total score was calculated by adding the responses of intrinsic and extrinsic motivation which provided the composite scale of academic motivation of students. The Cronbach alpha according to the original author was α=0.81. Javaeed et al. (2019) have used this scale with medical students revealing the Cronbach alpha having an alpha coefficient of =0.77.

Academic Performance Scale

The Academic Performance Scale (APS) developed by Birchmeier et al. (2015), consists of 8 items with a 5-point Likert type scale where 1 indicates Strongly Disagree, 2 Disagree, 3 Neutral, 4 Agree and 5 Strongly Agree response format. The scores on the scale ranges from 0 to 40, categorizing students into five performance levels: failing, poor, moderate, good, and excellent. A score between 0-8 indicates failing performance, and 9 to 16 represents poor performance. A score between 17 to 24 shows an average level of academic performance. Those scoring between 25 to 33 exhibit good performance and finally, 33 to 40 scores reflect excellent performance. The author provided an internal consistency of score as α=0.89.

Procedure

After seeking approval from the Institutional Review Board of the University for conducting this study, permission for the use of the measures was obtained from their respective authors. Data were collected in person by the researchers by contacting students in their classrooms, cafeterias, and libraries of their respective educational institutions with the permission of their heads of the institutions. The questionnaires, bound in a battery format, took almost 20-25 minutes to complete. The participants were briefed about the nature of the study and their voluntary participation, privacy, anonymity, and confidentiality of the data were ensured. They were also required to complete the demographic sheet and sign the consent form. Any queries on their part were immediately addressed by the researchers. At the end of the questionnaires' completion, all participants were thanked and debriefed.

Results

The present study examined the relationship between nomophobia and the perceived academic performance of university students. It also aimed to investigate the moderating role of academic motivation in the relationship between nomophobia and perceived academic performance.

Psychometric Properties of Nomophobia Questionnaire, Academic Motivation Scale, and Academic Performance Scale

Before carrying out statistic. analyses, suitability of the data was checked. The mean(M), standard deviation (SD), skewness, and kurtosis, were calculated for the Nomophobia Questionnaire (NMP-Q), Academic Motivation Scale, and Academic Performance Scale.

Table 1

Psychometric Properties of the Study Scales (N = 305)

Scales	*K*	*M*	*SD*	α	Skewness	Kurtosis	Range	
							Potential	Actual
NMPQ	20	76.75	21.77	.89	.066	-.195	24-136	20-140
APS	8	29.23	4.97	.74	.217	-.452	16-40	8-40
AMS	24	127.62	21.83	.79	-.273	-.388	69-168	24-168

Note. k = no. of item, = M =Mean, SD = Standard Deviation, α = Cronbach Alpha, NMPQ= Nomophobia Questionnaire, APS= Academic Performance Scale, AMS=Academic Motivation Scale

Table 1 shows Cronbach alpha reliability of the Nomophobia Questionnaire was 0.89 showing that scale has high internal consistency in measuring the nomophobia among students. Similarly, the Cronbach alpha coefficients of Academic Performance Scale and Academic Motivation Scale were 0.74 and 0.79 respectively showing high internal consistency to measure the perceived academic performance and academic motivation of students. Table 1 also presents the skewness and kurtosis of the Nomophobia Questionnaire, Academic Performance Scale, and Academic Motivation Scale which have acceptable values of skewness and kurtosis meeting the requitements of normality for further statistical analyses.

Correlation between Demographics, Nomophobia, Academic Motivation, and Perceived Academic Performance

Pearson's correlation analysis was carried out between Academic Performance, Academic Motivation, and Nomophobia to test the hypothesis that nomophobia would have a negative relationship with academic performance and academic motivation. Also, Academic motivation will have a positive relationship with academic performance but a negative relationship with nomophobia.

Table 2

Multiple Correlation Matrix between Demographic variables, Nomophobia, Academic Motivation, and perceived Academic Performance (N=305)

Variables	1	2	3	4	5	6	7
1- Academic Performance	-						
2- Age	-.01	-					
3- Gender	.04	-.05	-				
4- Educational Level	-.01	.95**	-.06	-			
5- Time Spent on mobile phone	-.02	-.03	.06	-.04	-		
6- Nomophobia	-.21**	-.06	.03	-.06	.56**	-	
7- Academic Motivation	.47**	.00	-.02	.00	.05	-.003	-

*Note: **p<.01*

Table 2 shows that age (r=-.011, p>.01), gender (r=.043, p>.01), educational level (r= -.012, p>.01) and time spent on mobile phone (r= -.02, p>.01) did not show a significant relationship with the dependent variable, the perceived academic performance. However, nomophobia was positively associated with the time spent on mobile phones (r= .56, p<.01). The table 11 shows significant negative correlation coefficient between nomophobia and perceived academic performance (r=-.21, p<.01), suggesting higher levels of nomophobia

as associated with lower perceived academic performance. The correlation between academic motivation and perceived academic performance was significant and positive (r=.47, p<.01) indicating higher academic motivation was associated with higher perceived academic performance. The correlation between nomophobia and academic motivation was not significant (r=-.003, p>.01). This suggested a lack of meaningful relationship between academic motivation and nomophobia among students did not support the moderation assumption of the study.

The hierarchical multiple regression analysis was conducted on the data set to examine the role of demographic varibles, nomophobia and academic motivation in predicting academic performance. In analyses, the moderating role of academic motivation in the relationship between nomophobia and academic performance was also examined.

Hierarchical Multiple Regression Analysis for Determining Role of Demographic Variables, Nomophobia and Academic Motivation on the Perceived Academic Performance

Table 3

Summary of Hierarchical Multiple Regression Analysis for Role of Demographic Variables, Nomophobia Academic Motivation on the Perceived Academic Performance(N=305)

Model 1	β	t	p	R^2	ΔR^2	F	p
Constant		22.84	.00	.009	-	.69	.59
Age	-.27	1.37	.17NS				
Gender	.04	.83	.40NS				
Educational Level	.27	1.38	.16 NS				
Time spent on mobile phone	-.02	-.49	.62NS				
Model 2				.28	.27	20.08	.00
Nomophobia	-.27	-4.59	.00				
Academic Motivation	.47	9.58	.00				

Note: R^2= *R Square,* Δ R^2= *Change in R square, β= Standardized Beta Coefficient, NS=Not Significant*

Table 3 shows that the model 1 consisting of the demographic variables such as age, gender, educational level, and time spent on smartphone usage appeared as nonsignificant with the nonsignificant value of R^2 = 0.09 whichh contributed only about 1% variance in predicting the perceived academic performance (F (4,300) =.696, p=.59). Gender (β=.04, t= .83, p=.40) and educational level (β=.27, t= 1.38, p=.16) had positive but non-significant regression coefficeints, whereas age (β=-.27, t= 1.37, p=.17) and time spent on mobile phones (β=-.02, t= -.49, p=.62) depicted negative but non-significant effects on academic performance. After controlling the effect of demographich variables on academic performance, nomophobia and academic motivation were entered in the regression equation. Both of the independent variables had a joint significant impact on academic performance by adding 27 percent variance in the dependent variable (F (6, 298) =.20.08, p <.001). The overall model explained 28% variance in predicting the academic performance. examinaation of the regression coefficients reveald that nomophobia had a significant negative association with academic performance (β=-.27, t= -4.59, p<.001), whereas academic motivation had a significant positive effect on perceived academic performance (β=.47, t= 9.58, p<.001). The R^2 changed significantly by adding about 27% variance in perceived academic performance supporting hypotheses 1 and 2. Multiple regression analysis was carried out to test the interaction effects of academic motivation and nomophobia on the academic performance of students.

Table 4

Moderation of Academic Motivation between Nomophobia and Academic Performance of Students (N=305)

Model	B	T	p	R^2	ΔR^2	F	p
Constant	329.23	120.08	.27		38.31	.00	-329.23
Nomophobia	-.04	.93	.00				
Academic Motivation	.10	9.50	.00				
Nomophobia*Academic Motivation	-.001	-1.42	.15		.005	2.03	.15

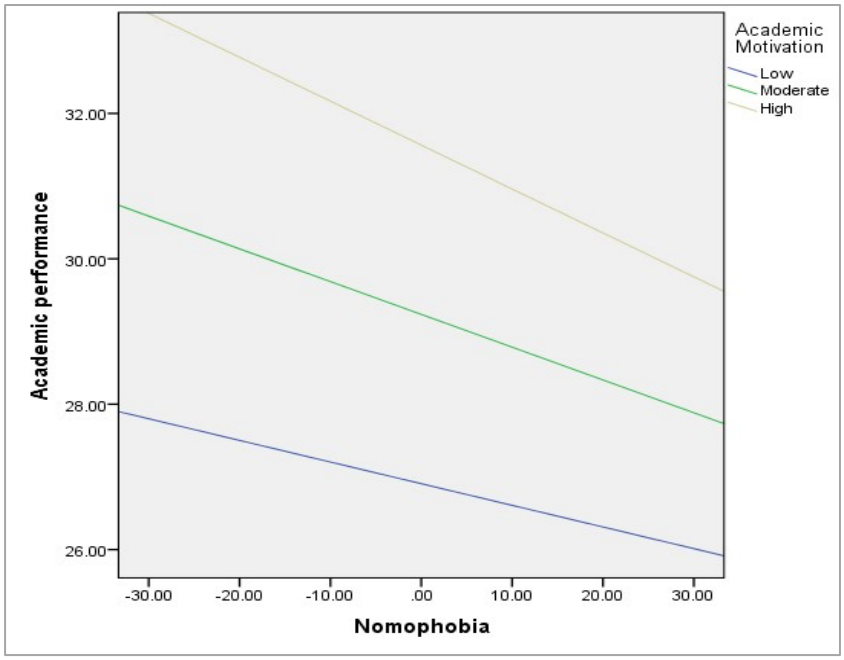
Note: R^2= *R Square,* Δ R^2= *Change in R square, B= Unstandardized Beta Coefficient, NS=Not Significant*

Table 4 shows that the main effects of both nomophobia (B= -0.045, T = -3.93, p < 0.001) and academic motivation (B= 0.107, T = 9.50, p < 0.001) were significant as predicted for the perceived academic performance by contributing a significant portion of variance in the prediction of academic pefrformance (F (3,301) = 38.31, p < .001). However, the interaction effects of nomophobia and academic motivation failed to add any significant effect on academic performance (B = -0.001, T = -1.42, p = 0.15) suggesting a nonsignificant impact of moderation of academic motivation in the relationship between nomophobia and academic performance. Hence our third hypothesis did not get support from the dataset.

Mod Graph

Figure 1

Moderation graph of nomophobia, academic performance, and academic motivation



The Figure 1 depicts the relationship between the dependent variable perceived academic performance (AP) (y-axis) and independent variable nomophobia (NMP) for three different levels of academic motivation (AM) as the moderator. The lines represent the linear regression models for low, moderate, and high academic motivation, indicating a perfect linear fit. This suggests that as nomophobia increases, academic performance decreases linearly. For each academic motivation level, the lines are almost parallel, suggesting that the effect of nomophobia on academic performance is consistent across different levels of academic motivation.

One-Way Analysis of Variance of Time Spent On Mobile Phone By Nomophobia

One-way ANOVA was conducted to compare the effect of time spent on usage of mobile phones on Nomophobia. Comparisons were made between the categories of number of hours spent on mobile phones which is 1-3 hours, 4-6 hours, 7+ hours.

Table 5

One-Way Analysis of Variance of Time Spent On Mobile Phone By Nomophobia

No. Of hrs spent on smartphone	1-3hrs (n=88)		4-6hrs (n=131)		7+hrs (n=86)					
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F(2, 302)*	*p*	*η2*	*Post hoc*
Nomophobia	59.90	19.62	77.90	16.50	92.22	18.63	70.11	.00	0.31	3>2>1

Note: M=Mean, SD= Standard Deviation

The Table 5 shows that a highly significant difference in nomophobia levels across different categories of time spent on mobile phones usage (1-3 hours, 4-5 hours, and 7+ hours) F (2, 302) = 70.11, p < .001, η^2 =

0.31. The effect size (η^2) of 0.31 indicates a large effect. This means that approximately 31% of the variance in nomophobia can be attributed to the differences in time spent on mobile phones among the groups.

Post hoc comparisons using the Bonferroni test indicated that individuals who spent 7 or more hours on their mobile phones (M = 92.22, SD = 18.63) reported significantly higher levels of nomophobia as compared to those who spent 1-3 hours (M = 59.90, SD = 19.62) and 4-5 hours (M = 77.90, SD = 16.50). Additionally, there was a significant difference between individuals who spent 1-3 hours and 4-5 hours on their mobile phones, with higher nomophobia observed in students who spent 4-5 hours on mobile phones. These findings supported our 4th hypothesis.

Discussion

The present study aimed to examine the relationship between nomophobia and perceived academic performance. The second aim of the study was to identify the moderating role of academic motivation in the relationship with nomophobia.

The first hypothesis was to examine the relationship between nomophobia and perceived academic performance. The findings showed that nomophobia negatively influences perceived academic performance. This suggests that as the level of nomophobia increases among the students, they perceive academic performance negatively. These results are in line with the studies (Gezgin et al., 2018; Nguyen et al., 2024) and Buctot et al., 2021) that lower perceived academic performance is positively associated with elevated levels of nomophobia. Among Pakistani students' nomophobia reduces the academic performance of students (Ibrahim, 2023). However, the negative relationship of perceived academic performance with nomophobia could be due to the reason that perceived academic performance and actual academic performance can differ (Sit et al., 2011; Pinquart & Ebileng, 2020) the students score high on perceived academic performance as compared to their actual academic performance and also the perceptions of learning doesn't reflect the actual knowledge gain (Persky et al.,2020). This means that differences in actual and perceived academic performance could be the reason for the current findings in the study.

The findings showed that there is no relationship between academic motivation and nomophobia. These findings are opposite to the results of Berdida and Grande (2023) in which academic motivation and self-efficacy of students are negatively influenced by nomophobia. These findings could be due to the reason that the fear of not having a mobile phone is associated with the purpose of using of mobile phone. The individual uses a mobile phone for taking pictures, capturing videos, storage data, accessing location, and security purposes, AI tools like Chat GPT provide students with quick answers and time management, and assist in various administrative matters, connecting with friends and families, easy access to social media, money transfer, shopping and e-commerce (Arif et al., 2023; Okmi et al., 2023; Tamizhkumaran et al., 2016; and Hasanein & Sobaih, 2023). Not having or being away from a mobile phone limits the access of individuals to these services or losing important data, pictures, and videos in a mobile phone becomes the reason for developing fear of being away from mobile phones which is independent of the academic motivation of students.

The moderation model revealed that the interaction effect of academic motivation with nomophobia was not significant. This suggests that the effect of nomophobia on perceived academic performance remains consistent regardless of the motivation level of students. This could be due to the reason that only motivation is not the indicator of perceived academic performance but it is affected by several factors including self-efficacy, the environment of the educational institute (Izaguirre et al., 2023), parents' education, teacher-student relationship (Kumar & Bhuyan, 2023), quality of teaching (Engida et al., 2024) and hours of studying per day (Kraishan et al., 2024). Moreover, nomophobia is also associated with distraction (Oraison & Wilson, 2024), poor attention (Berdida & Grande, 2023), poor time management (Berestova et al., 2022), and high absenteeism (Kraishan et al., 2024) and time spent on mobile phone (Alwafi et al., 2022).

The findings showed that as time spent on mobile phones increases the level of nomophobia also increases. The students who spent more than 7+ hours have elevated levels of nomophobia as compared to those who spent less than 7 hrs. This is in line with the study of (Alwafi et al., 2022) showed that as the number of hours spent on mobile phones increases the dependency on mobiles increases thus creating fear

among students of not having mobile phones. The comparable results were revealed among students of a private university in Lahore (Schwaiger & Tahir, 2020).

The fourth objective was that there is the effect of age, gender, educational level, and time spent on mobile phones in relation to academic performance. The current study findings indicates that there is no significant effect of age, gender, and educational level on perceived academic performance. As the current study consists of participants only from private institutions not from public educational institutions. As highlighted by Amjid et al. (2023) there is a difference in achievement levels of private and public sector educational institutions. According to Amjad and MacLeod, 2014, the students at private educational institutions have better academic performance as compared to private universities due to the reason that student perceived quality of academic programs is better in private as compared to public higher educational institutions (Iqbal et al., 2022).

It seems possible that these non-significant differences across demographics are due to the small sample size, and non-inclusion of students from public universities which may not represent the generalized scenario, and there could be cultural factors responsible for the diverse results.

Conclusion

The present study aimed to examine the relationship between nomophobia and perceived academic performance: The moderating role of academic motivation. The findings suggest that academic motivation has a significant role in enhancing perceived academic performance. While nomophobia has a negative impact on perceived academic performance. However, there is no relationship between nomophobia and academic motivation. The interaction of both nomophobia and academic motivation does not significantly predict change in perceived academic performance. This suggests that improving motivation will enhance academic performance, however, other factors associated with perceived academic performance should be considered to reduce the negative effect of nomophobia.

Limitations

Several limitations must be acknowledged. The exclusive focus on perceived academic performance rather than actual academic performance may reflect student subjective evaluation. The incorporation of actual academic performance could provide a more comprehensive understanding.

The second limitation was that the sample size was small and was only limited to private colleges and universities of Islamabad and Rawalpindi. The public educational institutions were not considered therefore generalization could not be claimed. Lastly, this was a cross-sectional design survey limiting the ability of causality. Longitudinal studies are required to understand the causation.

Implications

The educational institutions should focus on increasing the motivation of students for better perceived academic performance. Interventions such as mindfulness has proven to be effective in reducing the negative effects of nomophobia.

Self-Regulation skills like time management and setting academic goals can reduce the effects of nomophobia. Moreover, Educational institutions need policies and programs that focus on healthy use of mobile phones to help the students to deal with fear related to having no mobile phones.

Not only motivation but other indicators of academic performance should also be considered to examine they're in the relationship between nomophobia and perceived academic performance. Including wider range of populations from diverse cultural background, educational level, and different educational institutions to generalize the findings.

References

Abukhanova, A., Almukhambetova, B., Mamekova, A., Spatay, A., & Danikeyeva, A. (2024). Association between nomophobia and learning performance among undergraduate students: The mediating role of depression and anxiety. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1365220

ADEBO, P. (2018). Mobile social media. *International Journal of Advanced Research in Computer Science and Software Engineering*, *8*(3), 8. https://doi.org/10.23956/ijarcsse.v8i3.558

Al Husaini, Y. N. S., & Shukor, N. S. A. (2022). Factors affecting students' academic performance: A review. *Social Science Journal*, *12*(6), 284-296.

Al-Mamun, F., Mamun, M. A., Prodhan, M. S., Muktarul, M., Griffiths, M. D., Muhit, M., & Sikder, M. T. (2023). Nomophobia among university students: Prevalence, correlates, and the mediating role of smartphone use between Facebook addiction and nomophobia. *Heliyon*, *9*(3), e14284. https://doi.org/10.1016/j.heliyon.2023.e14284

Alwafi, H., Naser, A. Y., Aldhahir, A. M., Fatani, A. I., Alharbi, R. A., Alharbi, K. G., Almutwakkil, B. A., Salawati, E., Ekram, R., Samannodi, M., Almatrafi, M. A., Rammal, W., Assaggaf, H., Qedair, J. T., Al Qurashi, A. A., & Alqurashi, A. (2022). Prevalence and predictors of nomophobia among the general population in two middle eastern countries. *BMC Psychiatry*, *22*(1). https://doi.org/10.1186/s12888-022-04168-8

Amjad, R., & MacLeod, G. (2014). Academic effectiveness of private, public and private–public partnership schools in Pakistan. *International Journal of Educational Development*, *37*, 22-31. https://doi.org/10.1016/j.ijedudev.2014.02.005

Amjid, M., Khan, S., & Tayyab, M. (2023). Comparison of Teaching Learning Environment and Academic Achievement among Public and Private Sectors Secondary Schools. *Journal of Contemporary Trends and Issues in Education*, *3*(1), 36-52. https://doi.org/10.55628/jctie.v3i1.88

Arif, M., Butt, K., Hussain, A., & Asim, M. (2023). Social media use among University students: A review and direction for future research. *Pakistan Journal of Information Management and Libraries*, *25*, 83-108. https://doi.org/10.47657/7303

Atasever, A., ÇeliK, L., & Eroğlu, Y. (2022). Mediating effect of digital addiction on the relationship between academic motivation and life satisfaction in university students. *Participatory Educational Research*, *10*(1), 17–41. https://doi.org/10.17275/per.23.2.10.1

Awan, K., Saeed, S., & Zafar, N. (2022). Nomophobia, insomnia, academic percentage, and mental health problems in late adolescents in Pakistan. *Journal of Research and Reviews in Social Sciences Pakistan*, *5*(2), 1776–1792. http://journal.kinnaird.edu.pk

Bano, S., & Riaz, M. N. (2023). Moderating role of academic motivation and entitlement between motives of students and academic achievement among university students. *Journal of the Pakistan Medical Association*, *73*(4), 759-762. https://doi.org/10.47391/jpma.01016

Barton, B. A., Adams, K. S., Browne, B. L., & Arrastia-Chisholm, M. C. (2018). The effects of social media usage on attention, motivation, and academic performance. *Active Learning in Higher Education*, *22*(1), 11-22. https://doi.org/10.1177/1469787418782817

Berdida, D. J., & Grande, R. A. (2023). Nursing students' nomophobia, social media use, attention, motivation, and academic performance: A structural equation modeling approach. *Nurse Education in Practice*, *70*, 103645. https://doi.org/10.1016/j.nepr.2023.103645

Berestova, A., Burdina, G., Lobuteva, L., & Lobuteva, A. (2022). Academic motivation of University students and the factors that influence it in an E-learning environment. *Electronic Journal of e-Learning*, *20*(2), pp201-210. https://doi.org/10.34190/ejel.20.2.2272

Birchmeier, C., Grattan, E., Hornbacher, S., & McGregory, C. (2015). *Academic Performance Scale. Academia*. https://www.academia.edu

Boumosleh, J. M., & Jaalouk, D. (2017). Depression, anxiety, and smartphone addiction in university students- A cross sectional study. *PLOS ONE*, *12*(8), e0182239. https://doi.org/10.1371/journal.pone.0182239

Bragazzi, N., & Del Puente, G. (2014). A proposal for including nomophobia in the new DSM-V. *Psychology Research and Behavior Management*, 155. https://doi.org/10.2147/prbm.s41386

Brenner, C. A. (2022). Self-regulated learning, self-determination theory and teacher candidates' development of competency-based teaching practices. *Smart Learning Environments*, *9*(1). https://doi.org/10.1186/s40561-021-00184-5

Brew, E. A., Nketiah, B., & Koranteng, R. (2021). A literature review of academic performance, an insight into factors and their influences on academic outcomes of students at senior high schools. *OALib*, *08*(06), 1-14. https://doi.org/10.4236/oalib.1107423

Buctot, D. B., Kim, N., & Kim, S. (2021). Personal profiles, family environment, patterns of smartphone use, Nomophobia, and smartphone addiction across low, average, and high perceived academic performance levels among high school students in the Philippines. *International Journal of Environmental Research and Public Health*, *18*(10), 5219. https://doi.org/10.3390/ijerph18105219

Chowdhury, E. K. (2024). Examining the benefits and drawbacks of social media usage on academic performance: A study among university students in Bangladesh. *Journal of Research in Innovative Teaching & Learning*. https://doi.org/10.1108/JRIT-07-2023-0097

Copaja-Corzo, C., Aragón-Ayala, C. J., & Taype-Rondan, A. (2022). Nomophobia and its associated factors in Peruvian medical students. *International Journal of Environmental Research and Public Health*, *19*(9), 5006. https://doi.org/10.3390/ijerph19095006

De la Fuente, J., Fernández-Cabezas, M., Cambil, M., Vera, M. M., González-Torres, M. C., & Artuch-Garde, R. (2017). Linear relationship between resilience, learning approaches, and coping strategies to predict achievement in undergraduate students. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.01039

Deci, E. L., & Ryan, R. M. (1985). Conceptualizations of intrinsic motivation and self-determination. *Intrinsic Motivation and Self-Determination in Human Behavior*, 11-40. https://doi.org/10.1007/978-1-4899-2271-7_2

Demirci, K., Akgönül, M., & Akpinar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of Behavioral Addictions*, *4*(2), 85-92. https://doi.org/10.1556/2006.4.2015.010

Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, *46*(3), 223-236. https://doi.org/10.1353/csd.2005.0023

Engida, M. A., Iyasu, A. S., & Fentie, Y. M. (2024). Impact of teaching quality on student achievement: Student evidence. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1367317

Farooq, M., Rizvi, M. A., Wajid, W. A., Ashraf, M., Farooq, M., Javed, H., Sadiq, M. A., Jafar, H. M., Hameed, F., Rizvi, M. A., & Tayyba, A. (2022). Prevalence of Nomophobia and an analysis of its contributing factors in the undergraduate students of Pakistan. *Cyberpsychology, Behavior, and Social Networking*, *25*(2), 147-153. https://doi.org/10.1089/cyber.2021.0148

Gezgin, D. M., Hamutoglu, N. B., Sezen-Gultekin, G., & Ayas, T. (2018). The relationship between Nomophobia and loneliness among Turkish adolescents. *International Journal of Research in Education and Science*, *4*(2), 358-374. https://doi.org/10.21890/ijres.409265

Gonçalves, S., Dias, P., & Correia, A. (2020). Nomophobia and lifestyle: Smartphone use and its relationship to psychopathologies. *Computers in Human Behavior Reports*, *2*, 100025. https://doi.org/10.1016/j.chbr.2020.100025

Gupta, P. K., & Mili, R. (2017). IMPACT OF ACADEMIC MOTIVATION ON ACADEMIC ACHIEVEMENT: A STUDY ON HIGH SCHOOLS STUDENTS. *European Journal of Education Studies*. https://doi.org/10.46827/ejes.v0i0.547

Gutiérrez-Puertas, L., Márquez-Hernández, V. V., São-Romão-Preto, L., Granados-Gámez, G., Gutiérrez-Puertas, V., & Aguilera-Manrique, G. (2019). Comparative study of nomophobia among Spanish and Portuguese nursing students. *Nurse Education in Practice*, *34*, 79-84. https://doi.org/10.1016/j.nepr.2018.11.010

Hasanein, A. M., & Sobaih, A. E. E. (2023). Drivers and consequences of CHATGPT use in higher education: Key stakeholder perspectives. *European Journal of Investigation in Health Psychology and Education*, *13*(11), 2599–2614. https://doi.org/10.3390/ejihpe13110181

Ibrahim, M. N. (2023). Prevalence of insomnia and its association with academic performance and Nomophobia among Allied health sciences students. *Journal of Rehabilitation and Clinical Research (JRCR)*, *1*(2), 32-36. https://doi.org/10.61776/jrcr.v1i2.3035

Iqbal, S., Ashfaq, T., & Moosa, K. (2022). Students' perceived quality of academic programs in higher education institutions: An empirical study. *Pakistan Journal of Educational Research, 5*(4), 1-22. https://doi.org/10.52337/pjer.v5i4.645

Irna, S. (2020). The effect of smartphone usage on student discipline, motivation and learning achievement. Journal of Physics: Conference Series, 1521(3), 032105. https://doi.org/10.1088/1742-6596/1521/3/032105

Izaguirre, L. A., Rodríguez-Fernández, A., & Fernández-Zabala, A. (2022). Perceived academic performance explained by school climate, positive psychological variables and life satisfaction. *British Journal of Educational Psychology*, *93*(1), 318-332. https://doi.org/10.1111/bjep.12557

Javaeed, A., Asghar, A., Allawat, Z., Haider, Q., Mustafa, K. J., & Ghauri, S. K. (2019). Assessment of academic motivation level of Undergraduate medical students of Azad Kashmir, Pakistan. *Curēus*. https://doi.org/10.7759/cureus.4296

Khan, S., Atta, M., Malik, N. I., & Makhdoom, I. F. (2021). Prevalence and relationship of smartphone addiction, nomophobia, and social anxiety among college and university late adolescents. *Ilkogretim Online, 20*(5), 3588. https://doi.org/10.17051/ilkonline.2021.05.394

Korat, N. R. (2020). Nomophobic symptoms and depression among adults' of Rajkot district. *International Journal of Indian Psychology*, *8*(1). https://doi.org/10.25215/0801.013

Kubrusly, M., Silva, P. G. de B., Vasconcelos, G. V. de, Leite, E. D. L. G., Santos, P. de A., & Rocha, H. A. L. (2021). Nomofobia entre discentes de medicina e sua associação com depressão, ansiedade, estresse e rendimento acadêmico. *Revista Brasileira de Educação Médica*, *45*(3). https://doi.org/10.1590/1981-5271v45.3-20200493

Kumar, M., & Bhuyan, S. (2023). Teacher- Student Relationship of University Students in relation to their Academic Achievement. *International Research Journal of Modernization in Engineering Technology and Science*. https://doi.org/10.56726/irjmets42562

Malik, A., & Rafiq, N. (2016). Exploring the Relationship of Personality, Loneliness, and Online Social Support with Interned Addiction and Procrastination. *Pakistan Journal of Psychological Research, 31*, 93.

Mohammad Kraishan, S., Aldwecat, S. H. S., Amarneh, B. H., & Al-Majali, M. A. (2024). Prevalence and impact of nomophobia on academic performance among university students: South of Jordan. *Migration Letters, 21*(3), 178-191. https://migrationletters.com/index.php/ml/article/view/6742

Muhammad, N., Siddique, A., Jabeen, S., & Muhammad Sohail AKhtar. (2023). Academic Motivation and Engagement: A Correlational Study of Students' Perspective at Secondary School Level. *Journal of Social Sciences Review (Print)*, *3*(2), 852–863. https://doi.org/10.54183/jssr.v3i2.315

Naik, B., Rao, R., Verma, M., Singh, C., & Nirala, S. (2023). Internet addiction and nomophobia among medical undergraduates of a tertiary care teaching institute in Patna, Eastern India. *Journal of Education and Health Promotion, 12*(1), 286. https://doi.org/10.4103/jehp.jehp_1663_22

Narad, A., & Abdullah, B. (2016). Academic performance of senior secondary school students: Influence of parental encouragement and school environment. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, *8*(2), 12-19. https://doi.org/10.21659/rupkatha.v8n2.02

Nawaz, I., Sultana, I., Amjad, M. J., & Shaheen, A. (2017). Measuring the enormity of Nomophobia among youth in Pakistan. *Journal of Technology in Behavioral Science*, *2*(3-4), 149-155. https://doi.org/10.1007/s41347-017-0028-0

Nguyen, T., Nguyen, Q. N., Nguyen, N. P., & Nguyen, U. B. (2024). Smartphone use, nomophobia, and academic achievement in Vietnamese high school students. *Computers in Human Behavior Reports*, *14*, 100418. https://doi.org/10.1016/j.chbr.2024.100418

Niazi, M., Shakeel, S., Saqib, S., Shahid, T. N., Nawadat, K., & Fahim, A. (2021). Association of Nomophobia with decision making of dental students. *Pakistan Journal of Medical and Health Sciences*, *15*(12), 3918-3920. https://doi.org/10.53350/pjmhs2115123918

Nikolopoulou, K. (2022). Students' Mobile Phone Practices for Academic Purposes: Strengthening Post-Pandemic University Digitalization. *Sustainability*, *14*(22), 14958. https://doi.org/10.3390/su142214958

Nisar, N. (2018). Students' Attitude towards the Use of Mobile Telephone Technology in Distance Education. *Pakistan Journal of Distance and Online Learning*, *4*(2), 195–212.

O'Hare, E. (2023). The relationship between nomophobia and: Age, procrastination and loneliness within an Irish population (Undergraduate thesis, National College of Ireland). *NORMA eResearch NCI* . https://norma.ncirl.ie/6716/1/ellenohare.pdf

Okmi, M., Por, L. Y., Ang, T. F., & Ku, C. S. (2023). Mobile phone data: A survey of techniques, features, and applications. *Sensors*, *23*(2), 908. https://doi.org/10.3390/s23020908

Oraison, H., & Wilson, B. (2024). The relationship between Nomophobia, addiction, and distraction. *Journal of Technology in Behavioral Science*, *9*(4), 745-751. https://doi.org/10.1007/s41347-024-00392-z

Paterna, A., Alcaraz-Ibáñez, M., Aguilar-Parra, J. M., Salavera, C., Demetrovics, Z., & Griffiths, M. D. (2024). Problematic smartphone use and academic achievement: A systematic review and meta-analysis. *Journal of Behavioral Addictions*, *13*(2), 313-326. https://doi.org/10.1556/2006.2024.00014

Persky, A. M., Lee, E., & Schlesselman, L. S. (2020). Perception of learning versus performance as outcome measures of educational research. *American Journal of Pharmaceutical Education*, *84*(7), ajpe7782. https://doi.org/10.5688/ajpe7782

Pinquart, M., & Ebeling, M. (2020). Students' expected and actual academic achievement – A meta-analysis. *International Journal of Educational Research*, *100*, 101524. https://doi.org/10.1016/j.ijer.2019.101524

Prasad, M. (2017). Nomophobia: A cross-sectional study to assess mobile phone usage among dental students. *JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH*. https://doi.org/10.7860/jcdr/2017/20858.9341

Rugai, J., & Hamiliton-Ekeke, J-T. (2016). A review of digital addiction: A call for safety education. *Journal of Education and e-Learning Research*, *3*(1), 17-22. https://doi.org/10.20448/journal.509/2016.3.1/509.1.17.22

Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, *57*, 321-325. https://doi.org/10.1016/j.chb.2015.12.045

Schwaiger, E., & Tahir, R. (2020). Nomophobia and its predictors in undergraduate students of Lahore, Pakistan. *Heliyon*, *6*(9), e04837. https://doi.org/10.1016/j.heliyon.2020.e04837

Seo, D. G., Park, Y., Kim, M. K., & Park, J. (2016). Mobile phone dependency and its impacts on adolescents' social and academic behaviors. *Computers in Human Behavior*, *63*, 282-292. https://doi.org/10.1016/j.chb.2016.05.026

Sit, C. H., Braman, O. R., Kerr, J. H., & Lindner, K. J. (2011). Motivational style and actual and perceived academic performance of secondary school students in Hong Kong. *School Psychology International*, *34*(1), 17-32. https://doi.org/10.1177/0143034311426943

Soleymani, M., Daei, A., & Ashrafi-Rizi, H. (2019). Nomophobia and health hazards: Smartphone use and addiction among university students. *International Journal of Preventive Medicine*, *10*(1), 202. https://doi.org/10.4103/ijpvm.ijpvm_184_19

Tamizhkumaran, J., Sabar, R., Manesh, P., & Ramajayan, P. (2016). A study on usage of e-Commerce through cell phones by college students. *Oriental journal of computer science and technology*, *9*(1), 46-51. https://doi.org/10.13005/ojcst/901.09

Tran, D. (2016). Classifying Nomophobia as smart-phone addiction disorder. *UC Merced Undergraduate Research Journal*, *9*(1). https://doi.org/10.5070/m491033274

Vagka, E., Gnardellis, C., Lagiou, A., & Notara, V. (2023). Nomophobia and self-esteem: A cross sectional study in Greek University students. *International Journal of Environmental Research and Public Health*, *20*(4), 2929. https://doi.org/10.3390/ijerph20042929

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C. B., & Vallières, É. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, *52*(4), 1003–1017. https://doi.org/10.1177/0013164492052004025

Veerapu, N., Baer Philip, R. K., Vasireddy, H., Gurrala, S., & Kanna, S. T. (2019). A study on nomophobia and its correlation with sleeping difficulty and anxiety among medical students in a medical college, Telangana. *International Journal Of Community Medicine And Public Health*, *6*(5), 2074. https://doi.org/10.18203/2394-6040.ijcmph20191821

Workman, J., & Heyder, A. (2020). Gender achievement gaps: The role of social costs to trying hard in high school. *Social Psychology of Education*, *23*(6), 1407-1427. https://doi.org/10.1007/s11218-020-09588-6

Yildirim, C., & Correia, A. (2015). Exploring the dimensions of nomophobia: Development and validation of a self-reported questionnaire. *Computers in Human Behavior*, *49*, 130-137. https://doi.org/10.1016/j.chb.2015.02.059