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Relationship among Smartphone Addiction, Interpersonal Relationships and Academic Stress at University Level

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ABSTRACT

Smartphones have become ubiquitous phenomena of life in the 21st century. The purpose of this study was to determine students' perceptions regarding smartphone addiction, interpersonal relationship and academic stress. The study examined the correlation between smartphone addiction, interpersonal relationships, and academic stress among university students based on their demographic profile (gender, locality, institution type, program, and age), revealing a significant relationship between these factors and academic stress. The study used a descriptive correlational research design the students. All the students enrolled in universities of Punjab province served as population. Employing multistage simple random sampling technique a sample of 550 public and private university students was selected. Questionnaire was developed by the researchers with the help of extensive literature review. The reliability of the tool was computed through Cronbach-Alpha coefficient. Data was collected through an online survey. The data were analyzed using descriptive and inferential statistics such mean, standard deviation, t test, ANOVA and correlation. A study revealed a positive correlation between smartphone addiction, interpersonal relationships, and academic stress among university students. However, there were no significant differences based on demographics. The findings suggest that smartphone addiction can significantly impact university students' stress levels and interpersonal relationships and have significant implications for students, their families, and policymakers concerned about their well-being and academic success. The study highlights the importance of addressing smartphone addiction and promoting healthy interpersonal relationships in the university setting to reduce academic stress and improve academic performance.

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1. Introduction

Technology has significantly impacted communication, communication, and knowledge acquisition, leading to improved lives. Smartphones and other portable devices have become integral to our lives, offering functions beyond calling and texting. Users can take, edit, save, access the internet, send and receive emails, join social media, track physical activity, watch webinars, and conduct virtual banking. This convergence of digital technology and artificial intelligence has transformed our lives (Fook, Narusaman, Aziz, Mustafa, & Han, 2021). Smartphones in university settings provide students with vast access to information, communication, and entertainment, but concerns about their potential negative effects,

particularly smartphone addiction, have been raised. Academic stress, a common issue among university students, can negatively impact their physical and emotional health and academic performance. Smartphone addiction has been linked to higher levels of academic stress among these students (Lepp, Barkley, & Karpinski, 2014). Youssef (2017) found that smartphone addiction negatively impacts interpersonal communication skills among university students, leading to increased academic stress and poor performance. Medical students who frequently use their smartphones also report poor interpersonal skills, resulting in increased academic stress and poor performance. These findings highlight the importance of addressing smartphone addiction in education (Bae, 2018).

The study found that smartphone addiction among college students significantly impacts their academic performance, as they prioritize checking their phones over attending classes or studying. M. Kwon et al. (2013) found a negative correlation between smartphone addiction and academic performance in adolescents. Lepp et al. (2014) discovered a negative correlation between smartphone usage and academic achievement in college students, highlighting the need for effective regulation and preventative measures. Excessive smartphone use predicts academic stress, and addiction affects interpersonal relationships and communication quality. Turkle (2012) suggests that smartphones limit human connection and communication, leading to isolation and loneliness among those addicted to their devices. People who are addicted to their smartphones may spend less time engaging in face-to-face interactions with others, which may result in isolation from society and loneliness (Twenge, 2017). Prolonged smartphone use can reduce empathy and emotional intelligence, essential skills for healthy interpersonal relationships. Social media use is linked to lower relationship satisfaction and higher levels of conflict in romantic relationships. Smartphone addiction is a behavioral issue characterized by withdrawal symptoms and difficulty cutting back, despite its benefits, and excessive and uncontrolled usage can lead to negative consequences (Billieux, Maurage, Lopez-Fernandez, Kuss, & Griffiths, 2015).

Smartphone addiction increases sensitivity to negative emotions, academic stress, and social changes, leading to decreased communication ability and difficulty in face-to-face communication (Celikkalp, Bilgic, Temel, & Varol, 2020). Smartphone addiction negatively impacts social relationships, face-to-face interactions, and family dynamics. Studies show that inappropriate phone use can negatively affect the academic performance of college students (Lin & Zhou, 2022). The increasing smartphone usage, particularly among university students in Pakistan, has led researchers to explore the link between smartphone addiction, interpersonal relationships, and academic stress among these students, highlighting the potential negative effects of excessive smartphone use.

1.1. Statement of the Problem

The rise in smartphone usage among students has raised concerns about its potential negative impact on academic achievement and interpersonal interactions. While some studies show a correlation between smartphone use for educational purposes and higher academic attainment, a deeper understanding of students' perceptions of smartphone addiction, interpersonal relationships, and academic stress is needed. This study aims to fill this gap by investigating students' perceptions of smartphone addiction, interpersonal relationships, and academic stress in universities in Punjab, Pakistan, focusing on demographic profiles and age differences.

1.2. Research Questions

The study aimed to understand university students' perceptions of smartphone addiction, interpersonal relationships, and academic stress. It also explored differences in these factors based on demographic factors like gender, locality, institution type, program, and age. The research aimed to understand the relationship between these factors and academic stress among university students. The study addressed the following research questions:

1. What is the perception of students' regarding smartphone addiction, interpersonal relations and academic stress at university level?
2. Is there a difference in smartphone addiction, interpersonal relationships and academic stress based on the demographic profile (gender, locality, institution type, program and age) of students at university level?

3. What is the relationship among smartphone addiction, interpersonal relationships and academic stress of students at university level?

1.3. Significance of Study

The study of the relationship among smartphone addiction, interpersonal relationships, and academic stress might be significant in Pakistan for several reasons.

1. This study might assist policymakers and academic institutions in developing educational strategies and interventions that effectively address smartphone addiction and its impact on interpersonal relationships and academic stress.
2. It might reveal the negative impact of smart phone addiction on students' interpersonal relationships and academic performance and provide recommendations for policymakers, parents, and educators to overcome such issues.
3. It might encourage students to limit their smart phone use and adopt healthier lifestyle practices conducive to their academic success and overall wellbeing.

2. Literature Review

2.1. Concept of smartphone

The term "Smartphone" is used to distinguish between feature phones with minimal functionality and mobile phones with enhanced functions. Ericsson's GS 88 "Penelope" concept was first referred to as a smartphone in 1997, which is when the term "smartphone" first appeared (Ira, 2012).

2.2. Addiction

Addiction is an excessive or obsessive behavior that is characterized by impatience, withdrawal, and reliance as well as a psychological need for a drag. The two main types of addiction are either "behavioral addiction, such as a mobile phone addiction" or "substance addiction, such as narcotics or alcohol addiction (Kim & Ha, 2018).

2.3. Smart Phone Addiction

Smartphone addiction is defined as excessive smartphone use that negatively impacts users' daily lives. Moreover, they exhibit a variety of clinical traits, including salience, lenience, lack of control, a modification in attitude, signs of withdrawal, and need (Kim & Ha, 2018).

2.4. Interpersonal Relationship

Research indicates a strong correlation between factors like academic success, gender, age, and mobile addiction. People engage in self-discussion and believe in connected communication in social relationships, which is crucial for understanding the impact of smartphone addiction on interpersonal issues (Przybylski & Weinstein, 2013).

2.5. Academic Stress

Bedewy and Gabriel (2015) have defined academic stress as a student's perception of pressure, time restraints, workload and self-perception**.** Research demonstrates that students experience high levels of stress, anxiety and despair. Furlonger and Gencic (2014) explored the fact that no difference was found in academic stress between on-campus and distance education. The nature of the teacher-student interaction affects academic stress, and strong connections lead to less stress. Waqas, Khan, Sharif, Khalid, and Ali (2015) found a relationship between academic stresses and sleep issues among medical students in Pakistan. Moreover, Lee and Jang (2015) discovered that academic stress lowers contentment, self-worth, and self-efficacy. Likewise, Pierceall and Keim (2007) concluded that behaviors related to stress, including anxiety, stress, depression and drug use are more common among students who lack coping skills.

2.6. Smartphones Addiction and Interpersonal Relationship

According to Fook et al. (2021), mobile addiction can increase sensitivity to interpersonal relationships and negative feelings. Research by Chiu (2014) suggests that addiction can be linked to social and environmental factors, such as parent-child relationships, communication styles, attachment styles, friendships, school adjustments, academic achievement, and psychological factors like impulsiveness, depressive symptoms, isolation, self-confidence, self-worth, and anxiety. Effective communication skills are crucial for developing partnerships.

2.7. Smartphones Addiction and Academic Stress

Pierceall and Keim (2007) revealed that among community college students, stress and coping mechanisms were related. Schraml, Perski, Grossi, and Makower (2012) found a correlation between academic stress and achievement and also found that academic performance generally declines with an increase in stress levels. It has been discovered that little stress enhances performance. Ross et al. (2005) concluded that 50% of students in Thailand who experienced academic stress also experienced depression. A study concluded that 61% academic stress rate was found among medical students. Humanities students in Thailand were compared to medical students, and it was shown that the later had greater levels of stress and sleep deprivation (Kim & Ha, 2018).

2.8. Smart Phone Addiction, Interpersonal Relationship and Academic Stress

Pakistan's youth population has significantly increased their use of smartphones, with social applications becoming the "go-to device" for individuals. With around 120 million cell phone customers worldwide, Mobilink, Telenor, and Ufone are the top three providers. Infographics reveal 77% of smartphone users are between 21 and 30. Teenagers and young people are becoming more reliant on smartphones, moving away from feature phones due to their additional features. Smartphone addiction is a behavioral addiction where users cannot regulate their usage, leading to health issues like headaches, exhaustion, attention deficit disorder, sleeplessness, and hearing difficulties. It can also cause medical and psychological harm. Hawi and Samaha (2017) found a significant association between smartphone addiction, anxiety, and relationships with family, highlighting the need for better regulation and prevention of addiction.

Smartphone addiction has been linked to various negative effects, including nomophobia, anxiety, and GPA. Studies by Durak (2019) and Lepp et al. (2014) found that texting on a cell phone positively correlated with anxiety and negatively correlated with GPA. Yalçin, Özkurt, Özmaden, and Yağmur (2020) found that smartphone addiction predicted academic success and loneliness, suggesting that protecting high school children from smartphone addiction can improve academic performance.

Omer (2020) found significant differences in smartphone addiction levels, with a constant increase in females. Owusu-Marfo et al. (2018) found that medical students with lower scores on medical board exams often had poor sleep habits. Similarly, Alharbi Jr, Alshammari, and Mohamed (2022) found a connection between reduced academic performance and smartphone addiction, emphasizing the need for responsible technology use. Significant correlations were found between smartphone addiction, sleep quality ratings, dejection and anxiety. Chiu, Hong, and Chiu (2013) found a strong correlation between internet and mobile phone addiction, with female college students performing better. They made recommendations for colleges and future research projects. In their study,Y.-S. Kwon and Paek (2016) investigated the correlation between smartphone addiction, communication skills, and feelings of sorrow in a sample of college students. Thomas (2016) found a weak association between smartphone addiction and classroom stress, with a strong moderated relationship between gender and academic stress. These studies highlight the importance of understanding and addressing smartphone addiction among students.

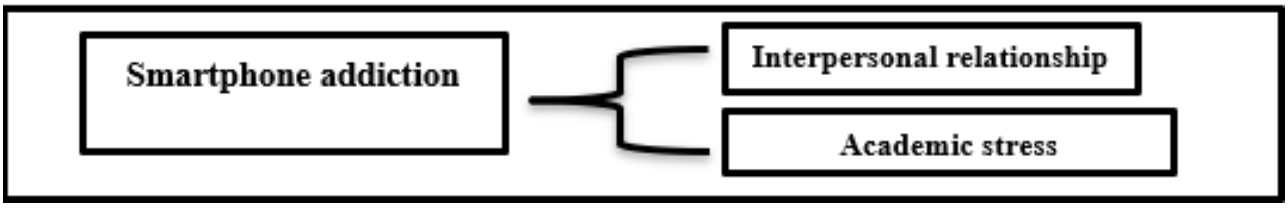
Studies have shown a correlation between smartphone addiction and students' academic performance, with some studies indicating a link between smartphone use and academic achievement (Boumosleh & Jaalouk, 2017; Fook et al., 2021; Kubrusly et al., 2021). Others have explored the relationship between cellphone addiction, interpersonal relationships and academic behavior in young individuals. Nomophobia, a fear of the unknown, has been linked to stress, despair and poor academic performance in medical students. (Amidtaher, Saadatmand, Moghadam, Fathi, & Afshar, 2016) found a connection between mobile phone dependence, mental health and academic achievement among students, with life dysfunction, compulsion persistence and deprivation tolerance being predictive of changes in mental health and academic success. Mobile-dependent students had higher lifetime rates of psychopathology and academic failure. Likewise, Traş and Öztemel (2019) concluded that smartphone addiction and the fear of missing out might predict Facebook intensity. Alotaibi, Fox, Coman, Ratan, and Hosseinzadeh (2022) stated that those students who were hooked on their smartphones were more likely to have a major mental condition, be overweight or obese, do worse in school, be physically inactive, sleep poorly and experience shoulder, eye and neck pain. Rathakrishnan et

al. (2021) found that excessive smartphone use among university students caused addiction and poor sleep. Addressing smartphone addiction and bad sleep habits can improve academic achievement and health.

3. Theoretical and Conceptual Framework

This study uses social cognitive theory and Albert Bandura's social learning theory to understand how media content affects violent behaviors in young people. Bandura's theory suggests that people learn negative social behaviors through observation, modeling and imitation. Media displacement theory suggests that engaging in one communication activity can hinder others, and excessive media time can interfere with other pursuits like learning, creativity and exercise. The conceptual framework focuses on identifying the relationship among smartphone addiction, interpersonal relationship and academic stress from literature Figure 1 represents the conceptual framework of the study.

Figure 1



4. Research Methodology

A descriptive correlation research design was utilized for this study. The research was primarily descriptive in nature. The research was conducted in the form of a quantitative survey, and its primary objective was to investigate the perceptions of university students on smartphone addiction, interpersonal relationships, and academic stress.

4.1. Population

The population consisted of all of the university students in Punjab who were enrolled in either public or private universities.

4.2. Sample

To select the sample, a multi-staged random sampling technique was used.

Stage 1: 2 universities (01public BZU& 01private ISP) selected randomly of District Multan.
Stage 2: 550 students (males & females) were selected from 01 public sector university BZU and 01 private sector university ISP of District Multan.
Stage 3: BZU randomly selected 440 students of both genders.
Stage 4: 110 private university students picked both genders at random.

4.3. Instrumentation

The research instrument was developed on the basis of a comprehensive review of the literature. The instrument consisted of two distinct sections. In the first section, demographic factors such as gender, age, locality, institution type, program, socioeconomic position, period of time spent using smart phones and the purpose of using smart phones were discussed. The second section of the instrument consisted of thirty statements pertaining to smart phone addiction, interpersonal relationships and academic stress. The reliability of the tool (Cronbach's alpha) for smartphone addiction, interpersonal relationships and academic stress was found to be 0.78.

5. Data Collection and data Analysis

The data for the study was gathered through a survey. A Google Form was used to collect the data and the link to the form was shared with the students through their own WhatsApp groups. The data were analyzed using SPSS version 21. The data were analyzed using descriptive statistics (mean, standard deviation, and percentages). The correlation coefficient among smartphone addiction, interpersonal relationships, and academic stress among students at the university level was computed with the help of the Pearson r formula. To calculate the difference in smartphone addiction, interpersonal relationships, and academic stress based upon

gender, location, institution type, program, and age, an independent sample t test and ANOVA were utilized.

Table 1: Analysis of Demographic Characteristics of the Respondents

Variables	Responses	Frequency	Percentage
Gender	Male	260	47.3
	Female	290	52.7
Age	18-22	90	16.4
	22-26	195	35.5
	26-30	130	23.6
	30-34	70	12.7
	34-38	50	9.1
	38-Above	15	2.7
Locality	Urban	330	60.0
	Rural	220	40.0
Institution type	Public	410	74.5
	Private	140	25.5
Program	BS	169	30.7
	B. Ed (Hons)	62	11.3
	B. Ed (1.5 years	178	32.4
	M. Phil	130	23.6
	Ph. D	11	2.0

Table 1 shows that it was found that out of 550 sampled students, 260 (47.3%) were male and 290 (52.7%) were female, which was 52.7% of the total sample. With reference to age, it was found that students in the age group of 18–22 years are 90 (15.4%). 22–26 years were 195 (35.5%). The students' age groups ranging between 26 and 30 years make up 130 (23.6%) of the total sample. 26–30 years are 130 (23.6%). 30–34 years were 70 (12.7%). 34–38 years are 50 (9.1%). The students' age group above 38 years was 15 (2.7%). In regard to locale, it was found that out of 550 students, 330 (60% of them) were from urban areas and 220 (40% of them) were from rural areas. In regard to institution type, it was indicated that the respondents of the study, comprised of 74.5%, were enrolled in public sector institutions and 25.5% were enrolled in private sector institutions. Out of 550 students, 169 (30.7%) were enrolled in the BS program. The B.Ed. (Hons.) program had 62 students (11.3%). In the B.Ed. (1.5) year program, there were 178 (32.4%) students. 130 (23.6%) students were enrolled in the M.Phil. program, and 11 (2.0%) students were enrolled in the PhD program.

Table 2: Factor wise Perception of Students at University Level

Sr.	Factors and their dimensions	Mean	SD
1	Smartphone Addiction and its dimensions		
	Relationship dimension		
	Addiction Dimension		
	Smartphone Addiction among Young Adults dimension		
	Positive Effect Dimension		
	Adverse Effect Dimensions		
	Total	3.05	1.22
2	Interpersonal Relationship and its dimensions		
	Relationship with Family dimension		
	Relationship in Social Media dimension		
	Relationship with Friends dimension		
	Interpersonal Relationship among Young Adults dimension		
	Total	2.98	1.26
3	Academic Stresses and its dimensions		
	Stresses related to faculty work		
	Stresses related to academic expectations		
	Stresses related to workload and examinations		
	Total	3.06	1.39

Table 2 provides the overall mean and standard deviation based on the point of view of university students regarding addiction to smartphones, interpersonal relationships and academic stress. Overall, the average score for these factors falls into the category of moderate extent, with average scores of 3.05, 2.98, and 3.06.

Table 3: Perception of male and female students about smartphone addiction interpersonal relationship & academic stress

Factors	Participants	N	Mean	SD.	t	df.	Sig.
Smartphone Addiction	Male	260	56.04	6.56	-1.671	548	.095
	Female	290	57.09	8.06			
Interpersonal Relationship	Male	260	43.69	5.37	-2.036	548	0.42
	Female	290	44.69	6.13			
Academic Stress	Male	260	32.99	5.56	-1.743	548	0.82
	Female	290	33.82	5.57			

Table 3 shows that there is no statistically significant difference between female and male students in terms of smartphone addiction, with a p-value of.000. The mean value for female students in smartphone addiction, interpersonal relationships, and academic stress is higher than that for male students. The sig-values (.095, .42, and.82) were not significant at p 0.05 for smartphone addiction, interpersonal relationships, and academic stress among male and female students.

Table 4: Perception of urban and rural students about smartphone addiction interpersonal relationship & academic stress

Factors	Participants	N	Mean	SD.	t	df.	Sig.
Smartphone Addiction	Urban	330	8.51	1.85	-.369	548	.712
	Rural	220	8.45	1.67			
Interpersonal Relationship	Urban	330	44.38	6.27	.850	548	.396
	Rural	220	43.97	5.01			
Academic Stress	Urban	330	33.55	5.75	.622	548	.543
	Rural	220	33.25	5.30			

Table 4 reveals that the mean values for urban students in smartphone addiction, interpersonal relationships, and academic stress are higher than those for rural students. The sig-values (.712,.396 and.543) were not significant at p = 0.05 for smartphone addiction, interpersonal relationships, and academic stress among urban and rural students. There is no statistically significant difference in students' perceptions of smartphone addiction, interpersonal relationships, or academic stress between students in urban and rural areas.

Table 5: Perception of public and private students about smartphone addiction interpersonal relationship & academic stress

Factors	Participants	N	Mean	SD.	t	df.	Sig.
Smartphone Addiction	Public	410	57.5	7.93	-.31	548	.754
	Private	140	56.7	7.30			
Interpersonal Relationship	Public	410	44.4	6.08	1.63	548	.103
	Private	140	43.5	4.87			
Academic Stress	Public	410	34.4	5.88	.012	548	.991
	Private	140	33.4	4.57			

The mean values for public students in smartphone addiction, interpersonal relationships, and academic stress are higher than those of private institution students. The Sig-values (.754, .103, and.991) were not significant at p =.000 for smartphone addiction, interpersonal relationships, and academic stress among public and private students. It was discovered that there is not a significant statistical difference between public and private students' perceptions of smartphone addiction, interpersonal connections, and academic stress.

Table 6: Perception of students enrolled in different academic programs about smartphone addiction, interpersonal relationship and academic stress

Factors		Sum of Squares	Df	Mean Square	F	Sig.
Smartphone Addiction	Between Groups	89.912	4	22.478	.408	.803
	Within Groups	30004.672	545	55.054		
	Total	30094.584	549			
Interpersonal	Between Groups	29.148	4	7.287	.216	.930
Relationship	Within Groups	18415.535	545	33.790		
	Total	18444.684	549			
Academic Stress	Between Groups	75.616	4	18.904	.607	.657
	Within Groups	16963.395	545	31.125		
	Total	17039.011	549			

One-way ANOVA shows in Table 6 that the Sig values (.803,.930, and.657) for the perception of students who are enrolled in different programs (BS, B.Ed. (Hons.), B.Ed. (1.5) years, M.Phil., Ph.D.) on smartphone addiction, interpersonal relationships, and academic stress were not significant at p 0.05. It is reflected that smartphone addiction, interpersonal relationships, and academic stress were not significantly different among students with different programs: BS, B. Ed. (Hons), B. Ed. (1.5) years, M. Phil., and Ph. D.

Table 7: Perception of different age of students about smartphone addiction, interpersonal relationship and academic stress

Factors		Sum of Squares	Df	Mean Square	F	Sig.
Smartphone Addiction	Between Groups	248.515	5	49.703	.906	.477
	Within Groups	29846.069	544	54.864		
	Total	30094.584	549			
Interpersonal Relationship	Between Groups	11.853	5	2.371	.070	.997
	Within Groups	18432.831	544	33.884		
	Total	18444.684	549			
Academic Stress	Between Groups	186.018	5	37.204	.201	.307
	Within Groups	16852.992	544	30.980		
	Total	17039.011	549			

One-way ANOVA shows that the sig values (0.477,.997, and.307) for the perception of different ages of students about smartphone addiction, interpersonal relationships, and academic stress were not significant at p 0.05 (table 4.11). It is reflected that smartphone addiction, interpersonal relationships, and academic stress were not significantly different among students of different ages (18–22 years), 22–26 years, 26–30 years, 30-34 years, 34–38 years, and 38–above.

Table 8: Correlation among smartphone addiction, interpersonal relationship & academic stress

Correlation			
	Smartphone addiction	Interpersonal relationship	Academic stress
Smartphone addiction	1		
Interpersonal relationship	.307**	1	
Academic stress	.064**	.378**	1
**. Correlation is significant at the 0.01 level (2-tailed).			

In above table 8 it is demonstrated that there is a positive relationship among the smartphone addiction, interpersonal relationship & academic stress. A positive and moderate relationship with correlation coefficient r = r =0.064** ($p<0.01$) exists between smartphone addiction and interpersonal relationship for the entire sample. Smartphone addiction scale is also positively correlated with subscales of interpersonal relationship scale r = .307($p<0.01$) and Academic stress scale r= .378 ($p<0.01$).

6. Conclusion and Discussion

A Pakistani university study revealed moderate smartphone addiction among students, affecting academic performance and mental health. This addiction can hinder focus, anxiety, and maintaining interpersonal relationships. Excessive smartphone use also disrupts face-to-face communication. The study calls for interventions and support services to address smartphone addiction among Pakistani students, promoting healthy smartphone use and providing tools for managing it. The study found that female students are more likely to report high levels of smartphone addiction, interpersonal relationship strain, and academic stress than their male counterparts. There was no significant difference in perceptions between urban and rural students, public and private sectors, programs, or age groups. A statistically moderate relationship was found between smartphone addiction, interpersonal relationships, and academic stress.

The study found a positive correlation between mobile addiction and academic stress, while interpersonal relationships showed a moderately favorable link, but the correlation between smartphone dependence and school pressure was weak. Fewer studies Chiu (2014); Dayapoglu, Kavurmaci, and Karaman (2016) have found a positive correlation between mobile phone use and interpersonal relationships among college students. Previous research has found that problematic mobile phone use results in negative interpersonal relationships and that

mobile phone addiction impacts social interactions. However, Celikkalp et al. (2020) found that smartphone addiction significantly impacts interpersonal relationships. Additionally, depression and anxiety were found to be strong predictors of cell phone dependence. The study reveals a weak but significant correlation between mobile phone use and poor academic performance. This finding is consistent with previous studies Alharbi Jr et al. (2022); Celikkalp et al. (2020); Kibona and Mgaya (2015) indicating a negative correlation between mobile phone use and academic success. Interpersonal interactions and cell phone addiction are identified as potential contributors to academic stress. Previous research by Amez and Baert (2020) has shown that business students' social networks and mobile phone use are predictive of their future success. Similar findings were found in two studies on mobile addiction by nursing students. Mobile phone technology can positively impact students' academic achievements if used properly, but excessive and irresponsible use can lead to negative consequences, such as a decline in academic achievement. Scholars agree that proper use of mobile phones can help achieve educational goals.

The study found no significant difference in students' perceptions of smartphone addiction, interpersonal relationships, or academic stress based on demographic factors. However, smartphone addiction is positively associated with academic stress Lepp et al. (2014), as excessive use can distract students from academic tasks, leading to poor performance and increased stress levels. Additionally, excessive smartphone use can cause sleep deprivation, which can also negatively impact academic performance. Furthermore, smartphone addiction can negatively impact interpersonal relationships, as it can decrease face-to-face interactions, lead to social isolation, and disrupt communication patterns, potentially causing conflicts with significant others.

6.1. Recommendations

The study's findings can inform the development of interventions aimed at reducing smartphone addiction among university students.

1. The study aims to develop interventions to reduce smartphone addiction among university students, improve their interpersonal skills, and enhance academic support services.
2. These groups provide a safe space for students to share experiences, learn coping strategies, and receive support from peers.
3. The study raises awareness among students, faculty members, and administrators about the negative consequences of smartphone addiction on academic and social lives, aiding in the development of interventions.
4. Future research should explore the correlation between smartphone addiction, interpersonal relationships, and academic stress, using a mixed-method research design strategy for more comprehensive findings.

References

Alharbi Jr, R. S., Alshammari, T. M., & Mohamed, B. A. (2022). Addiction of Smartphones and Its Relationship to Academic Achievement of Medical Students in Saudi Arabia, 2022. *medRxiv*, 2022.2012. 2012.22283066. doi:https://doi.org/10.1101/2022.12.12.22283066

Alotaibi, M. S., Fox, M., Coman, R., Ratan, Z. A., & Hosseinzadeh, H. (2022). Smartphone addiction prevalence and its association on academic performance, physical health, and mental well-being among university students in Umm Al-Qura University (UQU), Saudi Arabia. *International journal of environmental research and public health, 19*(6), 3710. doi:https://doi.org/10.3390/ijerph19063710

Amez, S., & Baert, S. (2020). Smartphone use and academic performance: A literature review. *International Journal of Educational Research, 103*, 101618. doi:https://doi.org/10.1016/j.ijer.2020.101618

Amidtaher, M., Saadatmand, S., Moghadam, Z., Fathi, G., & Afshar, R. (2016). The relationship between mobile cellphone dependency, mental health and academic achievement. *Am J Educ Res, 4*(5), 408-411.

Bae, S. M., Lee, K. M., & Lee, J. Y. . (2018). Examining the relationship between smartphone addiction and interpersonal skills in medical students. *Korean Journal of Medical Education, 30*(4), 317-325.

Bedewy, D., & Gabriel, A. (2015). Examining perceptions of academic stress and its sources among university students: The Perception of Academic Stress Scale. *Health psychology open, 2*(2), 2055102915596714. doi:https://doi.org/10.1177/2055102915596714

Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*(2), 156-162. doi:https://doi.org/10.1007/s40429-015-0054-y

Boumosleh, J., & Jaalouk, D. (2017). Smartphone addiction among university students and its relationship with academic performance. *Global Journal of Health Science, 10*(1), 48.

Celikkalp, U., Bilgic, S., Temel, M., & Varol, G. (2020). The smartphone addiction levels and the association with communication skills in nursing and medical school students. *Journal of Nursing Research, 28*(3), e93.

Chiu, S.-I. (2014). The relationship between life stress and smartphone addiction on Taiwanese university student: A mediation model of learning self-efficacy and social self-efficacy. *Computers in human behavior, 34*, 49-57. doi:https://doi.org/10.1016/j.chb.2014.01.024

Chiu, S.-I., Hong, F.-Y., & Chiu, S.-L. (2013). An analysis on the correlation and gender difference between college students' Internet addiction and mobile phone addiction in Taiwan. *International scholarly research notices, 2013*. doi:http://dx.doi.org/10.1155/2013/360607

Dayapoglu, N., Kavurmaci, M., & Karaman, S. (2016). The relationship between the problematic mobile phone use and life satisfaction, loneliness, and academic performance in nursing students. *International Journal of Caring Sciences, 9*(2), 647-652.

Durak, H. Y. (2019). Investigation of nomophobia and smartphone addiction predictors among adolescents in Turkey: Demographic variables and academic performance. *The Social Science Journal, 56*(4), 492-517. doi:https://doi.org/10.1016/j.soscij.2018.09.003

Fook, C. Y., Narusaman, S., Aziz, N. A., Mustafa, S. M. S., & Han, C. T. (2021). Exploring the Relationship between Mobile Addiction, Interpersonal Relationship, and Academic Behavior among Young Adults in Tertiary Institutions. *Malaysian Journal of Learning and Instruction, 18*(2), 263-299.

Furlonger, B., & Gencic, E. (2014). Comparing satisfaction, life-stress, coping and academic performance of counselling students in on-campus and distance education learning environments. *Journal of Psychologists and Counsellors in Schools, 24*(1), 76-89. doi:https://doi.org/10.1017/jgc.2014.2

Hawi, N. S., & Samaha, M. (2017). Relationships among smartphone addiction, anxiety, and family relations. *Behaviour & Information Technology, 36*(10), 1046-1052. doi:https://doi.org/10.1080/0144929X.2017.1336254

Kibona, L., & Mgaya, G. (2015). Smartphones' effects on academic performance of higher learning students. *Journal of multidisciplinary engineering science and technology, 2*(4), 777-784.

Kim, E.-Y., & Ha, J.-H. (2018). The relationships among impulsivity, internalizing-externalizing behavior problems, mobile phone addiction and internet addiction on adolescents. *Journal of the Korea Academia-Industrial Cooperation Society, 19*(1), 408-419.

Kubrusly, M., Silva, P. G. d. B., Vasconcelos, G. V. d., Leite, E. D. L. G., Santos, P. d. A., & Rocha, H. A. L. (2021). Nomophobia among medical students and its association with depression, anxiety, stress and academic performance. *Revista Brasileira de Educação Médica, 45*, e162.

Kwon, M., Lee, J.-Y., Won, W.-Y., Park, J.-W., Min, J.-A., Hahn, C., . . . Kim, D.-J. (2013). Development and validation of a smartphone addiction scale (SAS). *PloS one, 8*(2), e56936. doi:https://doi.org/10.1371/journal.pone.0056936

Kwon, Y.-S., & Paek, K.-S. (2016). The influence of smartphone addiction on depression and communication competence among college students. *Indian Journal of Science and Technology, 9*(41), 1-8.

Lee, J., & Jang, S. (2015). An exploration of stress and satisfaction in college students. *Services Marketing Quarterly, 36*(3), 245-260. doi:https://doi.org/10.1080/15332969.2015.1046774

Lepp, A., Barkley, J. E., & Karpinski, A. C. (2014). The relationship between cell phone use, academic performance, anxiety, and satisfaction with life in college students. *Computers in human behavior, 31*, 343-350. doi:https://doi.org/10.1016/j.chb.2013.10.049

Lin, Y., & Zhou, X. (2022). Bedtime smartphone use and academic performance: A longitudinal analysis from the stressor-strain-outcome perspective. *Computers and Education Open, 3*, 100110. doi:https://doi.org/10.1016/j.caeo.2022.100110

Omer, O. (2020). Smartphone addiction and fear of missing out: Does smartphone use matter for students' academic performance? *Journal of Computer and Education Research, 8*(15), 344-355. doi:https://doi.org/10.18009/jcer.696481

Owusu-Marfo, J., Lulin, Z., Antwi, H. A., Kissi, J., Antwi, M. O., & Asare, I. (2018). The Effect of Smart mobile devices usage on Sleep Quality and academic performance–A Narrative Review. *Canadian Journal of Applied Science and Technology, 6*(2).

Pierceall, E. A., & Keim, M. C. (2007). Stress and coping strategies among community college students. *Community College Journal of Research and Practice, 31*(9), 703-712. doi:https://doi.org/10.1080/10668920600866579

Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships, 30*(3), 237-246. doi:https://doi.org/10.1177/0265407512453827

Rathakrishnan, B., Bikar Singh, S. S., Kamaluddin, M. R., Yahaya, A., Mohd Nasir, M. A., Ibrahim, F., & Ab Rahman, Z. (2021). Smartphone addiction and sleep quality on academic performance of university students: An exploratory research. *International journal of environmental research and public health, 18*(16), 8291. doi:https://doi.org/10.3390/ijerph18168291

Ross, R., Zeller, R., Srisaeng, P., Yimmee, S., Somchid, S., & Sawatphanit, W. (2005). Depression, stress, emotional support, and self-esteem among baccalaureate nursing students in Thailand. *International Journal of Nursing Education Scholarship, 2*(1). doi:https://doi.org/10.2202/1548-923X.1165

Schraml, K., Perski, A., Grossi, G., & Makower, I. (2012). Chronic stress and its consequences on subsequent academic achievement among adolescents. *Journal of Educational and Developmental Psychology, 2*(1), 69. doi:http://dx.doi.org/10.5539/jedp.v2n1p69

Thomas, D. (2016). *Cellphone addiction and academic stress among university students in Thailand.* Paper presented at the International Forum.

Traş, Z., & Öztemel, K. (2019). Examining the relationships between Facebook intensity, fear of missing out, and smartphone addiction. *Addicta, 6*, 91-113.

Twenge, J. M. (2017). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy--and completely unprepared for adulthood--and what that means for the rest of us*: Simon and Schuster.

Waqas, A., Khan, S., Sharif, W., Khalid, U., & Ali, A. (2015). Association of academic stress with sleeping difficulties in medical students of a Pakistani medical school: a cross sectional survey. *PeerJ, 3*, e840.

Yalçin, I., Özkurt, B., Özmaden, M., & Yağmur, R. (2020). Effect of smartphone addiction on loneliness levels and academic achievement of z generation. *International Journal of Psychology and Educational Studies, 7*(1), 208-214.

Youssef, L., Hathout, H., & Farhat, K. . (2017). The relationship between smartphone addiction and interpersonal communication skills among university students. . *International Journal of Computer Science and Mobile Computing*.