Patterns of Smartphone Usage among Undergraduate Students in Selected Departments in Abia State University, Uturu

Uka-Kalu, Ezinne Chioma*; Okorie, Justin Chiaguguom; Frank Edidiong M.

Department of Public Health, Abia State University, Uturu, Nigeria

***Corresponding Author**

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ABSTRACT

Aim: This study investigated smartphone usage patterns, associated factors, and awareness of smartphone addiction among undergraduate students of Abia State University, Uturu.

Method: A cross-sectional descriptive design was used, with a sample size of 368 selected through simple random sampling. Data were collected via a questionnaire, focusing on age, gender, academic field, and socioeconomic characteristics.

Results: The findings revealed that a majority (57.2%) of students have used smartphones for over five years, with 45% starting at ages 16-18. Smartphone use is primarily for social media (40.2%), followed by boredom (33.1%) and communication (35.1%). Notably, 45.9% of students generate income using their smartphones, and marital status significantly influences smartphone use for income and social media engagement. A high level of awareness (92.1%) regarding smartphone addiction was found, with decreased productivity and poor academic performance being the most recognized negative effects.

Conclusion: The study concluded that smartphone addiction is a significant issue, with prolonged use linked to negative impacts on academic performance and daily life. The findings suggest the need for interventions to mitigate the adverse effects of smartphone addiction among university students.

Keywords: Smartphone addiction, Undergraduate students, Social media, Academic performance, Mental health, Abia state university.

INTRODUCTION

In recent years, smartphones have become integral to daily life across the globe. Since the release of the first widely available smartphone in 2007, the mobile industry has seen significant technological advancements that have made these devices affordable and user-friendly, spurring widespread adoption. For example, in 2018, over 2.5 billion people globally used smartphones, a figure projected to rise to 7.5 billion by 2026, showing their increasing importance in modern society (Statista, 2022). Smartphones are versatile tools that enhance productivity (e.g., email), facilitate social connections (e.g., social media), expand entertainment options, and provide access to various information and services, including online banking (Al-Fawareh & Jusoh, 2017). Despite these advantages, smartphones can contribute to "excessive" or "compulsive" usage patterns, a phenomenon often referred to as "smartphone addiction" (Darko-Adjei, 2019).

Originally, smartphones were intended to reduce reliance on standalone devices like cameras, video recorders, and digital watches. Many younger people, for instance, have substituted traditional digital cameras with smartphone cameras for photography and filming (Darko-Adjei, 2019). Consequently, smartphone usage is not restricted to communication alone; modern smartphones allow for internet browsing, health monitoring, email management, media consumption, social interactions, and file sharing, among other activities. This

multifunctional capacity has naturally led to a notable increase in social media usage, where users frequently engage on various platforms (Raza *et al.,* 2020).

The current generation of young adults, often referred to as Generation Z (Gen Z), has grown up with digital technology readily available, making them true "digital natives." However, despite high digital access, digital literacy is not a guaranteed skill. With constant connectivity comes a range of issues, particularly among adolescents and young adults. Time spent on electronic devices has increased worldwide, and while smartphones offer numerous conveniences, they also have adverse effects on young people, such as smartphone addiction (Van Velthoven, Powell, & Powell, 2018). This growing dependency is evident in patterns of smartphone use, with many users reaching for their devices as the last activity before sleep and the first after waking up (Lee *et al.,*2014). Globally, as of 2020, nearly half of the population—about 3.81 billion people—engaged in social media, indicating widespread dependence (Social Business, 2021).

In Nigeria, 55% of the population actively participates in social media, with individuals under the age of 35 being the most active users. Analysis of social media use by age and gender in Nigeria reveals that men are generally more active on these platforms than women, and usage decreases with age (We Are Social, 2022). Currently, Nigeria has around 58 million mobile phone users, with 94% accessing the internet through smartphones. The average internet user in Nigeria spends about 8 hours online daily, with smartphone users dedicating 4 hours and 16 minutes to their devices. Furthermore, Turkish smartphone users spend an average of 2 hours and 27 minutes daily on social media, and most are members of approximately 8 social platforms (We Are Social, 2022). Social media users in Nigeria make up about 80% of the population, highlighting the pervasiveness of smartphone use.

University students are among the first to adopt and adapt to smartphone technology, given their comfort with emerging technologies. Numerous studies reveal a significant link between smartphone use and various aspects of students' lives, including health, academic performance, social interactions, and learning perceptions (Boumosleh & Jaalouk, 2018). The extent and nature of smartphone use among students vary based on factors such as age, gender, economic status, and access to computers, indicating that these factors play an influential role in shaping smartphone-related behaviours among young people in academic settings.

This study aimed to investigate the smartphone usage patterns of undergraduate students in Abia State University, Uturu, the prevalence of smartphone addiction among this population, and the relationship between smartphone usage and academic performance, social relationships, and mental health. By addressing this knowledge gap, this study contributed to the development of targeted interventions and strategies to promote healthy smartphone use and mitigate addiction among undergraduate students, ultimately enhancing their overall well-being and academic success.

METHOD

The researchers employed a cross-sectional descriptive design, which is a research approach aimed at collecting data from a population at a particular moment. This method involved gathering information from participants about various variables of interest concurrently, without altering or observing these variables over an extended duration.

Population of the Study

The target consisted of undergraduate students currently registered in different undergraduate degree programs in different faculties in Abia State University. This study examined the age, gender, and academic field to investigate potential differences in the prevalence of smartphone addiction and its associated factors across various departments. The total number of students in the selected department was 3,614.

Sample and Sample Size

The researcher will utilize a convenient sampling technique.

Step 1: Selecting Faculties

The study employed a simple random sampling technique, conducted through a balloting process without replacement, to choose two faculties from the 11 faculties at Abia State University, Uturu. The selected faculties were the Faculty of Health Sciences and the Faculty of Humanities.

Step 2: Selecting Departments

The simple random sampling technique of balloting without replacement was used to select 2 departments out of the 4 departments from the faculty of Humanities which were; Mass communication and History and International Relations, and also 2 departments out of the 4 were selected from the faculty of health sciences which were; Public Health and Optometry.

Step 3: Selecting of Levels

The researchers conveniently selected the 200 to 300 level students from the 2 selected departments in the faculty of Humanities. And also, the 200 to 300 level students were selected from the Faculty of Health Sciences.

Step 3: Selecting Respondents

The researchers utilised those present in class to select students from each class in the selected department and also utilised the bourley allocation proportion use.

Sample Size

This study utilized the slovin formula for sample size determination, the formula is used when the total population of the study is known and the formula determined a sample size that was suitable for the study.

Which was approximated to 331 undergraduate students in the selected departments.

Thus, adjusting for a 10% non-response rate;

Where N is the sample size = 331

n is the desired sample size per 10% non-response rate

n = 368

Instrument of Data Collection

Data collection was conducted using a Smartphone Addiction Scale (SAS) in form of a well-structured questionnaire constructed by the researcher. It was based on broad literature review on the prevalence of smartphone addiction and its associated factors affecting students. The questionnaire was made up of closed ended questions. The Smartphone Addiction Scale was set to contain questions based on the research questions of the study and it consisted of four sections, Section A being the demographic characteristics of the respondents, Section B, C and D portrayed the specific objectives of the study.

Method of Data Collection

The process of collecting data utilised the carefully designed Smartphone Addition Scale. In instances where respondents encounter difficulty understanding specific questions, the researchers offered clarification by explaining the content of the questionnaire. This strategy was implemented to ensure that respondents have a clear understanding of the questions, facilitating accurate and meaningful responses to each item.

Method of Data Analysis

The data gathered through the Smartphone Addiction Scale was presented and analysed in tables, frequencies and percentages, mean and standard deviation.

Ethical Clearance

The researchers requested ethical approval from the Ethical Clearance office within the Research and Publications department at Abia State University. This process involved providing a detailed explanation of the study's objectives. Before participating in the study, potential participants received comprehensive information about the research, and their active consent were sought. Stringent measures were implemented to ensure the confidentiality and anonymity of the information collected from participants. Participants were explicitly informed that their participation is voluntary, with no coercion involved, and that they will retain the freedom to withdraw from the study at any point.

RESULT

Table 1: Level and Department of students in the study

Responses	Frequency	Percentage
Level		
200	155	43.90
300	203	56.10
Department		
Public Health	109	29.50
Optometry	84	23.80
Mass Communication	100	28.30
History and International Relations	65	18.40

Source: Authors' Survey, 2024

Table 2: Socio-economic Characteristics of the Students in the Study Area

Variable	Frequency (N=385)	Percentage
Age		
Below 18 years	10	2.80
18-24 years	292	82.70
25-29 years	45	12.60
30 and above	6	1.70
Gender		
Male	90	25.50
Female	263	73.50
Marital status		
Single	337	95.50
Married	16	4.50

Ethnicity		
Igbo	303	84.60
Yoruba	14	3.90
Hausa	2	0.60
Others	34	9.60
Religion		
Christianity	342	96.90
Islam	8	2.20
Traditional	3	0.90
Main Part time job		
Sales	75	21.20
Digital related (eg. web designer virtual assistant)	25	7.10
Online vendor	78	22.10
Wedding vendors (eg. baker decorators)	14	4.00
Fashion vendor (eg. tailor, hairstyle, make-up artists)	51	14.40
Logistics services (e.g. dispatch rider)	1	0.30
Laundry services	64	18.10
None	45	12.70
Monthly pocket money		
<5000	41	11.60
5000- 10,000 Naira	118	33.40
11,000-50,000 Naira	152	43.10
51,000-100,000 Naira	32	9.10
>100,000 Naira	10	2.80

Source: Authors' Survey, 2024

Table 3: Years and Age at Usage of Smart phone usage among undergraduate students

Variables	**Frequency (N=353)**
Years of usage (n=353)	
Less than 1 years	8 (2.30)
2 years	10(2.80)
3 years	34(9.60)
4 years	100(28.00)
Above 5 years	201(57.20)
Age at usage	
Less than 10 years	15(4.20)

10-12 years	25(7.10)
13-15 years	81(23.00)
16-18 years	160(45.00)
Above 18 years	72(20.00)

Source: Authors' Survey, 2024

****Figures in parentheses are percentage values****

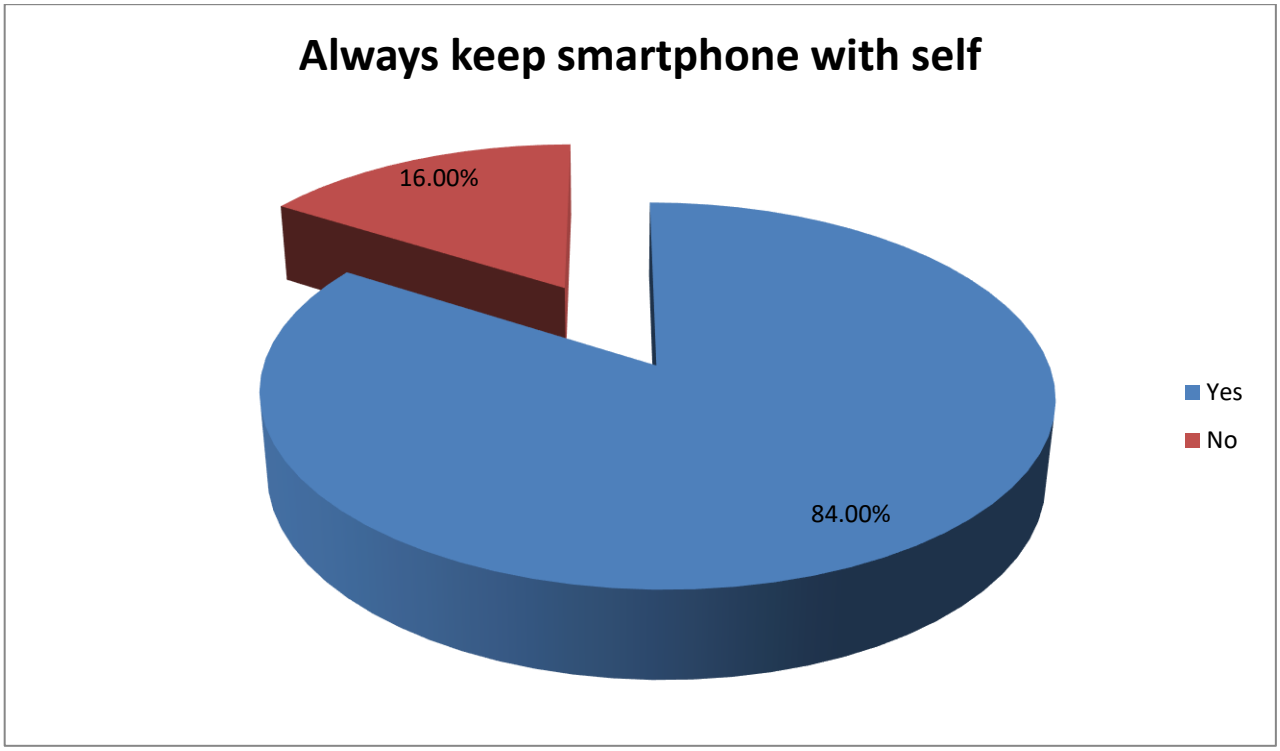

Figure 1: Pattern of smartphone keeping

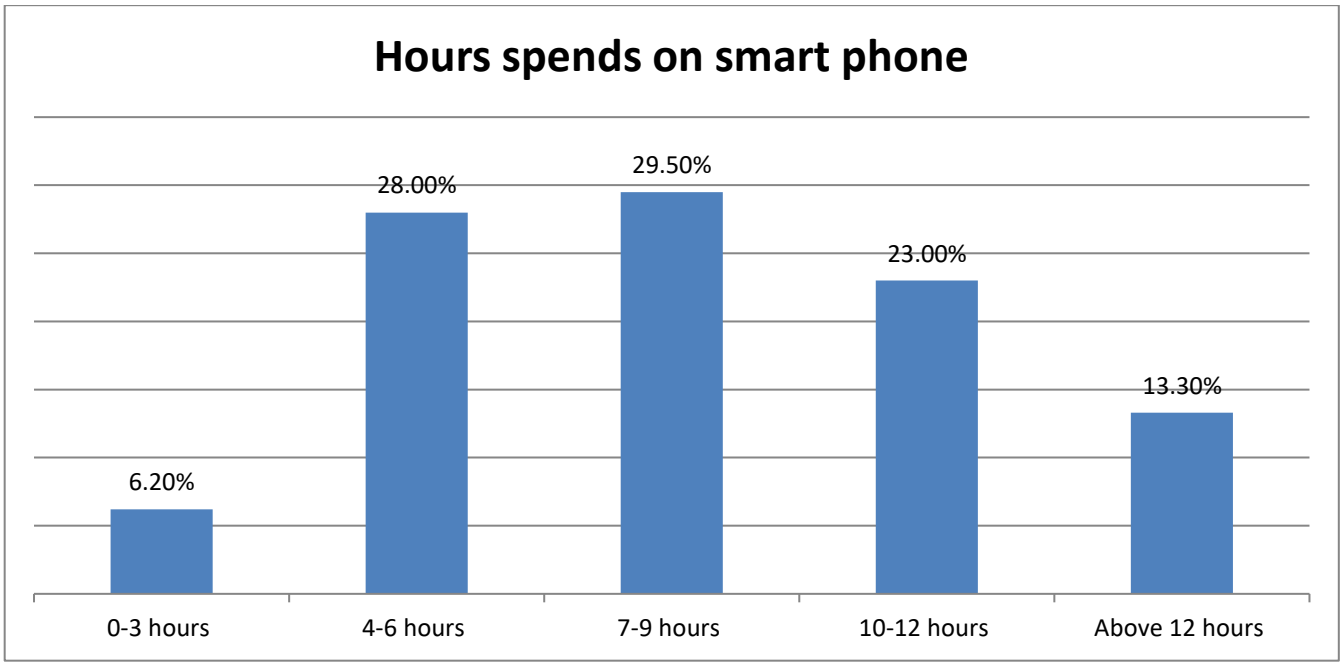

Figure 2: Hours spends on smartphone among students

Day spends most time with Smartphone

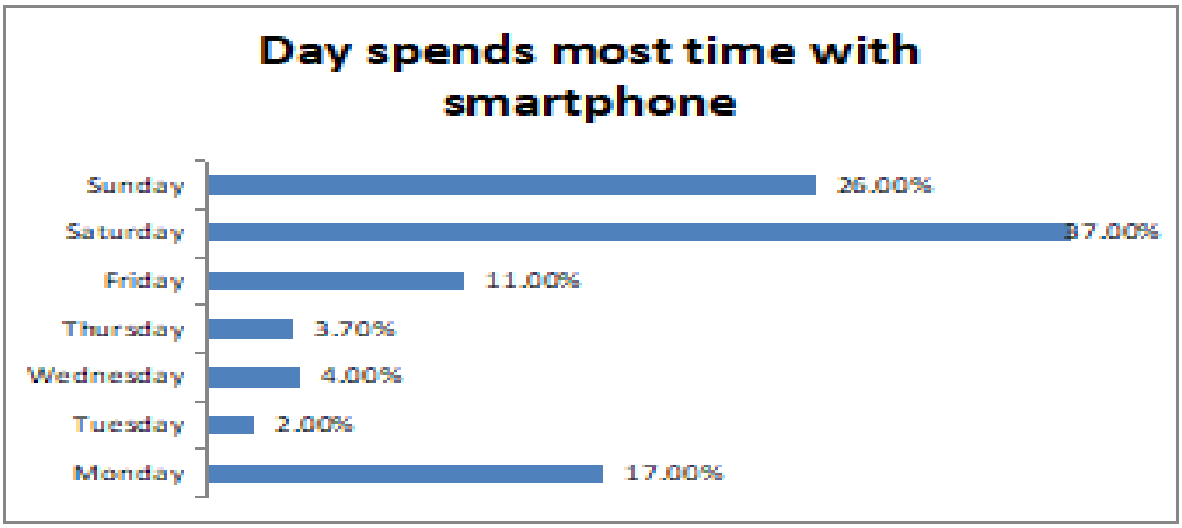

Figure 3: Day spends most time with smartphone among students in the study area

Table 4: Reasons for checking and Using Smartphone

Responses *	**Frequency**
What prompt to check smartphone	
Social media	142(40.20)
Text message	35(9.90)
Email notification	14(4.00)
Call notification	31(8.80)
Boredom	117(33.10)
Others	40(11.30)
Uses of smartphone	
Communication	124(35.10)
Information seeking (browsing)	82(23.20)
Academic purpose	66(18.70)
Shopping	67(18.90)
Social media engagement	70(19.80)
Listening/downloading music	59(16.70)
Religion	61(17.30)
Watching video	57(16.10)
Gaming	78(22.10
Others	136(38.50)

Source: Authors' Survey, 2024

****Figures in parentheses are percentage values****

***= Multiple Responses**

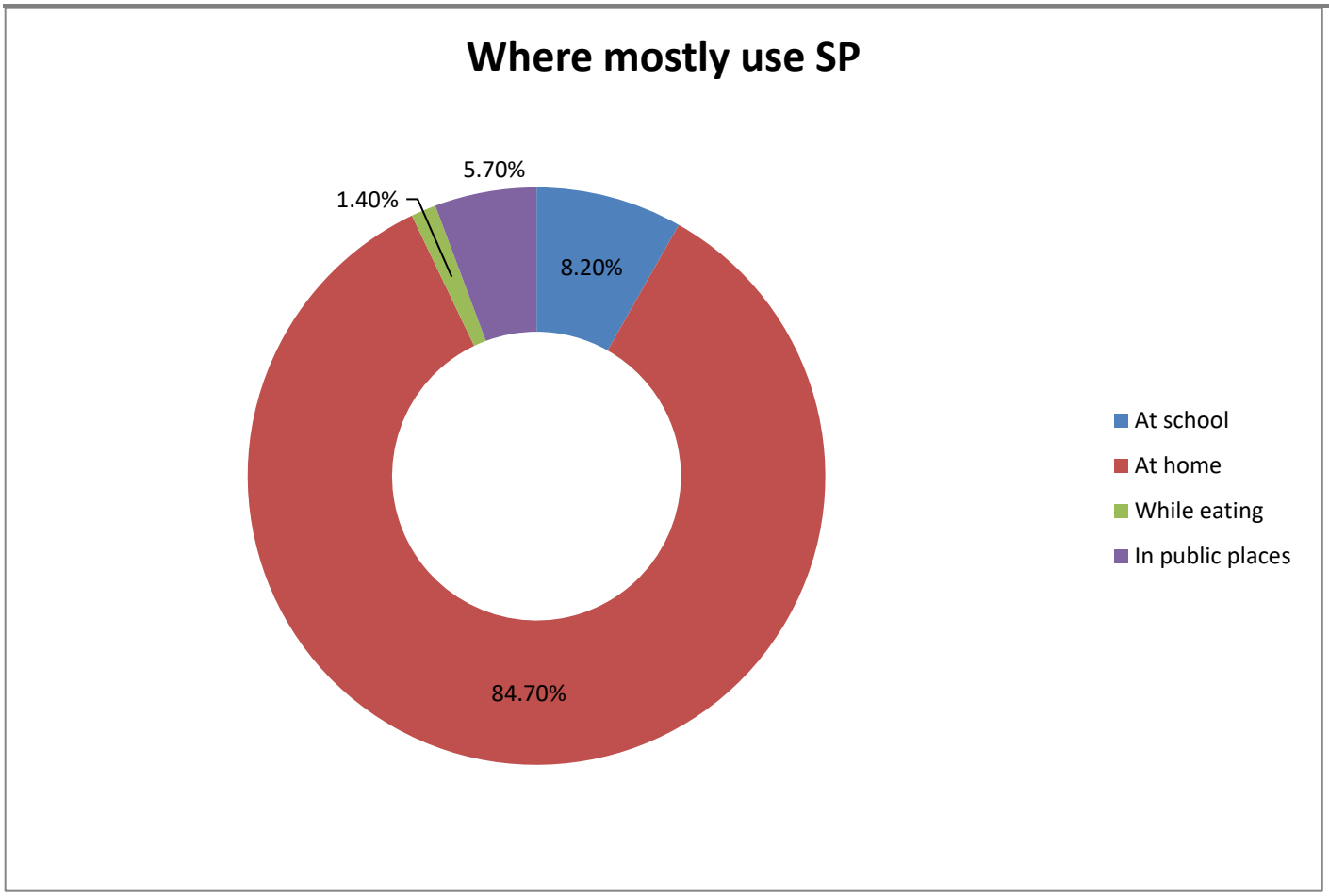

Figure 4: Distributions of students according to places where smartphones are used

Source: Authors' Survey, 2024

Table 5: Income Generation with smartphone

Responses	**Frequency**
Generate income with smartphone	
Yes	162(45.90)
No	191(54.10)
Average income aim monthly with smart phone(N=162)	
<5000	32(19.80)
5000- 10,000 Naira	50(30.90)
11,000-50,000 Naira	51(31.50)
51,000-100,000 Naira	16(9.90)
>100,000 Naira	13(8.00)

Source: Authors' Survey, 2024

****Figures in parentheses are percentage values****

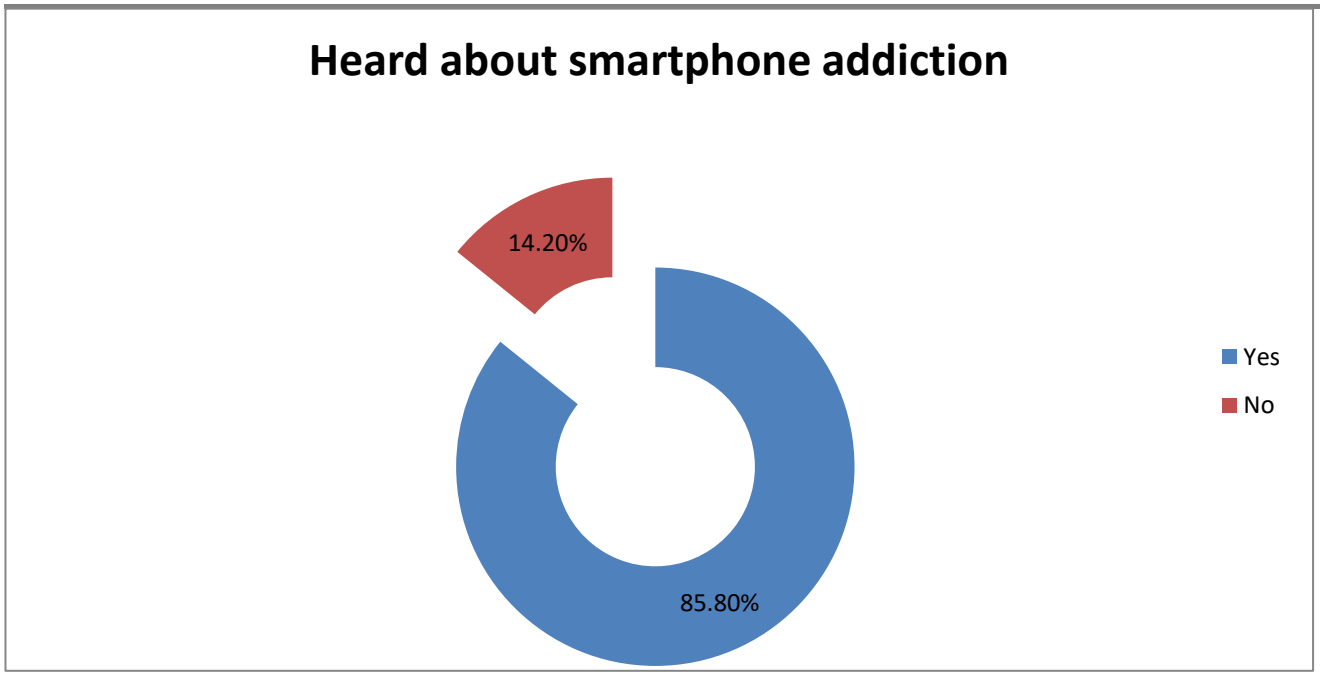

Figure 5: Awareness on smartphone Addiction

Source: Authors' Survey, 2024

Table 6: Knowledge about smart phone addiction by students in the study Area

Responses	**Frequency**
Smartphone addiction is when someone uses their phone too much, causing problems in their life (N=303)	
True	279(92.10)
False	9(3.00)
I don't know	15(4.90)
Aware of negative effect of smartphone addiction (303)	
Aware	295(97.40)
Not aware	8(2.60)
Negative effect of smart phone addiction (N=295)	
Decreased productivity	295(100.00)
Poor academic performance	206(69.80)
Increased stress and anxiety	94(31.90)
Sleep disturbance	124(42.00)
Relationship problems	46(15.50)
None	16(5.40)
Others	45(14.80)

Source: Authors' Survey, 2024

****Figures in parentheses are percentage values****

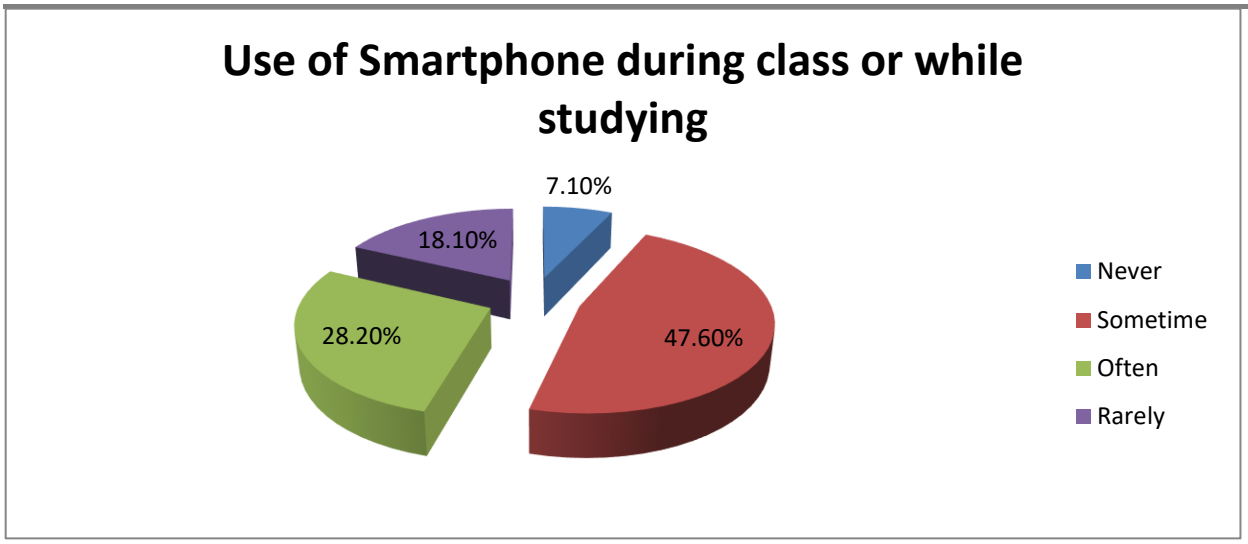

Figure 6: Frequency of smartphone usage during class or studying

Source: Authors' Survey, 2024

Table 7: Multinomial Logit Regression Estimates on the Socio-Demographic factors associated with smartphone usage patterns and Addiction among undergraduate students in Abia State University, Uturu

Variable	IS	G	SM
Age of the student (years	0.3037(0.69)	-0.0033(-0.01)	-1.0221(-2.58)*
Sex (Male=1, female=0)	-0.1402(-0.36)	-0.3082(-3.34)**	-0.0326(-0.08)
Marital status(single=1, otherwise-0)	-0.3968(-2.83)**	2.2619(2.04)*	1.4067(1.75)*
Ethnicity (Igbo=1, otherwise=0)	0.0442(0.26)	-0.5154(-2.43)*	-0.1717(-0.94)
Religion(Christian=1, otherwise=0)	0.3425(2.37)*	0.5413(0.65)	-0.2022(-0.38)
Monthly income (Naira)	-0.0015(-0.01)	0.3492(1.92)*	-0.0329(-0.18)
Part time job(Yes=1, No=0)	-0.0923(-0.25)	-0.3543(-0.83)	0.2732(0.71)
Level (200=1, 300=0)	0.5224(1.66)*	-0.0325(-0.10)	-0.6476(-1.89)*
Department (Health related=1, others=0)	16.3053(0.03)	-0.8790(-2.59)*	-0.4110(-1.15)
Years used smartphone (years)	0.1198(0.67)	-0.0617(-0.40)	0.0613(0.35)
Constant	-16.4381(-0.03)	2.6409(1.73)*	-0.5554(-0.35)
Observation	253		
LR Chi2	121.36		
Prob > chi2	0.0000		
Log likelihood	412.8472		
Pseudo R2	0.5281		

Source: Authors' Survey, 2024

*** and** is significant at 10%, and 5% level of probability respectively**

IS=Information Seeking (Browsing), G= Gaming, SM= Social Media

Table 8: Extent of Smartphone Addiction among undergraduate students in selected departments in Abia State University, Uturu

Responses	SD	D	WD	WA	A	SA	Mean
I miss planned work due to smartphone	96(96)	118(236)	34(102)	35(104)	55(275)	15 (90)	2.70
I have a hard time concentrating in class while doing assignments, or while working due to smartphone	101(101)	93(186)	45(135)	48(192)	44(220)	22(132)	2.70
I feel pain in the wrist or at the back of the neck while using smartphone	123(123)	55(110)	39(117)	42(168)	68(340)	26(156)	2.90
I will not be able to stand not having a smartphone	68(68)	44(88)	30(90)	36(144)	78(390)	97(582)	**3.90***
I feel impatient and fretful when I am not holding my smartphone	35(35)	70(140)	42(126)	66(264)	74(370)	66(396)	**3.80***
I have my smartphone in mind even when I am not using it	74(74)	43(86)	30(90)	52(208)	100(500)	54(324)	**3.60***
I will never give up using my smartphone even when my daily life is already greatly affected by it	65(65)	53(106)	33(99)	49(196)	60(300)	93(558)	**3.80***
I constantly check my smartphone so as not to miss conversions between other people on social media	39(39)	41(82)	47(141)	50(200)	100(500)	76(456)	**4.00***
I use my smartphone longer than I had intended	33(33)	32(64)	20(60)	72(288)	116(580)	80(480)	**4.30***
People around me tell me that I use my smartphone too much	76(76)	75(150)	30(90)	42(168)	72(360)	58(348)	3.40
Grand mean							**3.50***

Source: Authors' Survey, 2024

SD= Strongly Disagree (1), D= Disagree (2), WD= Weakly Disagree (3), WA= Weakly Agree(4), A= Agree (5), SA=Strongly Agree (6)

Acceptable =3.50 and above

****Figures in parentheses are the weighted Frequencies****

DISCUSSION

The socio-economic characteristics of the students in the study area revealed that most were within the ages of 18-24 (82.7%), with a majority being female (73.5%) and single (95.5%). According to Mebrahtom et al. (2017), a similar age range was predominant in their study on university students, highlighting the youth-dominated demographic of higher education institutions. The findings also showed that most of the students were Igbo

(84.6%) and predominantly Christians (96.9%). Similarly, research by Orzech et al. (2011) pointed out that cultural and religious backgrounds play a crucial role in shaping students' habits and choices.

The study also revealed that some students engaged in part-time jobs such as sales (21.2%) and online vending (22.1%). According to Unger (2016), the rising trend of students taking up digital and online-related jobs aligns with global shifts toward e-commerce. Interestingly, most students received a monthly pocket money ranging between ₦11,000-₦50,000 (43.1%). In comparison, the findings from Bhatti et al. (2015) also highlighted limited financial resources among university students, which often influences their lifestyle and choices.

The results from the study highlight that the majority of respondents (57.20%) have used smartphones for over five years, with a significant proportion (45.00%) beginning usage between the ages of 16–18 years. Similarly, Ahsan et al. (2022) found that long-term exposure to smartphones among students correlates with earlier initiation of usage, often beginning in late adolescence, as observed in Bangladesh. According to Araujo et al. (2021), this trend is consistent in global contexts, where 48% of university students reported starting smartphone usage in their teenage years, indicating early adoption as a prevalent factor across regions. In comparison to Eren and Uludag (2022), who documented a similar pattern during the pandemic in Turkey, long-term smartphone users reported heightened digital dependency due to increased reliance on mobile technology for academic and social activities.

Furthermore, the data revealed that a significant proportion of students (57.20%) had used smartphones for more than five years, with the majority (45.00%) reporting an initial usage age of 16–18 years, and smaller percentages starting earlier, such as 23.00% at 13–15 years, 7.10% at 10–12 years, and 4.20% below 10 years. According to Eren and Uludag (2022), prolonged smartphone usage is prevalent among university students, correlating with higher smartphone addiction rates. Similarly, Ahmed et al. (2024) found that students beginning smartphone usage earlier in life exhibited higher dependency levels, exacerbated by educational and social demands. In comparison, Ahsan et al. (2022) highlighted the relationship between long-term smartphone use and behavioural impacts, particularly for students starting before their late teens. These findings align with those of Lan, Tsai, and Chen (2020), who noted that habitual use beginning in adolescence is associated with increased risk of psychological distress.

The data shows that university students primarily check their smartphones for social media updates (40.20%), followed by boredom (33.10%) and text message notifications (9.90%). When it comes to usage, the majority use their smartphones for communication (35.10%), information seeking (23.20%), and academic purposes (18.70%). According to studies, social media remains a significant factor in smartphone checking behavior, which aligns with findings by Kuss and Griffiths (2017), who noted the dominance of social media use among university students. Similarly, Ahmed et al. (2024) found that boredom was a leading reason for smartphone engagement, while academic-related smartphone use has been reported by other studies (Lan et al., 2020) to be essential for educational purposes, though not as frequent as social media or communication. In comparison, research by Eren and Uludag (2022) highlights that entertainment such as gaming and music also contributes significantly to smartphone use

Furthermore, the data indicates that 45.90% of respondents generate income using their smartphones, with the majority of them earning between 5,000 to 50,000 Naira per month. Specifically, 31.50% earn within the 11,000-50,000 Naira range, while only 8.00% earn over 100,000 Naira. According to research by Eren and Uludag (2022), smartphone use for income generation is prevalent among university students, with similar findings highlighting a significant proportion of students relying on smartphones for part-time income through digital services. Similarly, a study by Kuss and Griffiths (2017) suggested that digital platforms accessed via smartphones provide a convenient avenue for students to earn income, reinforcing the data's findings on smartphone-based income generation. In comparison, other studies show a notable shift towards using smartphones not only for communication and entertainment but also as tools for entrepreneurial activities and freelance work (Lan et al., 2020).

The data presented reflects various factors influencing smartphone usage among university students, including age, sex, marital status, ethnicity, religion, income, part-time employment, academic level, department, and years

of smartphone use. Notably, marital status significantly influences smartphone usage patterns, with married students showing higher use of smartphones for income generation ($\beta = 2.2619$, $p < 0.05$) and social media engagement ($\beta = 1.4067$, $p < 0.1$). Additionally, students from health-related departments show a noteworthy difference in smartphone usage, particularly in academic contexts ($\beta = 16.3053$, $p = 0.03$), while students in the 200-level group have a stronger association with smartphone usage for social media engagement ($\beta = 0.5224$, $p < 0.1$). Similarly, Kuss and Griffiths (2017) found that factors such as academic level and department were key predictors of smartphone addiction, with students in health-related disciplines showing higher usage due to academic demands. According to a study by Sharma et al. (2021), the role of marital status in influencing smartphone engagement has been highlighted as a significant factor, aligning with the present findings. In comparison, the study by Eren and Uludag (2022) showed that students' income also plays a significant role in smartphone addiction, supporting the present result where income correlates positively with smartphone use for income generation purposes.

Furthermore, the data reveals a strong awareness of smartphone addiction among the respondents, with 92.10% recognizing it as a problem that can interfere with daily life. Furthermore, 97.40% are aware of the negative effects of smartphone addiction, with the most commonly cited consequence being decreased productivity (100%), followed by poor academic performance (69.80%) and sleep disturbance (42%). According to Eren and Uludag (2022), university students are increasingly aware of smartphone addiction, aligning with the findings of the present study. Similarly, research by Kuss and Griffiths (2017) highlights that university students report similar concerns, particularly regarding the negative impact on academic performance and mental health, including stress and sleep issues. In comparison, a study by Lan et al. (2020) identified sleep disturbances as one of the most prevalent issues associated with excessive smartphone use among students, further supporting the present data.

The data reveals a strong correlation between smartphone use and various negative impacts on daily life, with the highest mean score (4.30) observed for respondents who reported using their smartphone longer than intended. Other significant issues include feeling impatient when without a smartphone (mean = 3.80) and having persistent thoughts of the smartphone even when not in use (mean = 3.60). These findings align with previous research, where smartphone addiction was linked to both psychological and physical distress. For example, studies by Eren and Uludag (2022) and Kuss and Griffiths (2017) similarly identified patterns of excessive smartphone use leading to poor concentration, physical discomfort, and an inability to disengage, with many participants reporting feelings of impatience and dependency on their devices. In comparison, research by Choi et al. (2020) highlighted the negative academic impact of smartphone addiction, further confirming the present study's finding that smartphone use interferes with academic assignments. According to Lee et al. (2021), the compulsive checking of smartphones and the resulting decline in productivity and focus are common symptoms of smartphone addiction, which is consistent with the data showing that participants used their phones more than intended, despite its negative effects on their routines.

CONCLUSION

The study titled Patterns of Smartphone Usage Among Undergraduate Students in Selected Departments in Abia State University, Uturu reveals significant insights into the diverse ways students interact with their smartphones. The findings indicate that smartphones have become integral tools in the daily lives of undergraduates, serving both academic and non-academic purposes. While many students utilize their devices for accessing educational resources, communication, and social networking, a considerable proportion also report using them for entertainment and leisure activities. The study highlights that the frequency and purpose of smartphone usage vary across departments, influenced by factors such as academic requirements, personal preferences, and access to reliable internet connectivity. Moreover, some students encounter challenges, including distractions and over-reliance on their smartphones, which can negatively impact their academic performance and productivity. While smartphones present numerous benefits for enhancing learning and connectivity, there is a need for balanced usage to prevent potential drawbacks. The findings underscore the importance of promoting awareness about responsible smartphone usage among students and integrating strategies that maximize its academic benefits while mitigating its potential distractions. This study contributes valuable insights into the evolving role of technology in higher education and offers a foundation for future research and interventions in this area.

REFERENCES

1. Ahmed, S. M., Khan, R. U., & Rahim, M. A. (2024). "Psychological impacts of prolonged smartphone use among students." Asian Journal of Public Health Research, 9(4), 45–55.
2. Ahsan, S. A., Rahman, M. M., Sultana, M., & Alam, M. (2022). Smartphone addiction pattern among university students in Bangladesh: An analytical approach. ResearchGate. Retrieved from https://www.researchgate.net/publication/369469081
3. Al-Fawareh, H. M., & Jusoh, S. (2017). The use and effects of smartphones in higher education. International Journal of Interactive Mobile Technologies, 11(6), 103-111.
4. Araujo, L. M., Santos, D. F., & Silva, A. R. (2021). "The impact of smartphone addiction on university students' mental health." International Journal of Academic Medicine, 7(2), 123–130.
5. Bhatti, U. H., Rani, S., Memon, Z., & Wali, R. (2015). "Exploration of smartphone usage patterns and associated insomnia among students." Sleep Science Journal, 8(2), 98–105.
6. Boumosleh, J. M., & Jaalouk, D. (2018). Depression, anxiety, and smartphone addiction in university students–A cross-sectional study. PloS One, 13(8), e0203825.
7. Choi, S., Lee, J., & Park, Y. (2020). "The impact of smartphone addiction on academic performance and sleep disturbance in university students." Journal of Behavioral Addictions, 9(2), 162-169.
8. Darko-Adjei, N. (2019). The use and impact of smartphones on academic performance among students in tertiary institutions in Ghana. Library Philosophy and Practice, 2851.
9. Eren, E., & Uludag, N. (2022). "Smartphone addiction and awareness of university students during the pandemic period: The case of Bitlis Eren University." ResearchGate. Retrieved from https://www.researchgate.net/publication/361651234
10. Kuss, D. J., & Griffiths, M. D. (2017). "Social networking sites and addiction: Ten lessons learned." International Journal of Environmental Research and Public Health, 14(3), 311.
11. Lan, Y. C., Tsai, S. H., & Chen, K. M. (2020). "Association of smartphone use with sleep and mental health among university students." Journal of Digital Behavioral Health, 8(4), 235–243.
12. Lee, H., Ahn, H., Choi, S., & Choi, W. (2014). The SAMS: Smartphone addiction management system and verification. Journal of Medical Systems, 38(1), 1.
13. Lee, J., Kim, J., & Yoo, S. (2021). "Smartphone addiction and its effects on academic performance in university students." Journal of Educational Technology & Society, 24(4), 125-135.
14. Mebrahtom, G., Hiwot, T., & Andualem, M. (2017). "Impact of financial challenges and part-time employment on university students' academic performance." Ethiopian Journal of Higher Education, 15(1), 65–78.
15. Orzech, K. M., Grandner, M. A., Roane, B. M., & Carskadon, M. A. (2011). "Digital age and sleep patterns: Impact of technology usage on university students." Journal of Adolescent Health, 49(3), 287–293.
16. Raza, S. A., Qazi, W., & Yousufi, S. Q. (2020). The influence of psychological, motivational, and social factors on mobile phone addiction among adolescents in Pakistan. International Journal of Environmental Research and Public Health, 17(21), 7729.
17. Sharma, M., Kumari, A., & Gupta, R. (2021). "Factors affecting smartphone addiction among university students in India." Journal of Addiction Research & Therapy, 12(1), 22-31.
18. Social Business. (2021). Global social media users statistics. Retrieved from https://www.socialbusiness.com
19. Statista. (2022). Smartphone users worldwide from 2016 to 2026 (in billions). Retrieved from https://www.statista.com
20. Unger, J. B. (2016). "Sleep quality, academic performance, and coping strategies among university students." Philadelphia Medical Student Journal, 12(4), 215–230.
21. Van Velthoven, M. H., Powell, J., & Powell, G. (2018). Problematic smartphone use: Digital natives and social media in the UK. International Journal of Environmental Research and Public Health, 15(3), 458.
22. We Are Social. (2022). Digital in 2022: Global overview report. Retrieved from https://wearesocial.com