

**SMARTPHONE ADDICTION AND PERCEIVED HEALTH EFFECT AMONG
STUDENTS OF THE UNIVERSITY OF IBADAN, NIGERIA****Hajara Nakkudu and Isaac O. Dipeolu***

Department of Health Promotion and Education, College of Medicine, University of Ibadan, Nigeria

*Correspondence: oludipeolu@yahoo.com**Abstract**

Smartphones are essential in university students' lives. However, its frequent use can lead to addiction and affect their academic performances negatively and well-being. There is little or no research on the pattern, perceived adverse effects and factors that promote smartphone addiction. This study was designed to investigate smartphone use patterns, the predictive factors of addiction, addiction characteristics and perceived health effects among university students. A cross-sectional survey design and a multi-stage sampling technique were used to select 250 students from the University in Ibadan. A modified Scale and Smartphone Addiction Scale-Short Version (SAS-SV) were used for data collection. Data were analysed and presented in descriptive and inferential statistics at $\alpha 0.05$. Respondents' age was 26.9 ± 2.4 years, 52.8% were males, and 81.2% were single. Smartphone addiction prevalence was 61.2%. The majority (73.6%) had a negative attitude towards smartphone use. Most (83.6%) perceived smartphone addiction affects sleep quality, and 76.8% perceived smartphone addiction negatively affects academic performance. Respondents have high-perceived health effects towards smartphone addiction, but this did not influence their attitude towards smartphone use.

Keywords: Smartphone use, smartphone addiction, university students, perceived health effects**Background**

Smartphones are handheld devices designed with powerful, versatile functions that fuse both the common elements of a mobile phone and a few computing features, thereby helping users have access to some applications and internet services (Lei, Ismail, Mohammad and Yusoff, 2020; Lee, Chang, Lin and Cheng, 2013). It is a gadget that furnishes users with numerous functions, including browsing the internet, receiving and sending emails, social interactions online, gaming online and watching videos (Cha and Seo, 2018; Chen, Liu, Ding, Ying, Wang and Wen, 2017). This device plays a significant part in the everyday existence of many people worldwide, evident in the rise in smartphone ownership. By 2027, global smartphone users will be estimated at 7.7 billion, against 6.6 billion in 2022 (Statista, 2023). For example, 95% of young people currently report having a smartphone or obtaining one if need be (Anderson and Jiang, 2018). Smartphone ownership has become a significant component of teenagers' and young adults' lives, thus fuelling more tireless online and offline

interests; about 45% of teenagers reveal online almost every time (Anderson and Jiang, 2018).

Smartphones can enhance educational experiences at undergraduate and postgraduate levels (Kwon, Kim, Cho and Yang, 2013). For instance, in medical school, smartphones are utilised to look for answers to patient care and improve learning over time (Chen, Liu, Ding, Ying, Wang and Wen, 2017). Also, students use software like Microsoft Suite on their phones for assignments and check educational sites to source learning materials from journal articles, textbooks, and others (Darko-Adjei, 2019). With the arrival of smartphones, their use in advanced education can't be overlooked. They can be utilised to upgrade teaching and learning (Almunawar, Anshari, Susanto and Chen, 2015). Nonetheless, smartphone addiction is a public health issue with physical and mental difficulties like eye, muscular pain, hearing problems, and tactile delusion (De-Sola, Talledo, Rubio and de Fonseca, 2017).

The World Health Organization (WHO) considers addiction as the "continuous use of something for the sake of relief or stimulation, which often causes

cravings when it is absent” (WHO, 2014). This is reflected in a person’s inability to abstain from use, compulsive behaviours, consistent use despite dangerous effects and emotional response dysfunction, which has influenced human connection. Although the term addiction is generally perceived to be related to substance use, it also applies to other issues, for example, smartphone usage. This is high among students because they seem to be vulnerable to excessive use of technology due to their growth dynamics, liberty and lack of responsibilities in society (Ives, 2013; Arefin, Islam, Mustafi, Afrin and Islam, 2017), hence making it easy to be the most marked population by communication technology companies. A great number of them are delighted in possessing these devices because they furnish them with data ranging from scholastic information to entertainment, exciting, complex functions like playing games, watching videos, and taking pictures, among others, which therefore increases the probability of abuse (Suliman, Mohammad, Ismael, Salaheldin and Adel, 2016).

In Nigeria, many students own smartphones and use the Internet frequently (Akpunne and Akinnawo, 2018). In one of the new pertinent investigations in Nigeria among students, Obi, Omoregi, and Onoriose (2020) expressed that 92.8% of students depend on their smartphones. Likewise, previous research conducted in Tanzania showed that smartphone addiction among university students is 86%. Studies have shown that university students have a negative attitude towards smartphone use. The study conducted in the United Kingdom among university students (Yang, Asbury and Griffiths, 2019) and in Ibadan, Nigeria (Emeka, 2013) has shown that. As revealed by the study, this negative attitude towards smartphone usage can seriously affect the student's quality of life. A negative attitude towards use can increase user addiction over time. Studies have indicated that the majority of university students consider it okay always to have their smartphone on them and the first thing they do upon waking up, which has an affirmative influence on respondents' negative attitude towards smartphone use (Rizwan, Faryal, Shahab, Dalia, Riaz, and Munwar, 2020). University students use their smartphones during lecture hours multiple times, feel uncomfortable switching off their smartphones and choose that it is better to converse on their smartphones than face-to-face (Tindell and Bohlander, 2011; Sinha and Patil, 2019 and Ahmed, Qazi and Perji, 2011).

Despite enormous benefits, smartphones also have grave ramifications for students' physical and mental well-being (Mustafi *et al.*, 2017). The preliminary investigations by some researchers revealed that smartphone addiction negatively affects students' academic performances (Kibona and Mgaya, 2015;

Ezemenaka, 2013). It also affects their well-being, such as physical and mental health, resulting in lowered concentration and poor intrapersonal and interpersonal relationships with family, siblings, and friends (Akpunne and Akinnawo, 2018). Smartphone addiction can also lead to poor sleep, depression, anxiety disorder, poor eating habits and musculoskeletal pain (Dabana and Gobir, 2018; Ayandele, Popoola, Obosi and Busari, 2019). Smartphone addiction is a public health problem as it affects all ages irrespective of gender, ethnic group, and level of education. It is observed that it is now used as a substitute for human interaction and commitment, leading to increased behavioural maladjustment and fostering low attention deficit among students. Several studies in Nigeria have been done on smartphone addiction. Still, most of these studies were on the prevalence and causes of smartphone addiction, with little research effort on the pattern, perceived adverse effects and factors that promote smartphone addiction, hence the reason for these study students (Obi, Omoregi and Onoriose, 2020; Ayandele, Popoola, Obosi and Busari, 2019; Akpunne and Akinnawo, 2018).

Methods and Materials

The study was a cross-sectional survey in design and a multi-stage sampling technique consisting of four stages to select eight faculties and eight departments from the University. In the first stage, a record review was conducted to determine the total number of faculties at the University of Ibadan, Ibadan, Nigeria. Out of the 16 faculties, eight were randomly selected through balloting. A department was selected from each of the selected faculties using balloting in the second stage. In the third stage, a list of the number of students from the department chosen was obtained from the Management Information System Unit of the University. A proportionate random sampling technique was used to determine the percentage of respondents selected from each department in each faculty to ensure equality of respondents selected across each level, department, and faculty. And lastly, a simple random sampling technique was used to recruit consenting students for the study through paper balloting. Two hundred and fifty undergraduate and postgraduate students were selected from the chosen departments.

Data were collected using semi-structured questionnaires adapted from the Smartphone Addiction Scale-Short Version (SAS-SV), containing six sections. A 10-point Attitude Scale was used to measure respondents' attitudes towards smartphone use; an attitude score of ≥ 6 was rated positive, and < 6 was rated negative. The SAS-SV scale has ten questions with responses from 1 to 6 to determine smartphone addiction. The total score of responses ranging from 10

to 60 was calculated and compared to the mean cutoff point out of 60; students who scored higher than the cutoff were considered addicted. Data analysis was performed using the IBM/Statistical Package for Social Sciences (IBM/SPSS) version 23. Data were analysed using descriptive statistics such as frequencies and percentages to summarise variables. Independent samples t-test was used to test for associations between demographics and the dependent variable at $\alpha 0.05$. Ethics approval was obtained from the UI/UCH Ethics Review Committee (UI/EC/21/0150). Written informed consent was also obtained from the respondents. In addition, ethical concerns such as

voluntariness, privacy, anonymity, confidentiality, beneficence and non-maleficence were maintained.

Results

One-third of the respondents (34.4%) were within the 22-26 age bracket, and 52.8% were males. A higher percentage of respondents (26%) were master's degree students, and the 500-level students were only 3.2%. Most (81.2%) of the respondents were single, and (70.4%) were of Yoruba ethnicity. Most respondents (72.8%) were Christians faithful, and 96.8% of respondents own a smartphone (Table 1).

Table 1: Socio-demographic characteristics of respondents (N=250)

Variables	Frequency	%
Sex		
Male	132	52.8
Female	118	47.2
Age (in years)		
17-21	58	23.2
22-26	86	34.4
27-31	62	24.8
32 and Above	44	17.6
Marital Status		
Single	203	81.2
Married	40	16.0
Divorced	3	1.2
Cohabiting	2	0.8
Widowed	2	0.8
Ethnic Group		
Yoruba	176	70.4
Igbo	31	12.4
Hausa	9	3.6
Efik/Ibibio	6	2.4
Others*	28	11.2
Religion		
Christian	182	81.2
Islam	63	25.3
Traditional	5	2.0
Faculty		
Education	35	14.0
Arts	35	14.0
Social Sciences	42	16.8
Agriculture	35	14.0
Science	34	13.6
Technology	19	7.6
Basic Medical Sciences	27	10.8
Public Health	23	9.2
Level of study		
100	43	17.2
200	44	17.6
300	40	16.0
400	36	14.4
500	8	3.2
700	65	26.0
900	14	5.6
Smartphone ownership		
Yes	242	96.8
No	8	3.2

Source: Field Survey, 2021

*Others = Igala, Kataf, Fulani, Urhobo, Edo, Birom, Igede, Obidi, Ijaw

Attitude Towards Smartphone Use

The majority (73.6%) of the respondents had a negative attitude towards smartphone use. Many respondents (64.4%) agreed that it was alright to use smartphones all the time, and 59.6% and 34.8% reported that it is alright to use the phone first thing when one wakes up

from sleep and during lecture hours, respectively. Findings also showed that 58.0% feel uncomfortable switching off their smartphones. Most (69.2%) of the respondents experience increased anxiety after losing smartphones, and a few (38.4%) noted that it is better to converse over the phone than in person (Table 2).

Table 2: Attitude Towards Smartphone Use (N=250)

Statement	Agree	Undecided	Disagree
	Freq (%)	Freq (%)	Freq (%)
I consider it okay to use my smartphone all the time	161 (64.4)	22 (8.8)	67 (26.3)
I follow new smartphone brands in media/advertisement	95 (38.0)	58 (23.2)	97 (38.8)
A new brand of smartphone influences me	91 (36.4)	44 (17.6)	115 (46.0)
My smartphone should always be close by while sleeping	149 (59.6)	26 (10.4)	75 (30.0)
I consider it okay to use my smartphone during lecture hours	87 (34.8)	47 (28.8)	116 (46.4)
I feel it is okay to use my smartphone while in the place of worship	69 (27.6)	47 (18.8)	134 (53.6)
Checking my smartphone is the first thing I do when I wake up	149 (59.6)	34 (13.6)	67 (26.8)
My worry and anxiety increased after losing my Smartphone	173 (69.2)	23 (9.2)	54 (21.6)
I consider conversations over the smartphone to be better than face-to-face conversations	96 (38.4)	36 (14.4)	118 (47.2)
I feel uncomfortable switching off my smartphone	145 (58.0)	37 (14.8)	68 (27.2)

Source: Field Survey, 2021

The Pattern of Use of Smartphones

Findings revealed that 48.4% of the respondents constantly have their smartphones on them, as this was reflected in the 40.8% who checked for new events frequently. More than half of 54.4% respondents indicated that they immediately check their smartphones when they get a notification, and 55.3% always browse the web. The study showed that 43.6%

immediately check their smartphones upon waking up, and 54.4% always spend time sending and receiving messages on their smartphone. The finding further revealed that 41.6% of respondents spend time on their social media applications, and 48.4% always use their smartphones for games and listening to music. Results also showed that 69.6% of respondents spend over six hours on their smartphones daily (Table 3).

Table 3a: Pattern of Use of Smartphone (N=250)

Statements	Never	Rarely	Frequently	Always
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Frequency of having one's smartphone on	6 (2.4)	34 (13.6)	89 (35.6)	121 (48.4)
I send and receive messages on my smartphone	5 (2.0)	31 (12.4)	78 (31.2)	136 (54.4)
The extent of use of a smartphone to communicate with friends and family	8 (3.2)	29 (11.6)	91 (36.4)	122 (48.8)
Frequency of findings oneself checking the phone for new events, messages and emails	3 (1.2)	48 (19.2)	102 (40.8)	97 (38.8)
Use a smartphone for reading the news or browsing the web	8 (3.2)	46 (18.4)	75 (30.0)	121 (48.4)
Frequently use the phone for academic-related purposes (i.e. assignment, group discussion)?	0 (0.0)	26 (10.4)	95 (38.0)	129 (51.6)
Frequently check phone immediately when someone gets a notification	2 (0.8)	39 (15.6)	136 (54.4)	73 (29.2)
Always check phone immediately upon waking up	5 (2.0)	62 (24.8)	109 (43.6)	74 (29.6)
Checking social media apps such as Snapchat, Facebook, Instagram or Twitter	3 (1.2)	46 (18.4)	104 (41.6)	97 (38.8)
Use one's phone for entertainment purposes (i.e. listening to music and games)	3 (1.2)	34 (13.6)	92 (36.8)	121 (48.4)

Source: Field Survey, 2021

Table 3b: Pattern of Use of Smartphone (N=250)

Statements	0-2hrs	2-4hrs	4-6hrs	>6hrs
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
How many hours do you spend on your smartphone daily	3 (1.2)	26 (10.4)	47(18.8)	174(69.6)

Source: Field Survey, 2021

Perceived Health Effects of Smartphone Addiction

Less than half (48.4%) of the respondents do not perceive smartphone addiction as a medical problem, and (41.6%) respondents do not perceive that smartphone addiction can lead to depression. The majority of 83.6% of respondents agreed that smartphone addiction could affect sleep quality, and 83.2% agreed that smartphone addiction could impair

vision. Most (76.8%) perceived smartphone addiction negatively affects students' academic performance, and 68.4% of respondents perceived it to cause anxiety. Smartphone addiction is also perceived by 72.4% of respondents to negatively impact relationships and cause fatigue and body aches (69.2%) (Table 4).

Table 4: Perceived health effect of smartphone addiction (N=250)

Statement	Yes	No
	Freq. (%)	Freq.(%)
Smartphone addiction, in one way or another, can lead to depression	146 (58.4)	104 (41.6)
Smartphone addiction can affect your sleep quality	209 (83.6)	41 (16.4)
Body aches and fatigue can be associated with smartphone addiction	173 (69.2)	77 (30.8)
Smartphone addiction can result in vision strain/impairment.	208 (83.2)	42 (16.8)
Low concentration in academic performance can be caused by Smartphone addiction	192 (76.8)	58 (23.2)
Smartphone addiction, in one way or another, can cause anxiety	171 (68.4)	79 (31.6)
Smartphone addiction should be considered a medical problem	129 (51.6)	121(48.4)
Smartphone addiction affects communication and relationships negatively	181 (72.4)	69 (27.6)
Smartphone addiction can cause hearing problems	166 (66.4)	84 (33.6)
Smartphone addiction can make an individual who loses who loses a smartphone miserable	161 (64.4)	89 (35.6)

Source: Field Survey, 2021

Factors Influencing Smartphone Addiction

The majority (78.0%) of the respondents reported boredom contributing to smartphone addiction, and 80.8% agreed that social networks and smartphone functions (79.6%) make them attached to their smartphones. Most (77.6%) respondents supported that individual personality influences addiction. The findings also showed that 77.2% of the respondents agreed that data availability contributes to smartphone addiction. Furthermore, results showed that 59.6% agreed that the affordability of smartphones encourages ownership of devices and addiction. Social problems were identified by 58% of the respondents as a contributing factor, while a few (50.8%) selected yes to the size of the device (Table 5).

Table 5: Factors influencing smartphone addiction (N=250)

Statement	Yes	No
	Freq. (%)	Freq. (%)
Boredom	195 (78.0)	55 (22.0)
Social networks	202 (80.8)	48 (19.2)
Smartphone functions	199 (79.6)	51 (20.4)
Availability of data	193 (77.2)	57 (22.8)
Friends	171 (68.4)	79 (31.6)
School work	183 (73.2)	66 (26.4)
Social problems (family issues, etc.)	145 (58.0)	105 (42.0)
Size of device	127 (50.8)	123 (49.2)
Affordability of smartphone	149 (59.6)	101 (40.4)
Individual personality	194 (77.6)	56 (22.4)
Others*	6 (2.4)	244 (97.6)

Source: Field Survey, 2021

Prevalence of Smartphone Addiction

The prevalence of smartphone addiction among the respondents was 61.2%. More than half (57.6%) agreed they wouldn't be able to stand not having a smartphone, and 74.4% reported using their smartphones longer than they intended. More than half (54.4%) felt anxious after a period of withdrawal from their smartphone, and

54.4% have their smartphone on their mind even when they are not using it. Findings also revealed that 42.4% of the respondents agreed they would never give up using their smartphone even when their daily life is already greatly affected, and 45.6% experienced pain in their wrists and neck (Table 6).

Table 6: Prevalence of Smartphone Addiction (N=250)

Statements	Strongly Disagree	Disagree	Weakly Disagree	Weakly Agree	Agree	Strongly Agree
	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)	Freq. (%)
Miss planned work due to smartphone use.	46 (18.4)	68 (27.2)	22(8.8)	58(23.2)	26(14.4)	20(8.0)
Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use.	57 (22.8)	57 (22.8)	33 (13.2)	50 (20.0)	38 (15.2)	15 (6.0)
Feeling pain in the wrists or at the back of the neck while using a smartphone.	49 (19.6)	52 (20.8)	35 (14.0)	54 (21.6)	43 (17.2)	17 (6.8)
I won't be able to stand not having a smartphone.	26 (10.4)	48 (19.2)	32 (12.8)	40 (16.0)	56 (22.4)	48 (19.2)
Feeling impatient and anxious when I am not on my smartphone.	22 (8.8)	56 (22.4)	36 (14.4)	38 (15.2)	69 (27.6)	29 (11.6)
Having my smartphone in my mind even when I am not using it.	36 (14.4)	48 (19.2)	30 (12.0)	42 (16.8)	66 (26.4)	28 (11.2)
I will never give up using my smartphone, even when my daily life is already greatly affected by it.	55 (22.0)	58 (23.2)	31 (12.4)	39 (15.6)	46 (18.4)	21 (8.4)
I constantly check my smartphone so as not to miss conversations between other people on Twitter or Facebook.	29 (11.6)	39 (15.6)	33 (13.2)	51 (20.4)	72 (28.8)	26 (10.4)
I use my smartphone longer than I had intended.	17 (6.8)	31 (12.4)	16 (6.4)	53 (21.2)	92 (36.8)	41 (16.4)
The people around me tell me that I use my smartphone too much.	57 (22.8)	59 (23.6)	31 (12.4)	35 (14.0)	41 (16.4)	27 (10.8)

Source: Field Survey, 2021

Discussion

Results from this study indicate that most respondents had a negative attitude towards smartphone use. This finding was consistent with the study conducted in the United Kingdom among university students (Yang, Asbury and Griffiths, 2019) and in Ibadan, Nigeria (Emeka, 2013). As revealed by the study, this negative attitude towards smartphone usage can seriously affect the quality of life of the respondents. The negative

attitude towards use can justify the high prevalence of smartphone addiction and frequency of usage, especially in hours. Most respondents in this study spend 6 hours or more daily using their smartphones. The study indicated that most respondents considered it necessary to always have their smartphone on them and be the first item they touch upon waking up. Rizwan, Faryal, Shahab, Dalia, Riaz and Munwar (2020) corroborated this as the study demonstrated that a high

number of students considered it necessary to always be with their smartphones and be the first item they touch upon waking up which has an affirmative influence on respondents' negative attitude towards smartphone use. Findings further revealed that a higher percentage of the students find it easier to converse over the phone than face to face. This is consistent with the study's outcome conducted in Pakistan (Ahmed, Qazi and Perji, 2011) which shows that students ignore face-to-face conversations but prefer to be with their phones or converse via their smartphones.

Findings show that students are frequently on their smartphones, using them for one thing or the other. This study showed that many respondents used smartphones for over 6 hours daily. A similar study conducted by Sinha and Patil (2019) among university students in India found that 51.21% spent more than 6 hours daily on smartphones. According to the responses given by the respondents on what they use their smartphones for, results revealed respondents constantly use their smartphones for social media activities, messaging, gaming and academic purposes. These findings are similar to that of Adedotun *et al.* (2019). They reported that students constantly use their smartphones for social networking, listening to music and gaming, which was associated with poor academic performance. This could be why the findings of this study reported that respondents are constantly on their smartphones for longer than intended. More than half of the respondents used their smartphones for academic purposes. This is similar to the study conducted among university students in Ghana by Manu, Danso and Dzamesi (2019). Smartphone functions may also lead individuals to check their phones all the more now and then. As indicated in the 'optimal follow theory', smartphone's repeated usage may prompt addiction in users.

The results suggested that a higher proportion of the respondents were addicted to the smartphone. This finding is in tandem with a study conducted in Tanzania by Kibona and Mgaya (2015) among higher institution students. Results revealed that 86% of the student population admitted to being addicted to their smartphones. A similar study by Akpunne *et al.* (2018) in Nigeria reported a high prevalence of smartphone addiction using the same SAS measure used in this study. This is conversely to Saudi-Arabia's study among university students by Qudah, Albursan, Bakhiet *et al.* (2019), whose result identified a low prevalence of smartphone addiction among the students at 33.2%. The high prevalence could be because of the device's advanced functions that make it easy to use and carry around and the fact that it can perform many activities simultaneously (Sethuraman, Rao, Charlette, Thatkarand, Vincent, 2018). This is critical as it denotes an era of addictive disorder, which could decrease

quality of life. Most of the respondents in this study admitted to using their smartphones more than intended and would not stand not having a smartphone. This study highlights that almost half of the respondents feel anxious and impatient, especially when not with their smartphones, indicating their addictive characteristics. This aligns with a survey by Hooper and Zhou (2007) in Australia that said students have a solid attachment to smartphones. In contrast, a study by Adedotun *et al.* (2019) reported that students do not think increased smartphone usage can bring about anxiety and attachment.

The respondents indicated that the major factors promoting smartphone addiction were boredom, social networks, smartphone functions, social problems and user personality. This finding is in tandem with other studies where it was reported that boredom is connected to problematic smartphone usage among young people (Elhai *et al.*, 2018; Matic *et al.*, 2015; Wolniewicz, 2019; Bozaci, 2020). This finding supports the general thinking that boredom, a negative emotion, may be a major contributor to the overuse of smartphone behaviour, leading to addiction. The result from this study indicated that some respondents admitted that some smartphone functions promote addiction. The device offers much more than voice communication. It has improved numerous exciting functionalities like cameras, video, GPS and wireless fidelity, social media apps, etc. This could mean that most respondents would spend much time on their smartphones, increasing their addictive tendencies. This finding aligns with Zencirci and colleagues (2018) finding, where they reported that social networks and applications with entertaining content on smartphones enhance addiction. Also, a study by Van *et al.* (2015) added that individuals who use their smartphones for social interactions are likely to form habits quickly, which could justify smartphone addiction. Furthermore, it is revealed that individual personality, such as being an introvert or extrovert, can increase smartphone addiction in that person. A study by Ihsan *et al.* (2020) and Nurul *et al.* (2020) suggests a similar result.

While the respondents' attitude towards smartphone use was negative and the prevalence of smartphone addiction was high, findings revealed overall that the perceived health effects towards smartphone addiction were good. Findings from the study suggested that smartphone addiction can cause depression in the study population. This aligns with the study of Ithnain *et al.* (2018) in Malaysia, who concluded that smartphone addiction leads to poor mental health, such as depression among university students. This is also supported by a study in Nigeria (Akpunne *et al.*, 2018), which revealed that individuals with smartphone addiction experience depression. In this study, the respondents agreed that anxiety could

result from smartphone addiction, which they perceive can affect students' academic performance. This is consistent with the findings of Acharya *et al.* (2013), which indicated that people with addiction who restrict smartphone usage express anxiety in carrying out activities, particularly in performing well in examinations. This study also highlighted that respondents consider smartphone addiction a medical problem, as against 48.4% who disagreed that smartphone addiction is not a medical problem. This indicates that even though a slightly high number agreed that it is a medical problem, many respondents may not understand the severity of smartphone addiction. This is in line with a study by Yu and Sons (2016), which identified students don't feel they need medical care to overcome smartphone addiction. The results showed that respondents agreed that low sleep quality could be associated with smartphone addiction. Balogun *et al.* (2020) corroborated this by identifying many young people who expressed insufficient sleep because of their smartphone usage.

Conclusion

In conclusion, findings show that smartphone utilisation is very popular among students at the University of Ibadan. The respondents have a high prevalence of smartphone addiction. In understanding the respondents' perceived health effects, findings from this study indicated that a percentage of the respondents perceived smartphone addiction to have adverse health effects. However, the respondents' attitudes and smartphone use patterns were negative. These findings suggest the need for interventions to reduce smartphone addiction and improve attitudes and usage patterns among university students.

References

- Acharya, J. P., Acharya, I. & Waghrey, D. (2013). A study on some of the common health effects of cell-phones amongst college students. *Journal of Community Medicine & Health Education*, 3(4), 1-4. <https://doi.org/10.4172/2161-0711.1000214>.
- Ahmed, I. & Qazi, T. F. (2013). Mobile phone adoption and Consumption patterns of university students in Pakistan. *Int. J. Bus. Social Sci.*, 2: 205-213.
- Anderson, M. & Jiang, J. (2018). Teens, social media & technology 2018. Pew Research Center, 31(2018), 1673-1689
- Akpunne, B. & Akinawo Bede, O. (2018). Validation Of Smartphone Addiction Scale –Short Version on Nigerian University Undergraduates. *International Journal of Computer Science and Mobile Computing*, Vol. 7 Issue.11, pg. 136-141.
- Ayandele, O., Popoola, O., Obosi, A. & Busari, A. (2019). Depression, Anxiety and Smartphone Addiction among Young People in South West Nigeria. *Covenant International Journal of Psychology (CIJP)*. 4(2), Dec. 2019 ISSN: p. 2682-535x e. 2682-5368 DOI.
- Balogun, F., Alohan, A. & Orimadegun, A. (2017). Self reported sleep pattern, quality and problems among schooling adolescents in southwestern Nigeria. *Sleep Med.* 30: 245-50. PubMed| Google Scholar.
- Cha, S. S. & Seo, B. K. (2018). Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use. *Health psychology open*, 5(1). 2055102918755046. <https://doi.org/10.1177/2055102918755046>.
- Chen, B., Liu, F., Ding, S., Ying, X., Wang, L. & Wen, Y. (2017). Gender differences in factors associated with smartphone addiction: a cross-sectional study among medical college students. *BMC Psychiatry*. 17(1), 41.
- Dabana, A. & Gobir, A. (2018). Depression among students of a Nigerian University: prevalence and academic correlates. *Archives of Medicine and Surgery*. 3(1). 6-10. doi: 10.4103/archms.archms_5_18.
- Elhai, J. D., Vasquez, J. K., Lustgarten, S. D., Levine, J. C. & Hall, B. J. (2018). Proneness to boredom mediates relationships between problematic smartphone use with depression and anxiety severity. *SocialScienceComputerReview*, 36(6), 707-720, <https://doi.org/10.1177/0894439317741087>.
- Emeka, E. (2013). The usage and impact of Internet enabled phones on academic concentration among students of tertiary institutions: A study at the University of Ibadan, Nigeria.
- Hooper, V. & Zhou, Y. (2007). Addictive, dependent, compulsive? A study of mobile phone usage. *Proceedings of the 20th Bled eConference: eMergence: Merging and Emerging Technologies, Processes and Institutions*, June 4-6, 2007, Bled, Slovenia, pp: 272-285.
- Ibrahim B. (2020). The Effect of Boredom Proneness on Smartphone Addiction and Impulse Purchasing: A Field Study with Young Consumers in Turkey. *Print ISSN: 2288-4637/Online. ISSN 2288-4645* doi:10.13106/jafeb.2020.vol7.no7.509.
- Ihsan, K. & Enes, B. (2020). Relationship between Smartphone Addiction and Personality Traits. *Asian Journal of Education and Training*, 6(2), 304-313.
- Ithnain, N., Ghazali, S. E. & Jaafar N. (2018). Relationship between smartphone addiction with anxiety and depression among undergraduate students in Malaysia. *Int J Health Sci Res.* 8(1), 163-171.
- Kibona, L. & Mgaya, G. (2015). Smartphones' effects on academic performance of higher learning

- students. *Journal of Multidisciplinary Engineering Science and Technology*, 2(4), 3159–40.
- Kwon, M., Lee, J., Won, W., Park, J., Min, J., Hahn, C., Gu, X., Choi, J. & Kim, D. (2013). Development and Validation of a Smartphone Addiction Scale (SAS). *PLOS One*, 8(2), 1-7. <https://doi.org/10.1371/journal.pone.0056936>.
- Lei, L. Y. C., Ismail, M. A. A., Mohammad, J. A. M. & Yusoff, M. S. B. (2020). The relationship of smartphone addiction with psychological distress and neuroticism among university medical students. *BMC psychology*, 8(1), 1-9.
- Matic, A., Pielot, M. & Oliver, N. (2015). Boredom computer interaction: Boredom proneness and the use of smartphone. *International Joint Conference on Pervasive and Ubiquitous Computing*, ACM, Osaka, Japan. <https://doi.org/10.1145/2750858.2807530>.
- Obi, A. I., Omoregie, M. O. & Onoriose, B. O. (2020). Prevalence and determinants of smartphone addiction among undergraduate students in a tertiary educational institution, Nigeria. *Nig J Med Dent Educ*, 2(2), 61-72.
- Rahim, Nurul, Siah, Yih & Tee, Xiang & Siah, pc. (2020). Smartphone Addiction: Its Relationships to Personality Traits and Types of Smartphone Use. *International Journal of Technology in Education and Science*, 5: 128-140. 10.46328/ijtes.165.
- Rizwan, R. A., Faryal, S., Shahab, A. M., Dalia, S., Riaz, S. & Munwar, H. P. (2020). Smartphone Use and Academic Performance of University Students: A Mediation and Moderation Analysis.
- Sethuraman, A. R., Rao, S., Charlette, L., Thatkar, P. V., Vincent, V. (2018). Smartphone addiction among medical college students in the Andaman and Nicobar Islands. *Int J Community Med Public Health*, 5: 4273-7.
- Statista (2023). Number of smartphone subscriptions worldwide from 2016 to 2021, with forecasts from 2022 to 2027. *Smartphone subscriptions worldwide 2027* | Statista.
- Sinha, S. & Patil, M. S. (2019). Mobile phone usage pattern and its health effects among medical students in north Karnataka: an observational study. *Int J Community Med Public Health*, 6: 4305-9.
- Timothy, A., Adedotun, V., Salami, O. & Ayoola, E. (2019). Health Problems Associated with Frequent Use of Cell Phone Among Students in University of Ibadan, Nigeria. *Trends in Applied Sciences Research*. 14. 10.3923/tasr.(2019).106.112.
- Yu-Kang, L., Chun-Tuan, C., Zhao-Hong, C. & You, L. (2016). Helpful-stressful cycle Psychological links between type of mobile phone user and stress, *Behaviour & Information Technology*, 35: 1, 75-86, DOI: 10.1080/0144929X.(2015).1055800.
- Van Deursen, A. J., Bolle, C. L., Hegner, S. M. & Kommers, P. A. (2015). Modeling habitual and addictive smartphone behavior: The role of smartphone usage types, emotional intelligence, social stress, self-regulation, age, and gender. *Computers in human behavior*. 45: 411-20.
- Zencirci, S. A., Aygar, H., Göktas, S., Önsüz, M. F., Alaiye, M. & Metintaş, S. (2018). Evaluation of smartphone addiction and related factors among university students. *Int J Res Med Sci*, 6: 2210-6.
- Zeyang, Y., Kathryn, A. & Mark, G. (2019). "A Cancer in the Minds of Youth?" A Qualitative Study of Problematic Smartphone Use among Undergraduate Students.