Prevalence and Determinants of Smartphone Addiction among Undergraduate Students in a Tertiary Educational Institution, Nigeria

### \*^OBI AI, \*\*OMOREGIE MO, \*\*ONORIOSE BO

\*Department of Community Health, University of Benin/ University of Benin Teaching Hospital, Benin City, Edo State ^Centre for Excellence in Reproductive Health Innovation (CERHI), University of Benin, Benin City, Edo State.

\*\*Department of Internal Medicine, University of Benin Teaching Hospital, Benin City, Edo State.



Correspondence

Dr A.I Obi Department of Community Health University of Benin Benin City, Edo State E-mail: andrew.obi@cerhi.uniben.edu **Objective:** This study assessed Smartphone addiction and its determinants among University undergraduates, with a view to raising awareness on this emerging form of addiction.

**Methods:** A descriptive cross-sectional study design was utilized for this study, involving the administration of 442 pretested structured questionnaires adapted from the Smartphone addiction scale questionnaire (SASQ) to undergraduate students of the University in Benin, Benin City, Edo State. Data collected was sorted for completeness, coded and analysed using IBM SPSS version 22.0 statistical software with statistical significance set at p<0.05.

**Results:** The mean age of respondents studied was 21.24  $\pm$ 3.59 years. Majority of the respondents had good knowledge of Smartphone addiction 334 (75.6%) while 418 (94.6%) had positive attitude towards Smartphone addiction with the prevalence of Smartphone addiction identified at 389 (88.0%) among respondents. Marital status of the respondents was a significant predictor for Smartphone addiction among the respondents (OR=5.809; p=0.016)

**Conclusion:** This study identified a high prevalence of Smartphone addiction among university undergraduates. There is a need for continuous stakeholder engagement and sensitization of the study population on the dangers associated with excessive smart phones use and need to consciously curb usage under risky situations.

**Keywords:** Communication, Determinants, Nigeria, Smartphone addiction, University of Benin,

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#### INTRODUCTION

It is estimated that over 3 billion Smartphone users exist globally with young people accounting for the majority (Gupta et al., 2016). Smartphones are mobile devices that performs many of the functions of a computer, typically having a touch screen interface, Internet access, and an operating system capable of running downloaded apps etc. Examples

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of Smartphone include iPhone, Android, Blackberry, Windows phone, Galaxy, Xperia, etc (Don, 2012; Gupta et al., 2016; Mustafi et al., 2017).

The use of smart phones has become increasingly indispensable in our daily lives, especially with regard to communication, sourcing for information through the internet with other social media engagement such as whatsapp, face book, instagram, linkedin, twitter etc (Don, 2012; Gupta et al., 2016; Mustafi et al., 2017). Despite the enormous benefit associated with its safe use with regard to communication, sourcing of information and research, it also has far reaching grave implication to the users especially in the area of addiction. The level of addiction to Smartphone among users is becoming a great source of public health concern (Gupta et al., 2016; Mustafi et al., 2017). The excessive use of Smartphone promotes addiction not only by impacting negatively on academic performance of students but also on other forms of daily activities among other users including their physical and mental health, social relationships and can result in withdrawal tendency among other users (Mustafi et al., 2017).

Smartphone addiction is a disorder involving compulsive overuse of the mobile devices, usually quantified as the number of times users access their devices and/or the total amount of time they are online over a specified period. This excessive phone use might be a serious source of concerns to family members, friends, colleagues etc. you have or that have influence on you (LaRose & Eastin, 2010; Don, 2012; Oulasvirata et al., 2015). Compulsive Smartphone use is just one type of technology addiction (Oulasvirata et al., 2015). Other technologies prone to overuse are social media and gaming, which are often accessed through mobile devices. Smartphone lend themselves to overuse because, unlike a desktop or laptop, they can be easily carried anywhere the user goes. One of the most telling characteristics of addiction is the uncontrollable fear of losing access to one's phone or not having connectivity. This form of anxiety is termed nomophobia "i.e no mobile phone phobia" (LaRose & Eastin, 2010; Griffiths, 2013; Oulasvirata et al., 2015). Nomophobia has become a growing concern among smartphone users especially young persons, globally, the major challenge with addressing the growing level of Smartphone addiction globally is its high social acceptance despite clear evidence of manifestation of withdrawal symptoms associated with misuse such as depression, restlessness, insomnia, and anxiety, when they are not with their mobile phones (LaRose

& Eastin, 2010; Griffiths, 2013. Tossell et al., 2015; Baig, 2015).

Smartphone use is high among students due to their increasing popularity leading to excessive use in Nigeria which have been reported to impact negatively on academic performance, including their physical and psycho-social health resulting in as neck stiffness, blurred vision, wrist or back pain, sleep disturbances and reduced in-person social interaction (Kuss et al., 2014; Fasae & Adegbilero, 2015; Haug et al., 2015; Choi et al., 2015; Baig, 2015; Rabiu et al., 2016).

This study assessed Smartphone addiction and its determinants among University undergraduates, with a view to raising awareness on this emerging form of addiction.

# MATERIALS AND METHODS

The study was conducted among university undergraduate of the University of Benin. University of Benin was founded in 1970. It started as an institute of technology and was accorded the status of a full fledged university by National Universities Commission on 1st July, 1971 (Edo State of Nigeria, 2011). The University offers courses at postgraduate, undergraduate, diploma and certificate degree level. It has over 40,000 student enrolment at fulltime and part time basis across the 13 faculties, which include Agriculture, Arts, Education, Engineering, Law, Life Sciences, Management Sciences, Pharmacy, Physical Sciences, and Social Science and a College of Medical Sciences which comprises the school of Medicine, Dentistry, Basic Medical Sciences and Institute of Child Health. The University of Benin has two main (Ugbowo and Ekehuan) campuses (Edo State government, 2016).

A descriptive cross-sectional study design was utilized for this study, involving the administration of pretested structured questionnaires adapted from the Smartphone Addiction Scale Questionnaire (SASQ) to undergraduate students of the University in Benin, Benin City, Edo State. A minimum sample size of 442 was utilized for this study calculated using Cochran formula (Cochran, 1977) based on Smartphone use prevalence of 54.0% from a previous study (Edonkumoh, 2015). Pretest was carried out using 10% of calculated sample size at Benson Idahosa University, Ugbor, Oredo Local Government Area, Benin City to identify errors, effect corrections and ensure validity and reliability of the questionnaire. Data collected was sorted for completeness, coded and analysed using IBM SPSS

version 22.0 statistical software with statistical significance set at p<0.05 at 95% confidence interval. Univariate analysis was done for all variables. Bivariate analysis was done to determine associations between sociodemographic variables (age, marital status, religion, occupation), level of knowledge of smartphone addiction, attitude towards smartphone abuse, prevalence of smartphone addiction and factors affecting smartphone addiction with various independent variables using chi-square test and Fishers exact test where applicable

The knowledge and attitude of respondents was assessed based on a number of questions obtained correctly and appropriately answered respectively under the knowledge and attitude section and scoring will be assigned thus:

A total of 14 questions was used to assess knowledge of smartphone use. A score of 1 was given for correctly answered questions and o for wrong answers, with a maximum score of 14 and a minimum score of o. Scores was converted to percentages and graded as good knowledge for scores greater than or equal to 50.0% and poor knowledge for Scores less than 50.0%. A total of 10 questions was used to assess students' attitude towards smartphone use. A score of 1 was given for appropriate answers and a score of o for wrong answers giving a maximum score of 10 and minimum of 0. Scores will be converted to percentages and group as positive attitude for Scores below 50% and negative attitude for scores greater than or equal to 50.0%. Smartphone addiction was assessed based on average mean score value assigned to 11 question having a score of 3 per question and a total point score of 33, scores above the average value was grouped as addicted to smartphone use while scores below the average score graded as not addicted.

Ethical approval was obtained from the Ethical and Research Committee, College of Medical Sciences, University of Benin before commencement of study. Verbal consent was obtained from the respondents after they have been educated on the purpose of the study and confidentiality of information was assured. After data collection, health education on Smartphone use and its consequences was given to the students at the end of the study to improve their knowledge, influence their attitude and ultimately positively affect their use of Smartphone.

# RESULTS

The mean age of respondents studied was 21.24± 3.59 years. The predominant age group 155 (34.9%) of respondents studied was 25-29 years, while the age group with lowest representation 15 (3.4%) was that of the 35 years and above. A higher proportion of respondents were male 229 (51.8%) compared to females 213 (48.2%). In relation to level of students studied, 100L represented the class with the highest proportion 116 (26.1%) of respondents while 600L class represented the class with the lowest proportion 14 (3.2%) of respondents. Majority 415 (93.5%) of the respondents were single while 27 (6.5%) were married. Majority of the respondents 145 (32.8%) had an average monthly income of ₦50,000 -₩90,000 with 171 (38.7%), 91 (20.6%) and 35 (7.9%) represented as ₩10,000 - ₩49,999; >₩90,000 and <\10,000 respectively. Parents were the major source of income among respondents of 376 (85.1%) (Table 1). In relation to awareness and knowledge of Smartphone addiction (Table 2), all respondents were aware of the term Smartphone addiction with colleagues 271 (61.3%) and internet 253 (57.2%) being +the main source of information and least being radio 152 (34.4%) with all respondent 442 (100.0%) studied having correct knowledge of the definition of Smartphone.

In relation to knowledge of Smartphone addiction (Table 3), 442 (100.0%) of the respondents had correct knowledge of the definition; 236 (54.3%) identified younger age group as a risk factor. In relation to interventions to address Smartphone addiction 295 (67.8%) were aware that it is curable, Time management 184 (42.3%), Increase social activities and other productive engagements 240 (55.2%) were also identified as possible solution to Smartphone addiction. Finally, in relation to the knowledge of effects of Smartphone addiction 293 (67.4%) and 278 (63.9%) were aware that it can affect academic performance and can be detrimental to health.

In relation to attitudinal response towards Smartphone addiction (Table 4), 223 (50.5%) of respondents agreed that it was okay to use Smartphone in the lecture hall, in the place of worship 151 (34.2%), the first thing to do when you wake up from sleep 166 (37.5%), while 197 (44.3%) agreed that it is better to have conversation on phone than facially with the person.

Table 1: Socio-demographics characteristics of respondents

Variable	Frequency (n = 442)	Percent
Age group (years)		
15 – 19	106	23.9
20 – 24	140	31.5
25 – 29	155	34.9
30 - 34	26	5.9
35 and above	15	3.4
Mean age (SD) = 21.25 ± 3.59		
Sex		
Male	229	51.8
Female	213	48.2
Class level		
100	116	26.1
200	106	23.9
300	73	16.4
400	108	24.3
500	25	5.6
600	14	3.2
Marital Status		
Single	415	93-5
Married	27	6.5
Religion		
Christianity	339	76.7
Islam	99	22.3
ATR	4	0.9
Department		2
Accounting	76	17.3
Pharmacy	91	20.6
Mathematics	112	25.3
Law	93	21.0
VTE	70	15.8
Faculty		-
Management science	76	17.3
Pharmacy	91	20.6
Physical science	112	25.3
Law	93	21.0
Education	70	15.8
Average income per month		-
<\htext{h10,000}	35	7.9
₩10,000 - ₩49,999	171	38.7
₩50,000 - ₩90,000	145	32.8
>₩90,000	91	20.6
Source of income*	-	
Parents	376	85.1
Relatives	169	38.2
Business	52	- 11.8
Grants/Scholarships	73	16.5

\*Multiple responses, ATR=African Traditional Religion, VTE=Vocational and Technical Education, ₩=naira

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Variable	Frequency (n=442)	Percent
Awareness of Smartphone addiction	442	100.0
Yes	435	98.4
No	7	1.6
Source of information*	n = 435	
Colleagues	271	61.3
Internet	253	57.2
Family	212	48.0
Books	162	36.7
Radio	152	34.4

## Table 3: Knowledge of smartphone addiction

	Knowledge of Smartphone addiction		
	Correct	Incorrect	
Variable	n (%)	n (%)	
Definition of Smartphone	435 (100.0)	0(0.0)	
Numerous virtual responses than real life responses	253 (58.2)	182 (41.8)	
Compulsive web surfing	197 (45.3)	238 (54.7)	
Online gambling addiction	206 (47.4)	229 (52.6)	
Visual, auditory and kinetic problem	160 (36.8)	275 (63.2)	
Knowledge on risk factors to Smartphone addiction			
Increasing number of Smartphone	262 (60.2)	173 (39.8)	
Younger age groups	236 (54.3)	199 (45.7)	
Knowledge of interventions/treatment			
Smartphone addiction can be cured	295 (67.8)	140 (32.2)	
Spiritual counselling	163 (37.5)	272 (62.5)	
Time management	184 (42.3)	251 (57.7)	
Reduced physical activity	265 (60.9)	170 (39.1)	
Increase social activities and other productive engagements	240 (55.2)	195 (44.8)	
Knowledge of effects of Smartphone addiction			
Can affect academic performance	293 (67.4)	142 (32.6)	
Can be detrimental to health	278 (63.9)	157 (36.1)	

In relation to the level of knowledge on Smartphone addiction 334 (75.4%) and 108 (24.6%) of respondents had good and poor knowledge respectively (Figure 1). Four hundred and eighteen (94.6%) respondents had positive attitude towards Smartphone addiction while 24 (5.4%) had negative attitude (Figure 2) While in relation to the prevalence of Smartphone addiction 410 (92.8%) were addicted compared to 32 (7.2%) who were not addicted (Figure 3). In relation to prevalence of Smartphone addiction (Table 5), 229 (51.8%) of respondents studied had continued inability to resist the impulse to use a Smartphone, 211 (47.7) felt anxious, irritable or dysphoric after a period of withdrawal from their Smartphone, 369 (83.5%) use their Smartphone for periods longer than intended, 33 (75.3%) have persistent desire and/or have unsuccessful attempts to quit or reduce Smartphone use while 385 (87.1%) have heightened attention to using or quitting Smartphone use, 223 (50.5%) agreed that it was okay to use Smartphone in the lecture hall, in the place of worship 151 (34.2%), the first thing to do when you wake up from sleep 166 (37.5%), while 197 (44.3%) agreed that it is better to have conversation on phone than facially with the person.

In relation to factors associated with Smartphone addiction (Table 6), the level of students (p < 0.001), religion (p < 0.001) and marital status (p = 0.002) were identified as significant factors associated with Smartphone addiction. Marital status of respondents was a significant predictor for Smartphone addiction among respondents studied (Table 7). Being single increased the prevalence of Smartphone addiction by the odds of 5.809 when compared with those married. This difference was statistically significant (OR= 5.809; p = 0.016; Cl= 0.062- 0.751)



Figure 1: Level of knowledge on smartphone addiction by university undergraduates



Figure 2: Attitude of university undergraduates towards smartphone addiction



Figure 3: Smart phone addiction among university undergraduate

Table 4: Attitude towards smartphone addiction

Variable	Strongly	Agree	Indifferent	Disagree	Strongly
	agree	n (%)	n (%)	n (%)	Disagree
	n (%)				n (%)
It is okay to carry Smartphone all the time	56 (12.7)	131(29.6)	120 (27.1)	113(25.6)	20 (5.0)
One should follow new Smartphone brands					
in media/advertisement	29 (6.6)	0 (0.0)	133 (30.1)	226(51.1)	54 (12.2)
It is okay to be influenced by a new brand of					
Smartphone	42 (9.5)	69 (15.6)	136 (30.8)	142(32.1)	53 (12.0)
One's Smartphone should be close while					
sleeping	32 (7.2)	99 (22.4)	133 (30.1)	121(27.4)	57 (12.9)
It is okay to be use a Smartphone while in a					
lecture hall	117 (26.5)	106(24.0)	72 (16.3)	114(25.8)	33 (7.5)
It is okay to use a Smartphone while in the					
place of worship	38 (8.6)	113 (25.6)	138 (31.2)	120(27.1)	33 (7.5)
Using your Smartphone is the first thing you					
do in the morning	22 (5.0)	144(32.5)	128 (29.0)	111(25.1)	37 (8.4)
It's okay to be worried and anxious after					
losing a Smartphone	52 (11.8)	147 (33.3)	125 (28.3)	103(23.3)	15 (3.4)
It's better to have conversations on a					
Smartphone than facially with the person	52 (11.8)	144(32.5)	119 (26.9)	105(23.8)	22 (5.0)
It's okay to never switch off your Smartphone	39 (8.8)	89 (20.1)	147 (33.3)	136 30.8)	31 (7.0)

Table 5: Prevalence of smartphone addiction

Variable	Frequency	Percent
	(n= 442)	(%)
Do you have continued inability to resist the impulse to use a Smartphone	229	51.8
Do you feel anxious, irritable or dysphoric after a period of withdrawal from your		
Smartphone	211	47.7
Do you use your Smartphone for periods longer than intended	369	83.5
Do you have persistent desire and/or have unsuccessful attempts to quit or reduce		
Smartphone use	333	75.3
Do you have heightened attention to using or quitting Smartphone use	385	87.1
Have you ever used your Smartphone despite recurrent psychological or physical		
problems	382	86.4
Do you persistently use your Smartphone despite psychological or physical		
consequences	320	72.4
Do you use your Smartphone in physically hazardous situations or situations that		
have negative impact on daily life	356	80.5
Do your Smartphone impair social relationships or performance at school or work	369	83.5
Is your Smartphone very time consuming or cause significant distress	338	76.5
It's okay to be told that one spends too much time on Smartphone	172	38.9

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Variable	Smartpho	ne addiction		
	Addicted (n = 410)	Not addicted (n = 32)	Test Statistic	P-value
	n (%)	n (%)		
Age (years)				
20 – 24	125 (86.8)	19 (13.2)	χ² = 6.110	0.106
25 – 29	147 (94.8)	8 (5.2)		
30-34	23 (88.5)	3(11.5)		
35 and above	13(86.7)	2(13.3)		
Sex				
Male	210 (91.7)	19 (8.3)	χ <sup>2</sup> = 0.791	0.374
Female	200 (93.9)	13 (6.1)		
Class level				
100L	107 (92.2)	9 (7.8)	χ² = 33.489	<0.001
200L	100 (94.3)	6 (5.7)		
300L	71 (97.3)	2 (2.7)		
400L	106 (97.2)	3 (2.8)		
500L	21 (84.0)	4 (16.0)		
600L	6 (42.9)	8 (57.1)		
Marital status				
Married	21 (77.8)	6 (22.2)	χ² = 9.612	0.002
Single	389 (93.7)	26 (6.3)		
Religion				
Christianity	318(93.8)	21(5.2)	χ <sup>2</sup> = 32.719	<0.001
Islam	31(79.5)	8(20.5)		
ATR	1(25.0)	3(75.0)		

Table 6: Factors associated with prevalence of smartphone addiction among respondents

ATR=African Traditional Religion

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Predictor		B (regression co-efficient)	OR	95% CI for OR	P-value
Age	15 – 24	-0.134	0.062	0.304-2.513	0.803
	25 and above	1			
Sex	Male	0.451	1.535	0.769-3.204	0.215
	Female	1			
Class level	Lower	-0.383	0.881	0.307-1.517	0.348
	Higher	1			
Marital status	Single	1.530	5.809	0.062-0.751	0.016
	Married	1			

R<sup>2</sup>=2.7% - 6.2%, CI= Confidence interval, OR= Odds Ratio

### DISCUSSION

The mean age of respondents studied is typical of findings from previous studies indicative of young population reflective among university undergraduate environment. The study population also had a slightly higher male population than female. This is in contrast to a study in Turkey and Saudi-Arabia that had a higher female predominance compared to males (Alosaimi et al., 2016; Karadağ et al., 2015). This could be due to socio-cultural reasons were developing countries like Nigeria still place higher premium on male than female education.

However, the observation that the male female educational ration in the university environment is very encouraging compared to findings observed in yesteryears. This is significant as current world trends are against such cultural trends and special emphasis needs to be placed on female education to prevent or limit any social or health consequence of ignorance regarding health and development including Smartphone addiction.

Parents were the major source of income among respondents in this study. This is in keeping with a study carried out in China to assess the prevalence

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and correlates of problematic phone use among university students which showed that parents and family formed the source of income of most of the respondents (Long et al., 2016).This could be attributed to the fact that majority of the respondents, being students, did not have any form of employment and therefore had to depend on parents as a source of income for their upkeep and purchase of Smartphone to aid communication and school work.

In relation to awareness and knowledge of Smartphone addiction, all respondents studied were aware of Smartphone addiction. This is in keeping with a study done in Turkey which revealed that majority of their respondents had awareness of Smartphone addiction.<sup>19</sup> However, this is in contrast to a study done in Switzerland which showed that majority were not aware of Smartphone addiction.<sup>21</sup> This findings may be due to the fact that smartphones use hence the awareness have become very common in the general population especially among young persons etc (LaRose & Eastin, 2010; Don, 2012; Oulasvirata et al., 2015; Gupta et al., 2016; Mustafi et al., 2017). This high level of awareness on Smartphone usage could also be harnessed in improving the effectiveness of therapeutic measures address Smartphone addiction, through the concerted effort of government, non-governmental organizations, families and university authorities in Smartphone control programs and exercises.

Furthermore, respondent's colleagues, internet, family, television were the main source of information. This has been similarly reported in Korea (Cha & Seo, 2018) which showed that television and internet was the major source of information. This could be explained by the fact that peer influence plays a major role in the affairs of adolescents and young persons. The importance of this is that conscious efforts should be made to ensure that the right information is in circulation around the university environment through different platforms such as Student Union Bodies, religiouscultural associations. Hence, Government policies, enlightenment programs and the education system should engage adolescents and youths constructively with the right information on Smartphone addiction. Majority of respondents had the correct definition of Smartphone addiction, knowledge of symptoms, risk factors and effects of Smartphone addiction. This is in tandem with the study carried out in Korea (Parasuraman et al., 2017) Malaysia (Cha & Seo, 2018) and China (Jiang & Zhao, 2016), but contrast to findings from a study in Iran Babadi-Akashe et al., 2014), India (Dutta et al., 2016) and Ibadan (Emeka, 2013) which showed that which showed that greater proportion had incorrect definition of Smartphone addiction, knowledge of symptoms and risk factors of Smartphone addiction. This could be attributed to the fact to the internet being a major source of information on Smartphone use and the findings that Smartphone use was high among the study population.

In relation to attitude towards Smartphone addiction, majority of the respondents had positive attitude towards Smartphone addiction. This finding was similar to a study done in Turkey (Karadağ et al., 2015) and Ibadan (Emeka, 2013) but in contrast to the findings from a study in India (Dutta et al., 2016) and Bayelsa (Edonkumohm 2015). This positive attitude towards smartphone addiction can drastically affect quality of life in so many ways. It could lead to increase inclination to Smartphone use, hence increasing tendency towards addiction and by implication can cause decline in academic performance, social isolation, poor attention to duty and even increase risk in road traffic accidents. In this light, there is need for increased campaigns by government agencies at every level and nongovernmental organizations on the ills of Smartphone addiction, especially among the youth and institute measures to curtail it. This positive inclination to Smartphone addiction can be the reason for the high prevalence identified among study participants in this study. The reason for this may be due to the advanced technology and multiple features of the Smartphone like access to the internet and social media platforms. This is likely to encourage addiction; it could also arise due to the portability of many Smartphone, making it easy for them to be carried about. The university administration should also make laws restricting Smartphone use during lectures and while driving on campus in the university.

Findings from our study revealed that majority of the respondents were addicted to smartphone use, this finding is keeping with a study done in South Korea (Matar Boumosleh et al., 2017) which showed high addiction among the respondents, this is in contrast with a study done in Ibadan (Emeka, 2013) and Saudi-Arabia (Alosaimi et al., 2016). The reason for this could be due to the improved features of the smartphones, the better and easy to use technology, and the multitasking abilities of these phones. This makes it easy for a single smartphone to function like the internet, social media apps like Whatsapp, Facebook, Twitter, Instagram; television, radio,

calculator, textbook, and a lot more at the same time. These multiple features could mean that most of the respondents would spend considerable amount of time on their smartphone and hence the addiction tendency. This is significant as it marks a new era of addictive disorder which, for most of the respondents, could result in reduced quality of life, poor social interaction and reduced constructive productivity. There should be increased social campaign on self-discipline in smartphone use and the need raise awareness on the risk and effects of smartphone addiction and the need to conscious limit its use. The study also showed that a large proportion of respondents use smartphone to access information and improving one's knowledge. This is similar to findings from studies in South Africa (Walter et al., 2012). Smartphones have become the number one go-to place for young people who want to get information on anything, ranging from academic knowledge to entertainment and sports. This means then that they will have to rely entirely on their Smartphone. This could explain the high addiction, especially with high level of social acceptance associated with smartphone use. The importance of this is in the fact that access to information becomes easier and this could be a boost to healthcare if the right information is gotten as it will improve the patient's health seeking behaviour, but it can also be a heaven of wrong and detrimental information that can negatively influence health and engender social vices. Finally, this study identified that being married significantly limited smartphone addiction among the study population as respondents who were single were more addicted compared to those who were married. Marriage is known to instil certain restriction to our actions and inactions by instilling a high level of responsibility to our conducts. Hence, to address smartphone addiction there must be some personal conscious effort by users to limit when, how often and what situations to use and not to use smartphone to help curtail its effects among the young population of our growing economy.

## CONCLUSION

This study identified a high prevalence of Smartphone addiction among university undergraduates. There is a need for continuous stakeholder engagement and sensitization of the study population and general public on the dangers associated with smartphone use and need to consciously curb usage under risky situations.

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### **Conflict of interest**

The authors declare that they have no conflicts of interest.

# REFERENCES

- Alosaimi FD, Alyahya H, Alshahwan H, Al Mahyijari N, Shaik SA (2016). Smartphone addiction among university students in Riyadh, Saudi Arabia. Saudi Med J; 37(6):675-683.
- Babadi-Akashe Z, Zamani BE, Abedini Y, Akbari H, Hedayati N (2014). The relationship between mental health and addiction to mobile phones among university students of Shahrekord, Iran. Addict Health; 6(3–4):93-99.
- Baig A (2015). Mobile phone addictions among youth: a study on mobile phone addiction and it disadvantages; 4(8): 3-5.
- Cha SS, Seo BK (2018). Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use. Health Psychol Open; 5(1):2055102918755046.doi:10.1177/2055102918 755046.
- Choi SW, Kim DJ, Choi JS, Ahn H, Choi EJ, Song WY, Kim S, Youn H (2015). Comparison of risk and protective factors associated with smartphone addiction and Internet addiction. J Behav Addict; 4(4):308-314.
- Cochran WG (1977). Sampling techniques. Third Edition. New York: John Wiley & Sons, Inc:149-156.
- Don R (2012). Worldwide Smartphone User Base hits 1 billion. CBS Interactive, Inc. <u>https://en.wikipedia.org/wiki/smartphone.Acces</u> <u>sed 2/04/2018</u>.
- Dutta E, Sharma P, Dikshit R, Shah N, Sonavane S, Bharati A, et al (2016). Attitudes toward selfie taking in school-going adolescents: An exploratory study. Indian J Psychol Med; 38(3):242-245.
- Edo State Government (2016), Edo State of Nigeria. Official website of Edo State government,Nigeria;<u>www.edostate.gov.ngege</u> <u>ography</u>. [Accessed 26<sup>th</sup> September, 2017].
- Edo State of Nigeria (2011). Nigeria information and Guide; <u>www.nigeriagalleria.com</u>. [Accessed 26<sup>th</sup> September, 2017].

- Edonkumoh VE (2015). Impact of smartphonestablets on the information seeking behaviour of medical students and staff of Niger Delta University, Bayelsa State, Nigeria. Lib Philos Pract.http:/digitalcommons.unl.edu/libphilprac/ 1288. Accessed o8/08/2017.
- Emeka E (2013). The usage and Impact of Internetenabled phones on academic concentration among students of tertiary institutions: A study at the University of Ibadan, Nigeria. Int J Educ Dev Info Communic Technol (IJEDICT): 2013, Vol 9, Issue 3, pp, 162-173.
- Fasae JK, Adegbilero II (2015). Mobile devices for academic practices by students of college of sciences in selected Nigerian private universities. Electronic Lib; 33(4): 749-759.
- Gupta N, Garg S, Arora K (2016). Pattern of mobile phone usage and its effects on psychological health, sleep, and academic performance in students of a medical university.; Natl J Physiol Pharm Pharmacol; 6(2):132-139
- Griffiths MD (2013) Social networking addiction: emerging themes and issues. J Addict Res Ther 4:e118. doi:10.4172/2155-6105.1000e118.
- Jiang Z, Zhao X (2016). Self-control and problematic mobile phone use in Chinese college students: the mediating role of mobile phone use patterns. BMC Psychiatry; 16(1) :416.https://doi.org/10.1186/s12888-016-1131-Z.
- Haug S, Castro RP, Kwon M, Filler A, Kowatsch T, Schaub MP (2015). Smartphone use and smartphone addiction among young people in Switzerland. J Behav Addict; 4(4):299-307.
- Karadağ E, Tosuntaş ŞB, Erzen E, Duru P, Bostan N, Şahin BM, Çulha İ, Babadağ B (2015) Determinants of phubbing, which is the sum of many virtual addictions: a structural equation model. J Behav Addict; 4(2):60-74.
- Kuss DJ, Griffiths MD, Karila L, Billieux J (2014). Internet addiction: a systematic review of epidemiological research for the last decade. Curr Pharm Des; 20(25):4026-4052.
- LaRose R, Eastin MS (2010). A social cognitive theory of internet user and gratification: towards a new

model of media attendance. J Broadcasting Electronic Media. 48(3): 358-377.

- Long J, Liu TQ, Liao YH, Qi C, He HY, Chen SB, et al (2016). Prevalence and correlates of problematic smartphone use in a large random sample of Chinese undergraduates. BMC Psychiatry; 16(1):408. doi:10.1186/s12888-016-1083-3
- Matar Boumosleh J, Jaalouk D (2017). Depression, anxiety, and smartphone addiction in university students- A cross sectional study. PLoS One; 12(8):eo182239.doi:10.1371/journal.pone.o1822 39
- Arefin, MS, Islam, M, Mustafi, M, Afrin, S, Islam N (2017). Impact of smartphone addiction on academic performance of business students: A case study. Indep J Manag; 8(3): 1. <u>https://ssrn.com/abstract=3035776</u>
- Oulasvirata A, Rattenbury T, Lingyi M, Raita E (2015). Habits makes smartphone more pervasive.http://www.techdirt.com/articles/201 00607/0224269710.shtml. Accessed 02/04/2018.
- Parasuraman S, Sam AT, Wong KY. Chuon BLK, Ren LY (2017). Smartphone usage and increased risk of mobile phone addiction: A concurrent study; Int J Pharm Investig; 7(3):125-131.
- Rabiu, H. Muhammed A. Umaru Y. Ahmed, HT (2016). Impact of mobile phone usage on academic performance among secondary school students in Taraba state, Nigeria: Eur Sci J; 12(1):466.
- Tossell C, Kortum P, Shepard C, Rahmati A, Zhong L (2015). Exploring Smartphone addiction: insights from long-term telemetric behavioral measures: Int J Interactive Mobile Technol; 9(2):37-43
- Walter UYS, Aadilah MIA, Gary JJ, Haythem VDS, Michael AJ, Michelle K, Muzaffer G, Natacha AL, Sulungeka F, Tejas G, Tracey-Lee T, Yaseen S (2012). Smartphone application usage amongst students at a South African university: department of information systems, university of the Western Cape, Cape Town, 8000, South Africa, IST-Africa 2012 Conference Proceedings Paul Cunningham and Miriam Cunningham (Eds), pp. 5-11