

# Knowledge of and Attitude towards Internet Addiction among Undergraduate Students in University of Benin, Edo State, Southern Nigeria

Ogboghodo EO<sup>1,2</sup>, Omoregie EK<sup>1</sup>, Omoike E<sup>1</sup>, Omuemu VO<sup>1,2</sup>

<sup>1</sup>Department of Community Health, University of Benin Teaching Hospital, <sup>2</sup>Department of Community Health, University of Benin, Benin City, Edo State, Nigeria

## ABSTRACT

**Background:** The use of Internet has become a common phenomenon among students all over the world. Today, the Internet is used for many purposes, including education. However, excessive Internet use leads to the creation of a nonchemical addiction similar in nature to substance abuse, known as 'internet addiction.' This study was conducted to assess the knowledge and attitude toward Internet addiction among undergraduates in Benin City.

**Materials and Methods:** This was a descriptive cross-sectional study among undergraduate students at the University of Benin. Respondents were selected using a multi-stage random sampling technique comprising three stages. Data were collected using a pre-tested, structured, interviewer-administered questionnaire. Knowledge was assessed using six domains, while attitude was assessed using a 5-point Likert scale. Data were analysed with IBM SPSS version 22.0. The level of significance was set at  $P < 0.05$ .

**Results:** Four-hundred and ninety-nine respondents with a mean age (standard deviation) of  $20.5 \pm 2.7$  years participated in this study. The majority, 403 (81.4%) of respondents had a good knowledge of Internet addiction. A higher proportion of 296 (59.3%) of respondents had a negative attitude (averse) towards Internet addiction. The course of the study ( $P < 0.001$ ), living in the hostel ( $P = 0.034$ ) associated with good knowledge and negative attitude toward Internet addiction.

**Conclusion:** The study showed a good knowledge and negative attitude toward Internet addiction among the studied population. Continuous education on the healthy use of the Internet is recommended.

**Key words:** Addiction, Internet, technology, undergraduate

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## INTRODUCTION

The Internet evolved from the early 1980s, revolutionizing broadcasting, information sharing and connecting of individuals worldwide. Over the past decade, the Internet has become an integral part of life for most people.<sup>1</sup> Today, the Internet can be used for many purposes: educational such as teaching, learning and research; business, such as monetary/document exchanges and conference meetings; recreational such as games, online gambling and watching sexually explicit material, and as a mode of connecting people through texting, calling, social websites, chat applications, and E-mails.<sup>2</sup>

Smartphones have pulled away from laptops to become the most important device used to access the Internet for close to half of those accessing the Internet in recent times.<sup>3</sup> The devices have become so ubiquitous in nature, such that along with keys and money, the smartphone is now one of three survival tools most people carry with them when leaving the home.<sup>4</sup>

Globally, 3.5 billion people have access to Internet and most of them are young adults and adolescents.<sup>5</sup> The vast majority of teenagers in the world are using the Internet and Nigeria is no exception to this global trend of Internet use. In Nigeria, the number of Internet users among adolescents

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**Address for correspondence:** Dr. Ogboghodo EO,  
Department of Community Health, College of Medical Sciences, University  
of Benin, PMB 1154, Benin City, Edo State, Nigeria.  
E-Mail: [oliviadynski@yahoo.com](mailto:oliviadynski@yahoo.com)

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and teenagers is increasing. In 2008 about 28.2% of Nigeria's population had access to the Internet and of those, 68.2% were people aged 6–24 years old. By 2009, about 43.9% of Nigerian households were reported as having access to the Internet and over 16.99 million Nigerian people use the Internet as an integral part of their personal, social, and occupational lives.<sup>6</sup> In 2015, the Nigerian Communications Commission disclosed that 83 million people used the Internet in Nigeria. Research has found that an increasing number of students are using the Internet for academic activities. About 94.0% of Nigerian Educational Institutes have Internet access, thus providing students with daily access to high speed internet.<sup>7</sup>

Tech or Internet addiction is a broad term devised to define obsession with online video games, smartphones, tablets, online gambling, online shopping, sexting, etc.<sup>8</sup> Internet addiction is typically characterised by psychomotor agitation, anxiety, craving, loss of control, impairment of function, reduced decision-making ability.<sup>9</sup> The detrimental consequences of unhealthy internet use are particularly relevant to young persons and include impacts on identity formation, brain structure, academic achievement, social skills, emotional regulation, symptoms of depression, anxiety and hostility.<sup>10</sup>

The knowledge of Internet addiction as a disorder and problems associated with repeated use of smartphones is poor globally. Studies carried out among undergraduate students in Tirupati and Mangalore, India, showed that <2% and 30%, respectively of respondents had adequate knowledge on the subject.<sup>11,12</sup> These statistics show that only a few are aware of repeated use of the Internet can lead to addiction, placing a lot of individuals in the “at-risk” group for developing Internet addiction disorder.

On the other hand, the attitude of individuals toward everyday Internet use seems to be positive. A high percentage of the study population in a study carried out in Riyadh, Saudi Arabia, indicated that they support the use of the Internet as the latest invention in the information era. A large number of the subjects of the same study agreed that the Internet is a rapid means of getting information and a good means of continuous self-learning.<sup>13</sup> Overall, a positive attitude toward the use of Internet tends to reduce the incidence of Internet addiction as shown by a study carried out in Turkey which showed a positive significant relationship between attitude toward the Internet and Internet addiction among the students.<sup>14</sup>

This research was conducted to assess the knowledge and attitude towards Internet addiction among undergraduate students. Findings from this study will provide baseline data on the knowledge and attitude towards Internet addiction as well as aid in policy and decision making as regards Internet use among undergraduate students.

## MATERIALS AND METHODS

This research is part of a larger study which assessed the knowledge, attitude, prevalence and determinants of Internet

addiction among undergraduate students in Southern Nigeria. The study utilised a descriptive cross-sectional study design. The study population comprised undergraduate students of the University of Benin, Benin City, Edo State. The University of Benin was founded in 1970. At present, the total student enrolment (undergraduate and postgraduate) stands at over 40,000, made up of both full-time and part-time programmes, shared among the 13 faculties of the institution.<sup>15</sup>

A minimum sample size of 492 was calculated using the appropriate formulae for one population study.<sup>16</sup> This was calculated using a prevalence of 26% (knowledge and attitude regarding ill effects of Internet addiction among nursing students in selected nursing institutions in Mangalore).<sup>12</sup> Respondents were selected using multi-stage sampling technique comprising three stages. In stage one, 6 out of the 13 faculties were selected using a simple random sampling technique by balloting. Stage two comprised the selection of departments. Using a list of all the departments in the selected Faculties/Schools (as obtained from the university brochure), 10 out of 25 departments were selected using simple random sampling technique by balloting. In stage three, respondents were selected from each department using a stratified sampling technique. The levels of study in each department (100–600) formed the basis for each stratum. The proportional allocation was used to determine the number of respondents to be selected at each level. Thereafter, systematic sampling was used to select the respondents after calculating the appropriate sampling interval and every  $n^{\text{th}}$  person was selected and invited to participate in the study.

Data were collected using a pre-tested, self-administered structured questionnaire adapted from the Smartphone Addiction Scale (SAS).<sup>17</sup> The SAS, originally developed in Korean, but published in English, is a contemporary scale developed to assess smartphone addiction. The SAS questions assessing ‘daily life disturbance’, ‘positive anticipation’, ‘withdrawal’, ‘overuse’ and ‘tolerance’ symptoms of smartphone addiction. These questions were adapted to assess the knowledge and attitude of Internet addiction.

Ten percent (50) of the calculated sample size was used for pre-testing. Pretesting was conducted among undergraduate students of Benson Idahosa University, Benin City. Pre-testing was done to enhance the clarity and comprehensibility of the data tool. Corrections were effected before the commencement of the study. The questionnaires were distributed in the lecture theatres, collated, screened for completeness, numbered serially and was entered into IBM SPSS version 22.0 (IBM Corp., Armonk, NY).

The knowledge of Internet addiction among undergraduate students of the University of Benin was assessed using a total of 25 questions in six domains: main purpose of the Internet (four questions), meaning of addiction (three questions), meaning of Internet addiction (eight questions), addictive nature of the Internet (one question), effects of internet addiction (five questions) and consequences of Internet

addiction (four questions), respectively. A score of 1 was given for correct answers and 0 for wrong answers. The maximum and minimum achievable scores were 25 and 0, respectively. The scores were converted to percentages and scores <50% were categorised as poor knowledge, while scores from 50% and above were considered good knowledge. The questions used in assessing knowledge were internally valid, with a Cronbach's alpha of 0.780.

The attitude of students towards Internet addiction was assessed using a five-point Likert scale, which comprises ten items. The most correct response was awarded a score of 5 and the least correct was awarded a score of 1, giving a maximum score of 50 and minimum of 10. Scores were converted to percentages and scores 70% and above were categorised as positive attitude while scores 69% and below were considered negative attitude. The questions used in assessing attitude were internally valid with a Cronbach's alpha of 0.727.

Univariate analysis was performed for all variables. Bivariate analysis was performed to determine associations between socio-demographic variables (age, marital status, religion and occupation), knowledge of Internet addiction and attitude towards Internet addiction.

Ethical clearance to conduct this research was sought and obtained from the University of Benin Teaching Hospital ethical committee. Permission was also obtained from the Head of Department, Department of Community Health, School of Medicine, College of Medical Sciences and University of Benin. Approval of the study was also sought from the various faculties and the Heads of Department of the various selected Departments chosen for the study. Written informed consent was obtained from the respondents and confidentiality of the information assured. Respondents were informed that they had the right to decline participation or to withdraw from the study at any time they wished.

## RESULTS

A total of 499 students with a mean age (standard deviation) of  $20.5 \pm 2.7$  years participated in this study. A greater proportion of 276 (55.3%) of the respondents were within the 20–24 years age group, while those within 35–39 years made up the least proportion of students at 1 (0.2%). The male: female ratio was approximately 1:1. Among the respondents, 474 (95.0%) used a smartphone in accessing the Internet, 206 (41.9%) accessed the Internet with a computer and 116 (23.2%) used a tablet for browsing the Internet showing that while most respondents used multiple devices in accessing the Internet, a majority of the students used their smartphones over other devices. A majority, 385 (77.7%) of our respondents reside in the hostel while in school, while 114 (22.8%) of them lived at home with their parents or guardians [Table I].

Less than half 224 (44.9%) of students studied identified as having a reserved personality, and 19 (3.8%) reported as being very quiet. 131 (6.3%) of the respondents' predominant mood

**Table I: Sociodemographic characteristics of respondents**

Variable	Frequency (n=499), n (%)
Age group (years)	
15-19	189 (37.9)
20-24	276 (55.3)
25-29	30 (6.0)
30-34	3 (0.6)
35-39	1 (0.2)
Mean±SD	20.5±2.7
Sex	
Male	259 (51.9)
Female	240 (48.1)
Course of study	
Pharmacy	81 (16.2)
Law	68 (13.6)
Agricultural economics	57 (11.4)
Economics and statistics	56 (11.2)
Medicine	52 (10.4)
Fisheries	50 (10.0)
Political science	48 (9.6)
Philosophy	41 (8.2)
Crop science	30 (6.0)
Dentistry	16 (3.2)
Level	
100 level	128 (25.7)
200 level	113 (22.6)
300 level	103 (20.6)
400 level	89 (17.8)
500 level	49 (9.8)
600 level	17 (3.4)

SD: Standard deviation

was very happy, while 68 (13.6%) reported being predominantly sad. A third (37.1%) of the respondents had parents who were patient and understanding in nature and 39 (7.8%) of them reported their parents to be very strict [Table II].

A higher proportion of the respondents had a good knowledge of 'the addictive nature of the Internet', 'meaning of Internet addiction' and 'meaning of addiction' (94.0%, 93.6% and 93.3%, respectively), while the lowest proportions of respondents 281 (43.7%) had a good knowledge on the consequences of Internet addiction. Overall, a majority of 403 (81.4%) of respondents had a good knowledge of Internet addiction [Table III].

All dental students 16 (100.0%) had a good knowledge of Internet addiction, followed by Medical 49 (94.2%) and Philosophy students 37 (90.2%). The lowest proportion of students with good knowledge was found among respondents studying Agricultural Economics 35 (61.4%). The association between the course of study and knowledge of Internet addiction was statistically significant ( $P < 0.001$ ). Students who lived in the hostel had the highest proportion of those with good knowledge of Internet addiction 325 (84.4%) compared to those who lived at home under supervision 81 (71.1%). This association was statistically significant ( $P = 0.001$ ). The

**Table II: Socio-economic characteristics and social behaviour of respondents**

Variable	Frequency (n=499), n (%)
Socio-economic characteristics	
Marital status	
Single	492 (98.6)
Married	5 (1.0)
Cohabiting	2 (0.4)
Family type	
Monogamous	459 (91.4)
Polygamous	31 (6.2)
Parents are separated	12 (2.4)
Place of residence	
Hostel	385 (77.7)
Home	114 (22.8)
Source of income	
Parents and relatives	454 (91.0)
Own a business	27 (5.4)
Employed	18 (3.6)
Social behaviour	
Personality	
Reserved	224 (44.9)
Outgoing	173 (34.7)
Indifferent	46 (9.2)
Shy	37 (7.4)
Very quiet	19 (3.8)
Predominant mood	
Very happy	131 (26.3)
Happy	118 (23.6)
Indifferent	108 (21.6)
Very sad	74 (14.8)
Sad	68 (13.6)
Type of parents	
Patient and understanding	185 (37.1)
Loving and kind	156 (31.3)
Strict	119 (23.8)
Very strict	39 (7.8)

highest proportion of respondents with a good knowledge of Internet addiction was found among respondents with loving and kind parents 136 (87.2%), while those with very strict parents had the lowest proportion 24 (61.5%) of those with good knowledge. The relationship between the type of parent and knowledge of Internet addiction was statistically significant ( $P = 0.003$ ) [Table IV].

About a quarter of the respondents, 123 (24.6%) of the respondents agreed they get restless when they are not able to access notification and another 103 (20.6%) strongly agreed with feeling anxious about the loss of a phone. A third of the respondents, 160 (32.1%) of the respondents strongly disagreed with ignoring people around them to use their smartphone. Overall, more than half, 296 (59.3%) of the respondents had a negative attitude [Figure 1]. A higher proportion, 43 (82.7%) of respondents in Medicine had a negative attitude toward internet addiction, higher than any other course, while the lowest proportion, 17 (41.5%) of students with a negative

**Table III: Knowledge of Internet addiction in domains**

Variable	Frequency (%)
Main purpose of the Internet	
Good	309 (61.9)
Poor	190 (38.1)
Meaning of addiction	
Good	466 (93.4)
Poor	33 (6.6)
Meaning of Internet addiction	
Good	467 (93.6)
Poor	32 (6.4)
Addictive nature of the Internet	
Good	469 (94.0)
Poor	30 (6.0)
Effects of Internet addiction	
Good	283 (56.7)
Poor	216 (43.3)
Consequences of Internet addiction	
Good	281 (43.7)
Poor	218 (56.3)
Overall knowledge of Internet addiction	
Good	403 (81.4)
Poor	93 (18.6)

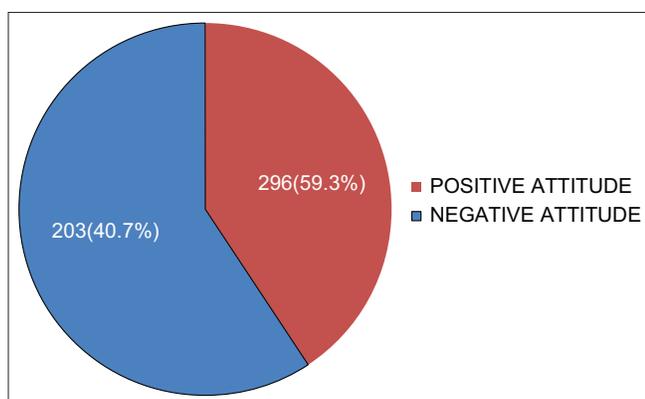
attitude were found in Philosophy. This association was statistically significant ( $P < 0.001$ ). Two-thirds 257 (63.3%) of respondents with a good knowledge of internet addiction had a negative attitude towards Internet addiction, compared to those with poor knowledge 39 (41.9%). This relationship was statistically significant ( $P < 0.001$ ). Respondents living in the hostels had a higher proportion of 234 (60.8%) of students with a negative attitude towards Internet addiction, compared to those who lived at home 62 (54.4%). The relationship between place of residence and attitude towards Internet addiction was statistically significant ( $P = 0.034$ ). Students who had loving and kind parents had the best attitude toward Internet addiction, 101 (64.7%), compared to respondents with other types of parents. The relationship between the type of parents and attitude towards Internet addiction was statistically significant ( $P = 0.003$ ) [Table V].

## DISCUSSION

Results from this study revealed that the majority of respondents had a good knowledge of Internet addiction. This finding is in keeping with a similar study conducted among nursing students in selected nursing institutions in Mangaluru, India,<sup>12</sup> in 2015, which showed that the majority of respondents had moderately adequate knowledge about Internet addiction. It was also found that a higher proportion of respondents with good knowledge of internet addiction where students from the faculties of dentistry and medicine. This may be attributed to the broader curriculum of the study utilised by these faculties as 'addiction' may be included in the study curriculum. Results from this study also revealed that the relationship between the type of parents and knowledge of internet addiction was statistically significant

**Table IV: Socio-demographics and knowledge of Internet addiction**

Variable	Knowledge of internet addiction, frequency (%)		Test score	P
	Good knowledge (n=406)	Poor knowledge (n=93)		
Age group				
15-19	150 (79.4)	39 (20.6)	Fisher's exact=2.020	0.732
20-24	226 (81.9)	50 (18.1)		
25-29	26 (86.7)	4 (13.3)		
30-34	3 (100.0)	0 (0.0)		
35-39	1 (100.0)	0 (0.0)		
Sex				
Male	218 (84.2)	41 (15.8)	$\chi^2=2.798$	0.094
Female	188 (78.3)	52 (21.7)		
Course of study				
Dentistry	16 (100.0)	0 (0.0)	$\chi^2=36.712$	<0.001
Medicine	49 (94.2)	3 (5.8)		
Philosophy	37 (90.2)	4 (9.8)		
Fisheries	43 (86.0)	7 (14.0)		
Law	58 (85.3)	10 (14.7)		
Pharmacy	69 (85.2)	12 (14.8)		
Political science	38 (79.2)	10 (20.8)		
Economics and statistics	42 (75.0)	14 (25.0)		
Crop science	19 (63.3)	11 (36.7)		
Agricultural economics	35 (61.4)	22 (38.6)		
Level				
100 level	102 (79.7)	26 (20.3)	$\chi^2=10.454$	0.063
200 level	88 (77.9)	25 (22.1)		
300 level	82 (79.6)	21 (20.4)		
400 level	71 (79.8)	18 (20.2)		
500 level	46 (93.9)	3 (6.1)		
600 level	17 (100.0)	0 (0.0)		
Residence				
Hostel	325 (84.4)	60 (15.6)	$\chi^2=17.020$	0.001
Home	81 (71.1)	33 (28.9)		
Type of parents				
Loving and kind	136 (87.2)	20 (12.8)	$\chi^2=14.108$	0.003
Patient and understanding	152 (82.2)	33 (17.8)		
Strict	94 (79.0)	25 (21.0)		
Very strict	24 (61.5)	15 (38.5)		



**Figure 1:** Overall attitude towards internet addiction

with a higher proportion of respondents whose parent were described as patient and understanding, loving and kind,

had good knowledge of internet addiction compared to their counterparts whose parents were described as strict. This may be attributed to the fact that parents who are understanding and patient are more approachable and they tend to take time to understand the needs of their children and correct them in a loving manner on all aspects of life including excessive internet use and instead of these adolescents seeing the Internet as a way of getting over their though routine in school, they tend to communicate their problems to their parents. This finding is in keeping with results of a similar study conducted among undergraduate students of the University of Uyo, AkwaIbom State, Nigeria, which revealed that mild internet addictive behaviour was found in only a small proportion of respondents whose parents utilized the permissive parenting style.<sup>18</sup> Good knowledge of internet addiction among the study population serves as a precursor to healthier Internet use, and also implies that they are aware of its deleterious effects to personal, mental,

**Table V: Sociodemographics, knowledge of Internet addiction and attitude towards Internet addiction**

Variable	Attitude towards internet addiction, frequency (%)		Test score	P
	Positive attitude (n=203)	Negative attitude (n=296)		
Age group				
15-19	81 (42.9)	108 (57.1)	Fisher's exact=1.291	0.863
20-24	109 (39.5)	167 (60.5)		
25-29	12 (40.0)	18 (60.0)		
30-34	1 (33.3)	2 (66.7)		
Sex				
Male	116 (44.8)	143 (55.2)	$\chi^2=3.763$	0.052
Female	87 (36.3)	153 (63.7)		
Course of study				
Medicine	9 (17.3)	43 (82.7)	$\chi^2=31.564$	<0.001
Political science	15 (31.3)	33 (68.8)		
Pharmacy	26 (32.1)	55 (67.9)		
Economics and statistics	20 (35.7)	36 (64.3)		
Fisheries	22 (44.0)	28 (56.0)		
Law	31 (45.6)	37 (54.4)		
Dentistry	8 (50.0)	8 (50.0)		
Crop science	15 (50.0)	15 (50.0)		
Agricultural economics	33 (57.9)	24 (42.1)		
Philosophy	24 (58.5)	17 (41.5)		
Knowledge				
Good	149 (36.7)	257 (63.3)	$\chi^2=14.313$	<0.001
Poor	54 (58.1)	39 (41.9)		
Residence				
Home	52 (45.6)	62 (54.4)	$\chi^2=6.758$	0.034
Hostel	151 (39.2)	234 (60.8)		
Type of parents				
Loving and kind	55 (35.3)	101 (64.7)	$\chi^2=14.056$	0.003
Patient and understanding	66 (35.7)	119 (64.3)		
Strict	58 (48.7)	61 (51.3)		
Very strict	24 (61.5)	15 (38.5)		

social and financial wellbeing and this might prevent them from engaging in excessive use of the Internet but rather utilise the time spent on the Internet for more productive endeavours.

It was also found that a higher proportion of respondents had a negative attitude towards internet addiction. This finding is in keeping with a similar study conducted among nursing institutions in Mangaluru, India.<sup>12</sup> However this finding was in contrast to results from a similar study conducted among undergraduate students of the university of Nigeria, Nsukka, Nigeria which showed that majority of respondents had negative attitude towards internet addiction with a large proportion of respondent reporting the use of their phones and computers as a way of escaping from problems or relieving bad mood.<sup>19</sup> It was observed that a higher proportion of respondents with good knowledge of Internet addiction had positive attitude towards Internet addiction. If the adolescent has adequate knowledge, he is most likely to have a negative attitude towards internet addiction, knowing its numerous consequences (sleep disorders, academic difficulties, social isolation, neglecting household chores, poverty, etc.) and how it can negatively interfere with life, work, academics and relationship. Factors that influenced

the knowledge of internet addiction is most likely to influence respondent's attitude towards Internet addiction, as seen in the results which showed that a higher proportion of respondents whose parents were described as patient, understanding, loving and kind had positive attitude towards Internet addiction compared to their counterparts with strict parents. With adolescents and young adult having a good knowledge and negative attitude toward internet addiction, this will enable them to use the Internet wisely for personal growth and development.

## CONCLUSION

Majority of the students had good knowledge of internet addiction while less than a quarter of them had poor knowledge of internet addiction. A higher proportion of students had a negative attitude towards internet addiction, while less than half of the respondents had a positive attitude towards internet addiction. Continuous education on the healthy use of the Internet in tertiary institutions is recommended.

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## Conflicts of interest

There are no conflicts of interest.

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