

**INTERNET ABUSE AND AWARENESS OF ITS HEALTH IMPLICATIONS AMONG  
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**ABSTRACT**

**Background:** In 2015, the number of Internet users worldwide reached 3.1 billion. Non-prudent use of the Internet has been found to be associated with some negative health effects. **Aim:** The study aimed to determine the level of awareness of the negative health implications of Internet abuse among secondary school students in Oji River Local Government Area of Enugu State. **Materials and method:** The secondary schools were selected through simple random sampling. A questionnaire titled **Internet abuse and awareness of its health implications among secondary school students in Southeast Nigeria**, an adaptation of the Young's Internet Addiction Test, administered to 400 students selected through accidental sampling, was used to collect the data which were analysed as proportions and t-tests using MaxStat statistical software version 3.60.  $P$ -value  $\leq 0.05$  was considered significant. **Results:** 88% of the students used mobile phones to access the Internet mainly for studies (68%) and entertainment (35%). There were no significant differences between male and female ( $P=0.17$ ), and rural and urban students ( $P=0.16$ ) in the time spent on the Internet. 19% used the Internet excessively. Awareness of the health implications of Internet abuse was 74%, and Internet addiction 1.75%. **Conclusion:** 19% used the Internet excessively, awareness of the health implications of Internet abuse was 74%, and the prevalence of Internet addiction 1.75%. This level of awareness needs to be sustained and the students discouraged from excessive use of the Internet to prevent its negative health implications.

**KEYWORDS:** Internet, abuse, awareness, health implications, Southeast, Nigeria.**INTRODUCTION**

The origin of the Internet dates back to 1969 when the United States Department of Defence created ARPANET, a project to allow military personnel to communicate with one another in an emergency. Over the years, from the 1990s, Internet became widely accessible to the public. And so today, the Internet has metamorphosed into the largest computer network (a group of two or more computer systems linked together) in the world, connecting millions of computers. In 2012, the number of Internet users worldwide was reported to be 2.4 billion, about one third of the world's population.<sup>[1]</sup> And by 2015, this figure had gone up to 3.1 billion.<sup>[2]</sup> However, despite this apparent leap in the growth, Internet usage had been reported to be growing at a rate of only about 9% a year. Studies have shown that this apparent slow growth rate of the Internet translates into 58% of the world still lacking access to it. Factors that make it difficult for people to obtain access to the Internet include poverty; high device, data and telecommunications charges; infrastructure barriers; digital literacy challenges; and policy and operational barriers.<sup>[2]</sup>

The unprecedented growth and wide accessibility of the Internet were made possible by the numerous economic and social impacts derived from its use. Benefits of using the Internet include positive impact on productivity, GDP growth, creation of new jobs and the number of lives saved through improved health care, among others. Different people use the Internet for various purposes. Consequently Internet use patterns include work, education, entertainment, e-mail, home finances, online purchase and community networking.<sup>[3]</sup> Some of the factors that can affect the use of the Internet include location, gender, age, education levels, marital status, dwelling ownership, combined family income and employment status.<sup>[3]</sup>

Despite the obvious positive impacts on the lives of the users, the Internet has a downside, especially when used in a non-prudent manner. One major problem associated with non-prudent use of the Internet is its negative effect on the health of the user. However, the existence of these negative health effects is still a subject of debate today. Some researchers are of the opinion that the so called health implications are not peculiar to the Internet. It is argued that some of these symptoms, especially the mental components, are part of the individual's make-up

which could manifest when triggered by various factors, including abuse of the Internet. Under the rubric of Internet abuse come such concepts as excessive Internet use, problematic Internet use, pathological Internet use, and Internet addiction. These terms could be considered syndromes representing 'abnormal' Internet use. However, controversy still rages on over their definitions. For instance, how much use of the Internet should be considered excessive? What constitutes problematic Internet use? What does pathological use of the Internet entail? Presently, consensus is yet to be reached by researchers regarding the resolution of these controversies. Nevertheless, excessive Internet use is generally described as obsessive, uncontrolled, excessive and problematic behaviour arising from use of digital technologies.<sup>[4]</sup> Time spent on the Internet is also important when defining excessive use or addiction. Conventionally, use of the Internet for 40 hours or more a week (i.e. more than 6 hours a day), except for professional use, signals the presence of an Internet use disorder, either excessive use or addiction.<sup>[5]</sup>

Excessive Internet use can impact on the health of the user resulting in physical health problems such as sleep disorders, weight loss, headaches, back pain and decreased vision. The psychological/mental health problems that can result from excessive use of the Internet include physical isolation/loneliness, anxiety and depression.<sup>[6-9]</sup> For the public health, sleep disorders, lack or loss of concentration, and decreased vision resulting from excessive Internet use could act as causative factors in various types of injuries and accidents both at work and at home, leading to an increase in disease burden attributable to injuries and accidents.

In Internet addiction, as defined by the WHO, the individual focuses excessive numbers of hours on Internet-related activities at the expense of broader life activities, including those associated with fulfilling the basic needs (e.g., food, sleep, intimate contacts).<sup>[10]</sup> Studies have shown that adolescents are the most exposed group to Internet addiction, with university students being at a greater risk of excessive Internet use worldwide.<sup>[11]</sup> A 2014 European study estimated the global prevalence of Internet addiction to be between 7.9% and 22.8%, while another earlier European study (2012) reported a prevalence of 4.4% among young adults.<sup>[12]</sup> Among university student populations, Internet addiction prevalence estimates range from 0.8% in Italy, 0.9% in Jordan, 2.8% in Iran, 5.6% in China, 8.3% in Great Britain, 9.8% in the USA, 15.1% in Taiwan, and 16.2% in Poland.<sup>[13-20]</sup>

In Nigeria, like other parts of the world, Internet use has been growing by leaps and bounds in recent times. In 2020, Nigeria had 99.05 million Internet users. This figure is projected to grow to 131.7 million in 2023. The Internet penetration amounted to 46.6% of the population in 2020 and is set to reach 65.2% in 2025.<sup>[21]</sup> These statistics indicate that Internet abuse is likely going to

pose a problem in the future in Nigeria considering the Internet growth rate in the population. Apparently, few studies on Internet abuse are available in the country today. One of such studies reported an Internet addiction prevalence of 3.3% among adolescents.<sup>[22]</sup> Another study reported an Internet addiction prevalence of 2.5% among students of a university in Southeast Nigeria.<sup>[23]</sup> Studies on the awareness of the health implications of Internet abuse appear to be non-existent in the country. Therefore, this study will, among other things, help to fill some of the perceived existing gaps in literature surrounding the problem. In addition, creation and sustaining of adequate awareness about the negative health implications of Internet abuse among students of secondary schools could help reduce the menace this problem poses to the public health now and in the future when these students move into the tertiary institutions.

## MATERIALS AND METHOD

The area of the study, Enugu State, was created in 1991 out of the old Anambra State. It is bounded on the south by Abia and Imo states; on the north-east by Benue state; on the north-west by Kogi State; on the east by Ebonyi State; and on the west by Anambra State. With an area of about 7,161 km<sup>2</sup>, Enugu State had a population of 3,267,837 people (1,596,042 males and 1,671,795 females) and a population density of 460/km<sup>2</sup> in 2006. In 2012, its population was estimated to be over 3.8 million people.

The state has many secondary schools, numbering over 800. Through multistage sampling, Oji River Local Government Area (LGA) in Enugu West Senatorial District, the area of the study, was selected out of the seventeen LGAs in the state. All the government/public schools in Oji River (18 in all) with a total student population of 3,600, made up the population of the study. The secondary schools from where the required sample was drawn were selected through simple random sampling. Accidental sampling technique was used to obtain the required study sample size, which was calculated using Taro-Yamane formula, i.e.

$$n = \frac{N}{1 + N(e)^2}$$

where n= required sample size, N= population of the study, e= margin of allowable error, usually set at 0.05.

A questionnaire titled **Internet abuse and awareness of its health implications among secondary school students in Southeast Nigeria**, an adaptation of the Young's Internet Addiction Test (YIAT), was used to collect the data. Administration of copies of the questionnaire was face-to-face, and completed copies were collected immediately to minimise attrition rate. In all, 400 copies of the questionnaire were administered to the students in the eight schools. Data were collected over a period of two months (February to April, 2021) and analysed as proportion and t-test using MaxStat statistical software version 3.60. P-value  $\leq$  0.05 was considered significant.

**RESULTS**

A total of 400 copies of the questionnaire were distributed to the respondents in eight secondary schools. The same number was filled and returned. Table 1 shows the respondents' demographics. As shown in the table,

235 (59%) males and 165 (41%) females, and 275 (64%) rural and 143 (36%) urban dwellers took part in the study. The finding indicates that more rural males took part in the study.

**Table 1: Respondents' demographics (N=400).**

Sex	Schools								Total
	A	B	C	D	E	F	G	H	
Male	50	29	18	16	50	22	24	26	235(59%)
Female	0	21	32	34	0	28	26	24	165(41%)
<b>Location</b>									
Rural	45	49	49	4	20	46	0	44	275(64%)
Urban	5	1	1	46	30	4	50	6	143(36%)

Types of devices and purposes for accessing the Internet are shown in Table 2. From the table, it is seen that an overwhelming majority of the students (88%) used mobile phones to access the Internet. 9% tablet, 7% laptop, 2% palmtop, and only 1% desktop. The table also shows that 68% of the students used the Internet for

studies, 35% for social networking, 21% for entertainment, and 19% for work/business. These findings indicate that the students practically did not use devices other than mobile phones to connect to the Internet, and that they used it mainly for studies and social networking.

**Table 2: Types of devices and purposes for accessing the Internet (N=400)**

Type of device	Schools								Total
	A	B	C	D	E	F	G	H	
Mobile phone	43	46	43	43	47	41	48	39	350(88%)
Tablet	5	1	4	2	2	11	2	10	37(9%)
Laptop	4	1	3	4	4	0	7	4	27(7%)
Desktop	0	2	0	1	1	0	0	1	5(1%)
Palmtop	3	0	0	0	1	1	1	1	7(2%)
<b>Purpose of use</b>									
Studies	34	42	34	40	26	30	28	37	271(68%)
Business/work	22	3	7	6	4	10	16	8	76(19%)
Entertainment	28	3	10	3	18	6	12	5	85(21%)
Social networking	36	7	12	12	26	16	13	10	138(35%)

Table 3 displays the time spent by the students on the Internet every day. The table indicates that 51% of the students spend between 1 and 2 hours every day on the Internet; 19% spend 2-6 hours a day, 13% are on the

Internet every time, 11% spend less than 1 hour every day, while 6% spend more than 6 hours on the Internet every day. This finding indicates that majority of the students (51%) spend 1-2 hours on the Internet daily.

**Table 3: Time spent on the Internet everyday (N=400)**

Time spent (in hours)	School								Total
	A	B	C	D	E	F	G	H	
<1	0	2	6	4	6	3	15	7	43(11%)
1-2	10	34	20	32	30	29	27	23	205(51%)
2-6	20	12	6	9	5	8	4	12	76(19%)
>6	4	2	3	2	0	7	2	4	24(6%)
Every time	16	0	15	3	9	3	4	2	52(13%)

Table 4 presents the sex distribution of respondents based on the time spent on the Internet ( $t > 2$  hours). As shown in the table, there is no significant difference between boys and girls (male and female) ( $P=0.17$ ) in the time spent daily on the Internet. This finding signifies that sex did not influence the amount of time spent on the Internet daily by the students.

**Table 4: Sex distribution of respondents based on the time spent on the Internet.**

Sex	Schools								t	P
	A	B	C	D	E	F	G	H		
Male	39	9	8	1	14	11	8	12	1.44	0.17
Female	0	5	16	13	0	7	1	8		

Table 5 presents the location-based distribution of the respondents according to time spent on the Internet ( $t > 2$  hours). From the table it is seen that the difference between rural and urban students in the time spent on the

Internet daily was not statistically significant ( $P=0.16$ ). The significance of this finding is that location did not influence the time spent daily on the Internet by the students.

**Table 5: Location based distribution of respondents according to time spent on the Internet**

	Schools								t	P
	A	B	C	D	E	F	G	H		
Rural	33	13	23	1	1	13	0	20	1.48	0.16
Urban	6	1	1	13	14	5	9	0		

Table 6 presents the mean levels of awareness of the health implications of Internet abuse of students according to schools. As shown in the table, awareness levels of students vary from 64% to 82%, with a mean

value of 74%. This finding indicates that awareness of the health implications of Internet abuse among the students was generally high.

**Table 6: Awareness of the health implications of Internet abuse (N=400)**

Level of awareness (in %)	School								Mean
	A	B	C	D	E	F	G	H	
77	81	82	69	73	64	67	78	74	

Table 7 shows the types of Internet use among the students based on the YIAT scale. As revealed by the table, 42.75% of the students had normal Internet use,

55.5% moderate use, and 1.75% severe use, the so called Internet addiction. This finding indicates that more than half of the students had moderate Internet abuse.

**Table 7: Internet addiction test (N=400)**

Type of Internet use	School								Total
	A	B	C	D	E	F	G	H	
Normal use (20-49%)	9	18	9	38	33	28	16	20	171(42.75%)
Moderate use (50-79%)	37	30	41	12	17	22	33	30	222(55.5%)
Severe use (80-100%)	4	2	0	0	0	0	1	0	7(1.75%)

## DISCUSSION

Four hundred students comprising 235 (59%) males and 165 (41%) females, out of which 64% were rural dwellers and 36% urban, took part in the study. In terms of risk populations for Internet addiction, students have been identified for several reasons. These reasons include having natural affinity towards the Internet, their conspicuous Internet literacy, free and unlimited access to the Internet, flexible schedules, freedom from parental interference, and lack of external control of their online activities.<sup>[24-26]</sup> Studies have further shown that some of the factors that can affect the use of the Internet include location, gender, age, education levels, marital status, dwelling ownership, combined family income and employment status, among others.<sup>[3]</sup> In this study sex (gender) ( $P=0.17$ ) and location ( $P=0.16$ ) did not play any significant roles in the use of the Internet by the students. This finding directly contradicts what had been reported by an earlier study in which gender and location were

among the factors that were identified as predictors of Internet use.<sup>[3]</sup> The study also does not support the findings of a later study in which a male to female ratio of 3:1 in the prevalence of Internet addiction was reported.<sup>[22]</sup>

Patterns of use of the Internet include work, education, entertainment, e-mail, home finances, online purchase and community networking.<sup>[3]</sup> In this study, patterns (purposes) of the use of the Internet included studies (68%), social networking (35%), entertainment (21%) and business/work (19%). This finding is in conformity with what was reported in a Nigerian study which revealed that educational purpose dominated the use of the Internet by students of University of Ibadan, Southwest Nigeria.<sup>[27]</sup>

Types of devices used to access the internet include mobile phones, tablets, laptops, palmtops, and desktop

computers. This study has revealed that an overwhelming majority of the students accessed the Internet using mobile phones (88%). Other devices include tablets (9%), laptop (7%), palmtop (2%), and desktop (1%) computers. Similar findings from a Saudi Arabian study also revealed that majority of the students (79.5%) used mobile phones to access the Internet.<sup>[28]</sup> The popularity of mobile phones may not be unconnected with portability which enables them to be easily carried about, hence the use by most students. Other reasons include the browsing speed of smartphones, which in most cases supersedes other devices such as laptops and desktop computers. It could also be said that smartphones are generally more affordable than laptops and tablets.

Abuse of the Internet is said to occur when it is excessively used. Excessive Internet use is described as obsessive, uncontrolled, and problematic behaviour arising from use of the Internet.<sup>[4]</sup> Quantitatively, it has been defined as use of the Internet for more than six hours a day or forty hours a week, for purposes other than professional use. The study revealed that 19% of the students used the Internet excessively, while 70% of them had normal use (less than six hours a day). This finding is not in tandem with the findings of another study which showed that majority of the study participants used the Internet excessively, the females being more influenced than the males.<sup>[29]</sup> Similarly, the findings of yet another study which reported that 4% of their students had excessive use of the Internet did not agree with the present study.<sup>[30]</sup>

Awareness of the health implications of Internet abuse as found by the study was 74%. This finding may be considered a novel one as there appears to be no previous studies on this. It is not known why the level of awareness of the health implications of Internet abuse was this high. However, this level of awareness is quite impressive and expectedly, it should influence the students into cutting down on the amount of time they spend on the Internet in order to avoid the negative health implications of Internet abuse.

Internet addiction disorder is expressed as too much computer use that contradicts daily activities and can harm daily functions. Globally, the prevalence of Internet addiction in 31 nations across 7 world regions generated an overall prevalence estimate of 6%.<sup>[31]</sup> Using the Young Internet Addiction Test (YIAT) scale, 42.75% of the study participants (students) had normal use of the Internet (20-49% on the YIAT scale), 55.5% were moderate users of the Internet (50-79% on the YIAT scale), while 1.75% were severe users of the Internet (80-100% on the YIAT scale). Severe Internet use could be considered Internet addiction. Consequently, the prevalence of Internet addiction among the students was 1.75%. These findings compare to the Saudi Arabian study which reported that 48.6% of their students had normal or average Internet use, 49.5% were moderate

users, while severe users were 1.9%.<sup>[28]</sup> Similarly, among medical students of Abia State University, Uturu, Nigeria, a prevalence of Internet addiction of 2.5% had been reported.<sup>[23]</sup> However, findings from some past studies which reported prevalence of 3.2% and 3.3% among the study participants are not in agreement with the present study.<sup>[31, 22]</sup>

An Internet addiction prevalence of 1.75% as found by the study is much lower than a global prevalence of 6% reported by.<sup>[32]</sup> Studies with prevalence estimates higher than the global figure and consequently the one found by the study had been reported by other researchers in other places at various times.<sup>[33-35]</sup> The finding of a lower prevalence of Internet addiction (1.75%) could be as a result of the level of education of the students that took part in the study. It could also be as a result of the apparently high level of the awareness of its negative health effects (74%) demonstrated by the students. Internet use, and consequently the addiction that may result from it, could be influenced by the educational level of the students.<sup>[27, 36, 37]</sup> A positive correlation between physical complaints (and by extrapolation Internet addiction) and educational level had also been demonstrated in a study by.<sup>[37]</sup> It is therefore speculated that this prevalence of Internet addiction among these secondary school students may likely increase as their educational levels and Internet penetration rate in the country increase.

## CONCLUSIONS

Majority of the students (88%) used mobile phones to access the Internet, mainly for studies (68%) and entertainment (35%). There were no significant differences between male and female, and rural and urban students in the time spent on the Internet. 19% of them used the Internet excessively. The Internet addiction prevalence was 1.75%. Awareness of the health implications of Internet abuse was quite high (74%). This level of awareness needs to be sustained and the students discouraged from excessive use of the Internet to prevent the negative health implications of abuse.

## Limitations of the study

The total student populations of some of the participating secondary schools which made it impossible to use random sampling technique in selecting the study participants could be considered a limitation to the study.

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