



## Gender, Age and Class in School Differences in Internet Addiction and Psychological Distress among Adolescents in a Nigerian Urban City

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### Authors' contributions

*This study was jointly conducted by all the authors. Authors FEO, ENA, GCO, SUO and CSE contributed to the conception, literature review, data collection and proof reading of the manuscript. Author ENA did the analysis and author FEO did the discussion. While all the authors read and approved the final manuscript.*

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### ABSTRACT

**Background:** Reports had revealed that internet addiction is a newly emerging social and mental health issue among the youths and has attracted much attention around the world. Furthermore excessive use of the internet has negatively affected the daily life routines of adolescents.

**Objective:** This study assessed gender differences, internet addiction and psychological distress among adolescents in a Nigerian urban city.

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**Study Design:** This is a descriptive cross sectional study design.

**Place and duration of study:** This study was carried out in Enugu, south east Nigeria between February and April 2015.

**Method:** The young Internet Addiction Test (IAT), the General health questionnaire (GHQ-12) and a socio demographic questionnaire were used to access 480 adolescents (240 males and 240 females) in a Nigerian urban city for prevalence of internet addiction and psychological distress.

**Results:** Result revealed that many adolescents showed presence of internet addiction and psychological distress. There was difference in internet addiction and psychological difference among the age groups, gender and class in school.

**Conclusion:** This study has observed the prevalence of internet addiction and psychological distress among adolescents in a Nigerian urban city. It is recommended that there is need for government to make laws regulating the rate of usage of the internet by young people especially adolescents.

*Keywords: Adolescents; internet addiction; psychological distress; Nigerian urban city.*

## 1. INTRODUCTION

The internet has been seen as the most powerful media that has boosted educational and social communication among adolescents in recent time. It has served as a major source of health and educational related information not only to the adolescent age group but also among various other age groups across the globe. However excessive use of the internet has negatively affected the daily life routines of adolescents. Researchers across the globe have documented evidence indicating that the internet apart from its benefits to the educational development of the adolescent is also associated with some negative effects on the psychological development of the adolescent. The most noticeable and troubling negative effect of the internet on the adolescent is internet addiction [1].

Internet addiction is said to be the inability of an individual to control his or her use of the internet [2,3,4,]. It has also been described as a multi-dimensional syndrome that manifests with both cognitive and behavioural symptoms [5,6,7]. Internet addiction is a recent and increasingly recognized disorder that has received much attention globally [8]. It has been argued that compared with other segments of the society, college students especially adolescents appeared to be more vulnerable to internet addiction apparently due to the psychological and developmental variables of adolescents and young adults as it relates to easy access to the internet and the expectation of internet use [9,10,11].

Internet addiction may lead to psychosocial problems such as truancy, loneliness and depression among adolescents. The con-

sequences of these include poor academic performance, continued conflict with parents and interpersonal problems [12,13,14]. Some mental health challenges have been found to be associated with internet addiction among adolescents, including depression and social anxiety. For instance Yeng [15] reported a high correlation between depression and internet addiction. Internet use and addiction were equally found to increase the risk of depression among adults and is related with depression and suicide among adolescents [15,16,17,18].

Reporting from Gaza, Bashir [19] posited that 30.1% of his subjects experienced high addiction to the internet, while 23.8% of them experienced high psychological morbidity. Epidemiological studies had indicated that internet addiction occurred in as much as 1.4-17.1% of adolescents across the globe, thereby making internet addiction to be a major mental health problem among adolescents [15,20]. Further studies had equally implicated aggressive behaviour such as cyber bullying and extreme behaviours such as internet suicide and hostility to be associated with excessive internet use and internet addiction among adolescents [21,6]. A number of other studies had linked internet addiction to different forms of psychological and behavioural problems which include anxiety, depression, social isolation, low self esteem, shyness, abnormal mood swings compulsivity, feeling of self effacement, fear that life without the internet would be boring, empty, joyless, loneliness as well as lack of social skills and support [14,22,23,24,25].

Gender differences in internet addiction had also been reported. For instance Gnisci, et al. [26] in their study reported that male college students are more likely to be addicted to the internet than

their female counterparts. It was equally argued that internet addicts are mainly shy teenage boys while the number of teenage girls getting addicted to the internet is on the increase [27,28]. Some studies [27,28,29,30] reported that males tend to be more familiar with the computer and the internet as compared to the females. However Beranuy, et al. [22] in their own study did not find any gender differences in internet addiction. Kraut, et al. [31] had reported association between increased internet use, psychological distress and loneliness. Psychological distress is a continuous experience of unhappiness, nervousness, irritability and problematic interpersonal relationship [14,32].

The present study is an attempt to look at gender differences, internet addiction and psychological distress in a sample of secondary school adolescents in a Nigerian urban city bearing in mind that no known study on this subject matter has been conducted among this population group within the study area. This study will therefore produce baseline data for internet addiction among adolescents within the study area in particular and Nigeria in general. It will help to identify adolescents both male and female who are most at risk of internet addiction and associated psychological distress and help to provide psycho educational services aimed at checking adolescents from getting addicted to the internet.

## **2. MATERIALS AND METHODS**

### **2.1 Study Location**

The study was conducted in Enugu the capital of Enugu state in south east Nigeria. Enugu is a major metropolitan city in south east Nigeria. It has several primary, secondary and tertiary educational institutions which are either private, public or mission owned. This study was conducted among secondary school adolescents attending public, private and mission secondary schools within Enugu metropolis between February and April 2015.

### **2.2 Subjects**

Male and female secondary school adolescents in Enugu metropolis in south east Nigeria served as subjects for the study. These students come from various socio-economic backgrounds: the higher socio-economic groups often send their children to private schools and mission schools while the lower socio-economic class send their

children to public schools. Hence to include these socio-economic classes attempt was made to include all the public, mission and private secondary schools within the metropolis using a multi-stage procedure. Two each of public, mission and private secondary schools were selected from each of the two local government areas in the metropolis using simple random sampling procedure, making a total of 6 secondary schools per local government and 12 secondary schools from the two local governments. Total population of students within the age group of 10-19 years in each of the selected school as obtained from the school register was between 350 – 400 students. From this population in each school 40 students made up of 20 males and 20 females were again selected using the same simple random sampling procedure making a total of 480 adolescents (240 males and 240 females). This number therefore forms the population of the study.

The following served as the inclusion criteria: (1) students who fall within the adolescent age range of 10-19 years, (2) those who were not sick as at the time of data collection. (3) Those that consented to participate. All the subjects were assured that their responses will be treated with the strictest confidence and no respondent will be identified in person, thereby assuring them of the anonymity of their responses. Permission to carry out the study was obtained from the state schools management board and the school authorities concerned while ethical permit was obtained from University of Nigeria Teaching Hospital Ethics Committee.

### **2.3 Data Collection and Instruments**

The authors collected the data for the study. The subjects were given a self administered instrument that was made up of three parts. To validate the instruments, they were pre-tested among 20 secondary school students in another state (Imo State) different from student area but with similar characteristics. Also one of the study instruments (The GHQ-12) had been used for various studies in Nigeria [33,34].

Part one of the instrument contained basic socio-demographic information such as age, gender and current class in school. Part two was the General health questionnaire (GHQ-12) [35] which is a widely used instrument for assessing psychological distress. Each item is rated 0 or 1 on the basis of the frequency with which the

subject had experienced the symptoms in the recent past yielding a maximum score of 12. The response options include; better than usual, same as usual, less than usual, and much less than usual. A score of 1 and above is indicative of psychological distress. Part three was the Young internet addiction test (IAT) [3]. This 20 item test is one of the most popular standardized instruments for assessing internet addiction among a wide range of population groups including adolescent. The scale was originally scored on a 5-point likert scale, but was later modified to a 6-point scale following the addition of one item [36]. The six point version of the scale was used for this study. The response options are: 0= does not apply; 1= rarely; 2 = occasionally; 3 = frequently; 4 = often and 5 = always. Obtainable scores ranged from 0-100. Scores ranging from 0-30 indicate normal internet use; 31-49 indicate mild internet addiction; 50-79 indicate moderate internet addiction and scores ranging from 80-100 indicate severe internet addiction [8]. Many studies had reported its test-retest reliability to be satisfactory, ranging between  $r = .73$  and  $r = .88$ , as well as its internal consistency [37,38, 39,40]. Completion of these scales by each participant took about 10 – 20 minutes.

## 2.4 Data Analysis

Data for the study was analysed using the Statistical package for social science, SPSS version 16.0. Means, standard deviations, percentages and the student t-test were performed to find relationships between variables. The level of significance chosen for this study was  $p \leq 0.05$  at 95% confidence interval.

## 3. RESULTS

The age range is 13 – 19 years (mean age = 16.2 years. SD = 1.7) Most of the respondents are within the age range of 16 – 19 (older adolescents). Gender distribution was equal at 50% and a vast majority (99.0%) were Christians. Also 64.0% were in senior secondary school (Table 1). 28.5% of the adolescents showed mild internet addiction, 23.5% showed moderate internet addiction, while 11.0% had severe internet addiction. Furthermore 26.9% of the adolescents have psychological distress (Table 2).

**Table 1. Demographic distribution of the respondents**

	Frequency (n = 480)	Percent
<b>Age group</b>		
13 – 15	174	36.3
16 – 19	306	63.7
<b>Gender</b>		
Male	240	50.0
Female	240	50.0
<b>Religion</b>		
Christianity	475	99.0
African traditional religion	3	0.6
Others	2	0.4
<b>Class in school</b>		
Junior secondary school	173	36.0
Senior secondary school	307	64.0

**Table 2. Distribution of internet addiction and psychological distress among adolescents**

	Frequency (n = 480)	Percent
<b>Internet addiction</b>		
None	177	36.9
Mild	137	28.5
Moderate	113	23.5
Severe	53	11.0
<b>Psychological distress</b>		
Present	129	26.9
Absent	351	73.1

Compared to the older adolescents, significantly ( $\chi^2 = 17.502$ ; P value = 0.001) more proportions of the younger adolescents (13 – 15 years) were not addicted to internet (48.3% for younger adolescents versus 30.4% for older adolescents). Furthermore, less proportion of the younger adolescents were severely addicted to internet compared to older adolescents (6.3% and 13.7% respectively). Similarly significantly ( $\chi^2 = 12.889$ ; P value = < 0.01) less proportion of the younger adolescents had psychological distress compared to the older adolescents (17.2% and 32.4% respectively) Table 3. Significantly ( $\chi^2 = 20.51$ ; P value = <0.01) more proportion of the males (13.7%) compared to females (8.3%) had severe form of internet addiction. Also, more proportion of the males had psychological distress compared to the females (31.7% and 22.1% respectively). This difference was also significant ( $\chi^2 = 5.608$ ; P value = 0.018) Table 3.

Table 3 also shows significantly higher proportion of students in senior secondary with severe internet addiction (14.7%) and psychological distress (32.2%) compared to those in junior secondary school ( $\chi^2 = 30.964$ ; P value = <0.01 and  $\chi^2 = 12.511$ ; P value = <0.01 respectively).

Table 4 shows that significantly ( $\chi^2 = 12.511$ ; P value = <0.01) more proportion of those with psychological distress had severe internet addiction (29.4%) compared to those without psychological distress (4.3%).

**Table 3. Internet addiction and psychological distress among various age groups, gender and class in school**

	Age group	
	13 – 15 (n1 = 174)	16 – 19 (n2 = 306)
<b>Internet addiction</b>		
None	84 (48.3)	93 (30.4)
Mild	44 (25.3)	93 (30.4)
Moderate	35 (20.1)	78 (25.5)
Severe	11 (6.3)	42 (13.7)
<b>Psychological distress</b>		
Present	30 (17.2)	99 (32.4)
Absent	144 (82.8)	207 (67.6)
$\chi^2 = 12.889$ . P value = < 0.01*		
	Gender	
	Male (n1 = 240)	Female (n2 = 240)
<b>Internet addiction</b>		
None	65 (27.1)	112 (46.7)
Mild	76 (31.7)	61 (25.4)
Moderate	66 (27.5)	47 (19.6)
Severe	33 (13.7)	20 (8.3)
<b>Psychological distress</b>		
Present	76 (31.7)	53 (22.1)
Absent	164 (68.3)	187 (77.9)
$\chi^2 = 5.608$ . P value = 0.018*		
	Class in school	
	Junior secondary school (n1 = 173)	Senior secondary school (n2 = 307)
<b>Internet addiction</b>		
None	90 (52.0)	87 (28.3)
Mild	40 (23.1)	97 (31.6)
Moderate	35 (20.2)	78 (25.4)
Severe	8 (4.7)	45 (14.7)
<b>Psychological distress</b>		
Present	30 (17.3)	99 (32.2)
Absent	143 (82.7)	208 (67.8)
$\chi^2 = 12.511$ . P value = <0.01*		

\*Significant

**Table 4. Relationship between psychological distress and internet addiction**

Internet addiction	Psychological distress	
	Present (n1 = 129)	Absent (n2 = 351)
None	16 (12.4)	161 (45.9)
Mild	33 (25.6)	104 (29.6)
Moderate	42 (32.6)	71 (20.2)
Severe	38 (29.4)	15 (4.3)

#### 4. DISCUSSION

This study had revealed the presence of internet addiction and psychological distress among adolescents from a Nigerian urban city who took part in the study. For instance 28.5% of the adolescents showed mild internet addiction, 23.5% showed moderate internet addiction while 11.0% exhibited severe internet addiction. This pattern of finding was in line with the results of previous studies which had indicated that college students especially adolescents were more prone to be addicted to the internet due to the easily availability and accessibility of the internet to this group of people. Young people are equally generally believed to constitute the majority of internet users [10,9]. 26.9% of the adolescents also had psychological distress. Kawa and Shafi [14] had reported high levels of internet addiction and psychological distress in their subjects who were predominantly adolescents. The pattern of findings in this study corroborates Kawa and Shafi's findings. Equally this report was in line with previous findings which had linked internet addiction to various forms of psychological problems including depression, loneliness, anxiety, social isolation, shyness and low self esteem [22,23,19].

This study also revealed that older adolescents (those aged 16-19 years) were more addicted to the internet and also had more psychological distress than the younger adolescents (those aged 13-15 years). This may imply that age is a contributory factor in becoming addicted to the internet with the associated psychological distress. Ability to know how to surf for different sites in the internet is a form of learning which has to do with experience and maturation. Furthermore the older adolescents may feel more assertive than the younger ones and indulge in behaviours without minding what the reactions of their parents may be. They may feel more detached from their parents than the younger adolescents and stay more on the internet to the extent of becoming addicted which eventually will make them have psychological distress. In this regard Kawa and Shafi [14] had argued that among other things, students aged 18-22 years are usually away from parental control and are not being monitored or censored by anyone on what they do or say online.

With regards to gender differences we discovered significant difference in internet addiction and psychological distress between male and female adolescents. Other researchers

had equally reported similar findings [26,30,29]. However this finding was contrary to that of Beranuy, et al. [22] who reported no gender difference among their subjects. Furthermore the gender differences in internet addiction and psychological distress noticed among the subjects may be a reflection of the predominant cultural practice among the people within the study area where young girls usually assist their mothers with household chores after coming back from schools, while the boys usually go out to play, watch films, or surf the internet either with their phones or in the cyber café for most periods. This attitude may make them get addicted to the internet and subsequently develop psychological distress more than their female counterparts.

Adolescents in senior classes exhibited significantly more internet addiction and psychological distress than those in junior classes apparently due to the fact that the senior students may be using the internet to do academic works more than those in junior classes. This high involvement in using the internet for academic activities may lead to addiction with the associated consequences of developing psychological distress. In this regard Kawa and Shafi [14] posited that among other uses the internet had been deployed as a channel for information exchange, academic research and communication.

The study further revealed a significant difference between internet addiction and psychological distress. This implies that the more addicted the adolescents are to the internet the more they develop psychological distress.

#### 5. CONCLUSION

This study has observed the prevalence of internet addiction and psychological distress among adolescents in a Nigerian urban city. Gender differences in internet addiction and psychological distress was equally noticed among the subjects with more males than female involvement. Furthermore the study revealed that the more addicted an adolescent is to the internet the more the adolescent becomes distressed psychologically. Giving the high prevalence of internet addiction and psychological distress among adolescents as noticed in this study, there is need for government to make laws regulating the rate of usage of the internet by young people especially adolescents. There is also the need for parents

and care givers to monitor the number of hours their children and wards stay on the internet as this will help to reduce the number of hours adolescents stay surfing the internet with a view to preventing them from getting addicted and developing psychological distress.

There is also the need to screen all adolescents and young people with a view to finding those who are about getting addicted to the internet or those who are already addicted so that adequate psychological interventions particularly psycho education can be provided to them to prevent them from developing psychological distress.

### 5.1 Study Limitation

Age groups were not stratified in the sample selection. Hence there was no equal representation of the age groups. Also the collection of data from only one state within the south east of Nigeria will limit the generalization of the results beyond other states of the country. In future efforts should be made to include other states from various parts of the country to know the prevalence of internet addiction and psychological distress in Nigeria as a whole.

### CONSENT

All the subjects gave their consents to participate in the study.

### ETHICAL CLEARANCE

Ethical clearance for this study was obtained from the university of Nigeria teaching hospital ethics committee.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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