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STUDENT TEACHERS' SOCIO-DEMOGRAPHIC VARIABLES, INTERNET ADDICTION AND THEIR LONELINESS IN THE DIGITAL AGE

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ABSTRACT

This study investigated student teachers' demographic variables and their internet addiction as possible predictors of their loneliness, given that the youth are increasingly becoming lonely resulting in mental health problems. The sample size comprised 600 (mean age = 19.69, SD = 3.17) student teachers. Findings showed that male undergraduate students had a non-significant higher mean score in loneliness than their female counterparts; while significant differences occurred as a result of gender in students' internet addiction. Students whose primary residence was in the urban area had a non-significant higher mean score in loneliness than students from rural areas; while primary residence accounted for significant differences in mean scores in internet addiction. Regression analysis revealed that age, gender, primary place of residence, number of social media sites used and internet addiction jointly contributed 10.3% to explain the variances in response and the corresponding F (5, 567) = 13.051, was statistically significant ($p<.05$). However, only internet addiction showed a significant individual contribution in accounting for the variances in student teachers' loneliness. Discussion was based on the findings, leading to the conclusion that factors associated with loneliness may be linked to those that impede the respondents' interpersonal relationships. This study has implications for the university education given that ensuring student teachers' good mental health will lead to the training of students who can self-regulate their emotions and interact effectively with others.

Contribution/Originality: This study contributes to existing literature by determining factors that are associated with loneliness among student teachers in Nigeria. The study demonstrated that loneliness in this digital age may be linked to factors that impede interpersonal relationships of the respondents.

1. INTRODUCTION

A 2018 Cigna survey of Americans showed that loneliness is at its peak irrespective of age groups, and that the youth aged 18-22 (the Generation Z) and the Millennials seem to be the most affected in contemporary human history (Cigna U. S. Loneliness Index, 2018). Similar to the above findings is the finding by Bruce, Wu, Listig, Russel, and Nemecek (2019) that demonstrated that greater age is associated with lower loneliness. In Australia, loneliness has been reported to be more among the youth and children resulting in mental health problems (Lim, Eres, & Peck, 2019). Pijpers (2017) observed that loneliness was becoming a growing concern among university students in the Netherlands. These findings contrast the perception that as active age group, the youth and children

should have more social connections that should keep them aglow. This brings to the fore the need to understand factors that are associated with their loneliness. Some researchers have considered young peoples' socio-demographic variables as important variables to understand youth loneliness (Madsen et al., 2018; Shovestul, Han, Germine, & Dodell-Feder, 2020). Research efforts made in this direction stem from the fact that current body of literature has emphasized the impact social and biological attributes, which are collectively referred to as socio-demographic variables, have on human behaviors (Abdullahi, 2019; VanderStel, 2014). Some socio-demographic variables that researchers who are interested in loneliness research have included in their studies include age, gender, community household income, parental occupational social class, residence (Lee, Cadigan, & Rhew, 2020; Madsen et al., 2018; Okwaraji, Onyebueke, Nduanya, & Nwokpoku, 2016; Peltzer & Pengpid, 2017; Serin, Aydınoğlu, & Aysan, 2010; Shovestul et al., 2020; Wedaloka & Turnip, 2019). These studies have underscored the significance of socio-demographic variables in the understanding of youth loneliness.

Other researchers are of the view that loneliness is increasing as a result of a shift in interaction dynamism. This has been associated with Internet overdependence (Signorelli et al., 2018). The use of the Internet and packages it offers is overwhelming among the youth. The prevalent use of the Internet is such that the youth are entangled in it that they find it difficult to control the compulsion to engage in Internet- related activities. The Internet and the social media have the capacity to create opportunities for social interaction (McAndrew, 2019) as well as estranging one from healthy interaction with others mostly when it becomes problematic. Studies in different countries indicate that students are addicted to the Internet. In China, 11% of medical students are addicted (Shao et al., 2018) and 26.8% of school adolescents are addicted (Xin, Xing, Pengfei, Houru, & Hong, 2018), 34% and 8% college students in India are respectively mildly and moderately Internet addicted (Karmakar & Raychaudhuri, 2015). In the Nigerian context, studies on Internet addiction and some psychological variables have been conducted. On the incidence of Internet addiction, Okwaraji, Aguwa, Onyebueke, and Shiweobi-Eze (2015) find that 29.0%, 20.0% and 10.2% undergraduates are respectively mildly, moderately, and severely Internet addicted. Nduanya, Okwaraji, Onyebueke, and Obiechina (2018) also reported similar findings in which 26.8%, 12.7% and 9.9% of undergraduate students are also respectively mildly, moderately, and severely Internet addicted. Some studies have shown that psychological variables such as depression, locus of control, self-belief systems and some home ecologies could have significant relationship with undergraduates' Internet addiction (Ofole & Babatunde, 2015; Okwaraji et al., 2015).

Moidfar and Gatabi (2011) studied Internet addiction as a social problem in contemporary age. Using adolescents and the youth who are Internet connected, the study indicated the problematic use of the internet among some of the respondents which led to loneliness, problems with social support, job and academic problems and responsibility prevarication. Internet addiction has led to loneliness constituting risk factors for mental health (Pijpers, 2017). Loneliness has been explained as a subjective experiential evaluation of expectation and satisfaction accruable from one's interaction with others (Ilhan, 2012).

Even though there is a global concern on the increasing loneliness among the youth and children which is being explained by their Internet-related activities and other relevant variables such as socio-demographic variables, little research works are available in Nigeria to give insight to proper intervention programmes for lonely and Internet addicted student teachers. With the exception of the study by Lawal and Idemudia (2018) that investigated loneliness and Internet addiction among secondary school students, to the best of the knowledge of the researchers, there is no other study available in the Nigerian context to understand this. Though, Lawal and Idemudia (2018) have found significant relationship existing between Internet addiction and loneliness among secondary school students, there is need for an understanding of this relationship among undergraduate students given that they may be more exposed in the use of the Internet than secondary school students. This study is significant given that it contributes to literature that will enable interventionists to mount programmes based on empirical evidence. More so, research has shown that mental health of students affects their academic success (Pua,

Lia, Foong, & Ibrahim, 2015). Since loneliness is associated with mental health understanding the mechanism of this among student teachers will impact intervention programme in teacher education. Given the fact that there may be complex interrelated factors that may predict loneliness among the youth, their socio-demographics were considered in this study. The researchers sought to:

a. Ascertain respondents' mean scores on Internet addiction and loneliness, and if significant differences occurred in their responses based on their socio-demographic variables.
b. Ascertain the relationship between the respondents' demographic variables, Internet addiction and their loneliness.
c. Ascertain if Internet addiction, age, gender, number of social media sites used and primary place of residence significantly predicted respondents' loneliness.

2. LITERATURE REVIEW

2.1. Loneliness Defined

Social interactions have been viewed as pivotal for optimal living for all humans. This is craved for maximum functionality in society and when expectations in human social interactions are not met, a sort of feeling of loneliness may crop in Perlman and Peplau (1998). Despite the importance of loneliness in the well-being of an individual, conceptualization of loneliness over the years has not been satisfactory in such a way that it will provide researchers the basis for a wide-ranging investigation into the phenomenon (Stein & Tuval-Mashiach, 2015). Experts are of the view that loneliness is an antecedent of perceived 'discrepancy between achieved and needed levels of social contact' (Peplau & Perlman, 1979), and the perception of the gap existing between the two positing a dissatisfying social contact for an individual. Perlman and Peplau (1998) see it as a 'subjective psychological discomfort experience that occurs when a person's network of social relationships is significantly deficient in quantity or quality' (p.571). Perlman and Peplau (1998) and Peplau and Perlman (1979) definitions centered on cognitive appraisal of situations by an individual. Stein and Tuval-Mashiach (2015) are of the view that loneliness is a perfect representation of relational deficiency. Though variations abound in the definitions of loneliness, proposal for adequate conceptualization has been advanced and is said to consist of its ability to serve two major purposes which are the delineation of what the phenomenon really is, and setting the boundary of the phenomenon indicating what it is and what it is not (Stein & Tuval-Mashiach, 2015).

2.2. Theoretical Framework

A number of theories have emerged in the explanation of loneliness which try to answer questions of its nature, associate factors or causes (Perlman & Peplau, 1982). A concept of this nature, and just like every other psychological construct, cannot be completely explained from one theoretical viewpoint. Perlman and Peplau (1982) review on the theoretical lenses of loneliness attests to this fact given that they were able to point out eight theoretical approaches to loneliness. More recently, Sonderby and Wagoner (2013) in their review on studies on loneliness, took a historical synthesis and arrived at three major theoretical approaches in the study of loneliness. These approaches are: existential approach, which has its focus on subjective experience of loneliness postulating that subjective experiences of another can hardly be understood by others; cognitive approach, which relies on an individual's construction and interpretation of information and in the context of loneliness refers to individual's construction and interpretation of his/her social contact; and psychodynamic approach, which has its focus on childhood experiences rooted in childhood unfulfilled social contact which manifests through adulthood (Sonderby & Wagoner, 2013).

Sonderby and Wagoner (2013) found that available empirical studies that relate to the three approaches could not demonstrate the ability of any of the approaches to explain fully the complexity of loneliness as a construct. They, thereafter, suggested an integrative approach to the study of loneliness. Stein and Tuval-Mashiach (2015)

agreed with Sonderby and Wagoner (2013) and stressed that the understanding of the mechanism of loneliness cannot be limited to the 'cognitive-affective bifurcation' (p.5), and advocated for an eclectic approach though they acknowledge the difficulty that may arise from this adventure. In the same vein (Sonderby & Wagoner, 2013) have noted that empirical evidence is not in support of bifurcations in the approaches adopted by several schools of thought rather has shown that loneliness must be addressed in a more comprehensive manner. Advocating a broad methodological and epistemological approach towards research in loneliness, Sonderby and Wagoner (2013) are of the view, that loneliness can 'be understood as a gestalt with a set of factors that separately tell little about loneliness, but together create an understanding of the phenomenon' (p.21). In view of this, it then signifies that a number of factors can be linked to loneliness more especially to the extent they lead to unsatisfied social relationship. Given that Internet addiction could redirect one's attention from close pals and relationships he/she may value, there could be afterwards a desire by the individual to realign with pals leading to feelings of loneliness. Because we intend to factor in other factors such as age, gender, primary residence, and number of social media sites in the prediction of undergraduates' loneliness, we found that a theoretical perspective as comprehensive as integrative approach will be a suitable framework for our study.

2.3. Loneliness and Associated Factors

The impact of loneliness on mental health has led many researchers to delve into its study. There is a global concern on the growing cases of loneliness among individuals in the contemporary time. Many studies have determined factors that are associated with loneliness. Researchers have shown that loneliness is also associated with factors such as 'fearful attachment, secure attachment, and masculinity' (Ilhan, 2012) socio-economic level (Serin et al., 2010) low income, rural dwelling and inadequate supports from parents (Peltzer & Pengpid, 2017) depression, poor self-rated mental health and unhealthy lifestyles (Goosbya, Bellatorreb, Walsemannc, & Cheadle, 2013; Lasgaard, Goossens, & Elklit, 2011; Richard et al., 2017) inconsistent and deficient parenting, shyness and victimization from peers (Stickley, 2016) poor social skills (Lodder, Goossens, Scholte, Engels, & Verhagen, 2016) and unstable emotional relationships between adolescents and their parents especially those of the opposite sex (Balazova, Gallova, Pavlov, & Slepecky, 2016).

Recently there has been a surge in research trying to explain adolescent and youth loneliness from their Internet engagement. Brain (2017) found that adults aged 19-32 years who use social media more frequently had higher levels of loneliness, and that most frequent users were three times lonelier than the least frequent users. According to Kathait and Singh (2014) Internet addiction has manifested in isolation and loneliness of addicts who abstract themselves from social relationships. Signorelli et al. (2018) found that the Internet addiction of Italian high school students in rural areas of Southern Italy is associated with loneliness and social phobia while Sharifpoor, Khademi, and Mohammadzadeh (2017) found loneliness as a predictor of Internet addiction among Iranian female students. In a study with Japanese students, Ezoe and Toda (2013) noted that loneliness is related to Internet addiction and phone dependence; among Portuguese children and adolescents, Internet addiction is related to loneliness (Pontes, Griffiths, & Patrão, 2014), and among a sample of Turkish college students, Internet addiction correlated significantly with their loneliness (Erol & Cirak, 2019). These studies demonstrate how complex loneliness is and indicate that social, psychological, and economic factors can result in loneliness. This is to the extent the factors project human social contact as dissatisfying.

3. METHOD

3.1. Design

The research design adopted was the quantitative research design. The researchers sought to ascertain the mean responses of student teachers on Internet addiction and loneliness with the intention of ascertaining if significant differences would occur as a result of their demographic variables. Furthermore, the relationship existing

among the variables were ascertained; and how the predictor variables predicted loneliness among undergraduate students were also investigated in the study.

3.2. Population, Sample and Sampling Technique

The population of the study consisted of the 1462 undergraduate students in the Faculty of Education Nnamdi Azikiwe University, Awka who registered for an Educational Psychology introductory course in 2018/2019 session. The sample size comprised 600 (mean age = 19.69, SD = 3.17) student teachers. The sampling technique adopted was the convenience sampling in which those who volunteered to participate in the study were given the questionnaire to fill in. First, the researchers explained to the students the essence of the study and assured them that information collected from them was for research purposes, and would be kept confidential. They filled in the questionnaire after their classes and the copies of the questionnaire were retrieved from them on the spot.

3.3. Instruments

Two research instruments were used in the collection of the data. They are: Internet addiction scale developed by Young (1998) (20 items scaled: does not apply = 0, rarely = 1, occasionally = 2, frequently = 3, often = 4, always = 5) which was revalidated in Nigeria and its reliability coefficient using Cronbach Alpha test was 0.87; and the UCLA Loneliness Scale Revised developed by Russell, Peplau, and Cutrona (1980). The UCLA Loneliness Scale consists of 20 items. Psychometric indexes of the instrument as ascertained by Russell (1996) among different sample population were all good. The instrument was revalidated by experts in Nigeria and after subjecting the data to Cronbach Alpha reliability test for internal consistencies of the items, the reliability coefficient was 0.59.

3.4. Data Analysis

Data were analyzed for the demographic variables using percentages, significant mean differences in the variables were determined using t-test and ANOVA while Pearson r and multiple regression were used to test the relationships and predictive powers of the independent variables. For Pearson r and regression analysis, number of social media sites registered with were rated as 0-1 is equal to 1; 2-3 equals to 2; 4-5 is equal to 3 and 6 and above is equal to 4. Before, the actual analysis, data were screened and important statistical assumptions were tested. First, data were screened to ascertain the missing values. Analysis showed that percentage of missing values across the variables were between 0.01-3.0 which is less than 5%. Since the missing values were below 5%, list wise deletion was adopted in treating missing values. Also, independence of distribution was tested and the Durbin-Watson test value stood at 2.02 which falls within the acceptable range of 1.5 to 2.5. Furthermore, Collinearity diagnostic test revealed acceptable VIF values from 1.01 to 1.06 which fall below 3.0.

4. RESULTS

Table 1 shows the percentage of sample characteristics of the respondents. 21.4% are male while 78.6% are female students, 77% resided in the urban areas before gaining admission while 23% resided in the rural area, 97% have Internet facilities at home and personal Internet enabled device. Most used Internet device is the mobile phone (80.8%), and 42.2% of the students are registered with 4-5 social media sites, 27.4% were Internet addicted.

Results in Table 2 show that male undergraduate students ($M = 52.64$, $SD = 3.78$) had a non-significant higher mean score in loneliness than their female counterparts ($M = 51.69$, $SD = 5.47$), $t(595) = 1.84$, $p > .05$; male students ($M = 43.12$, $SD = 15.94$), had significant higher mean scores in Internet addiction than female students ($M = 39.15$, $SD = 16.95$), $t(591) = 2.36$, $p < .05$.

Students whose primary residence was in the urban areas ($M = 51.98$, $SD = 4.98$) had a non-significant higher mean score in loneliness than students from the rural areas ($M = 51.72$, $SD = 5.76$), $t(592) = .53$, $p > .05$; students

whose primary residence was in the urban area (M = 40.93, SD = 16.38) had a significant higher mean score than those whose primary residence is in the rural area (M = 36.83, SD = 18.02), $t(588) = 2.51$, $p < .05$.

Results further showed that those who were moderately addicted (M = 53.50, SD = 5.22) had a higher significant mean score in loneliness than students who were just average Internet users (M = 51.26, SD = 5.02), $t(592) = -4.79$, $p<.05$.

Table-1. Sample characteristics of respondents.

Gender	Male	21.4%
	Female	78.6%
Urban/Rural Residence	Urban	77%
	Rural	23%
Internet at Home	Yes	97%
	No	3%
Ownership of Internet enabled device	Yes	97%
	No	3%
Most used Internet device	Mobile phone	80.8%
	Tablet	5.6%
	Computer	1%
	None	0.7%
	Multiple device	12%
Social media sites used	0-1 social media sites	25.8%
	2-3 social media sites	20.7%
	4-5 social media sites	42.2%
	6 and above social media sites	11.4%
Level of Internet addiction	Average on-line user 20-49 (prolong use but with control over usage)	72.6%
	Moderate Internet addiction 50-79 (frequent Internet problem	27.4%
	Severe Internet addiction 80-100 (severe problems associated with the Internet)	0%

Table-2. T-test of respondents' loneliness and Internet addiction

Source		Mean	SD	T	Df	Sig
Gender x loneliness	Male	52.64	3.78	1.84	595	0.066
	Female	51.69	5.47			
Gender x Internet addiction	Male	43.12	15.94	2.36	591	0.019
	Female	39.15	16.95			
Respondents' location x loneliness	Urban	51.98	4.98	0.53	592	0.599
	Rural	51.72	5.76			
Respondents' location x Internet Addiction	Urban	40.93	16.38	2.51	588	0.012
	Rural	36.83	18.02			
Levels of Internet addition	Average Internet users	51.26	5.02	-4.79	592	0.000
	Moderate	53.50	5.22			

Table-3. ANOVA Test on loneliness and Internet addiction of students based on number of social media sites registered.

Variables		Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Loneliness	Between Groups	621.469	3	207.156	7.98	0.000	0.039
	Within Groups	15183.244	585	25.954			
	Total	15804.713	588				
Internet addition	Between Groups	4680.404	3	1560.135	5.69	0.001	0.029
	Within Groups	159367.179	581	274.298			
	Total	164047.583	584				

Analysis of variance in Table 3 showed a significant main effect of number of social media sites registered by students on their loneliness, F(3, 585) = 7.98, p < .05, ηp2 = .039, and also a significant main effect on their Internet addiction, F(3, 581), p < .05, ηp2 = .029. Posthoc analyses using Bonferroni test indicated significant differences in loneliness among those who are registered with 0-1 and 4-5 social media sites (p < .05), 2-3 and 4-5 social media sites (p < .05), 2-3 and 0-1 social media sites (p = .001), and 2-3 and 4-5 social media sites (p < .05). Posthoc analysis on Internet addiction showed significant differences among students who are registered with 2-3 and 6-above social media sites (p < .05), 4-5 and 6-above social media sites (p = .036).

Table-4. Correlation matrix of students' demographic variables, Internet addiction and loneliness.

Variables	1	2	3	4
Age	1			
Social media sites registered	-0.003	1		
Internet addiction	-0.090*	-0.083*	1	
loneliness	-0.070	-0.062	0.296**	1

Note:
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 4 showed that age, and number of social media sites registered had very weak significant negative relationships with Internet addiction, $r(577) = -.09$, $p<.05$; $r(589) = -.083$, $p<.05$; respectively but not with loneliness, $r(581) = -.07$, $p>.05$; $r(589) = -.062$, $p>.05$; respectively. However, student teachers' loneliness and Internet addiction are significantly and positively correlated, $r(594) = .296$, $p<.01$.

Table-5. Multiple regression analysis for predictor variables and loneliness.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	49.410	1.789		27.615	0.000
	Age	-0.065	0.066	-0.040	-0.988	0.324
	Gender	-0.280	0.514	-0.022	-0.544	0.586
	Urban Rural Residence	0.262	0.495	0.021	0.530	0.596
	Social Media Sites	0.002	0.002	0.028	0.683	0.495
	Internet addiction	0.098	0.013	0.317	7.775	0.000
	R	0.321				
	R^2	0.103				
	F	13.051				0.000

The result in Table 5 shows that the multiple regression coefficient (R) was .321 while R^2 was .103. This is an indication that the predictor variables jointly contributed 10.3% to explain the variances in response and the corresponding F (5, 567) = 13.051, is statistically significant (p<.05). Using standardized (B), Table 5 indicated that only Internet addiction made significant individual contribution. Internet addiction was the most individual contributor to the variances in students' responses.

5. DISCUSSION

We investigated a number of variables to explain the variances that occurred in the responses of the youth on their perceived loneliness in our study. A number of findings emerged giving us insight on factors that may account for youth loneliness. Preliminary findings of the study showed that a good number of student teachers have access to Internet facilities both at home and in school, and the most frequently used Internet device is the mobile phone. This is in agreement with recent findings that have shown that Internet penetration has reached homes and the most used device in accessing Internet is the mobile phone (Sowndarya & Pattar, 2018). Many of the students were registered with 4-5 social media sites. The majority were average online users while 27.4 percent of the students

were moderately addicted to the Internet. Other studies with undergraduate students in Nigerian universities have shown mild to severe Internet addiction (Nduanya et al., 2018; Okwaraji et al., 2015). Some studies conducted outside Nigeria have shown Internet addiction to range between 8%-34% (Krishnamurthy & Chetlapalli, 2015; Shao et al., 2018; Xin et al., 2018). Though there appears to be variation in percentage of Internet addiction among the youth, researchers have pointed out that it is as a result of differences in diagnostic measurements, cut-off points and cultural milieu (Koyuncu, Unsal, & Arslantas, 2014).

Taking into consideration gender, our findings showed that male undergraduates had significantly higher mean scores in Internet addiction than female students. Some studies have also indicated significant gender differences in Internet addiction (Nduanya et al., 2018; Shahnaz & Karim, 2014; Vyjayanthi, Surabhi, Mohammaed, & Sundarnag, 2014) in which male respondents significantly showed higher indication of Internet addiction than their female counterparts. However, there are also other works which have shown otherwise (Dufour et al., 2016). This inconsistency led (Sua, Hana, Jina, Yana, & Potenzac, 2019) conduct a meta-analysis on gender differences in Internet addiction that spans a broad geographical coverage. Analysis showed that average effect size was small but when nations are considered individually, social norm and Internet penetration hypotheses become associated factors (Sua et al., 2019). This could point out the fact that in nations where patriarchy and social inequality subsist, male students may be more addicted to the Internet than female students given that they may have the privilege to have access to the internet devices more than their female counterparts.

Another important finding of our study is the impact of students' primary residence on Internet addiction. Students whose primary residence was in urban areas had a significantly higher mean score than those whose primary residence was in the rural area. This is in line with the findings of Pawlowska et al. (2015); Sowndarya and Pattar (2018) in which students who resided in the cities displayed higher Internet addiction than those in the rural area. This could be as a result of the fact that students whose primary residences are in the urban areas could have more access to the Internet given that Internet penetration is usually more in urban areas than in rural areas. Number of social media students are registered with accounted for significant differences in Internet addiction among undergraduate students. This implies that those who are registered with many social media sites are likely going to be more addicted to the Internet. There is the tendency that they may spend more time than necessary in attending to the numerous sites they are registered with, since time spent online has accounted for differences in Internet addiction among adolescents (Sowndarya & Pattar, 2018).

Our findings on the impact of gender and primary location of the undergraduate students on loneliness revealed that they accounted for no significant differences on their loneliness. Most studies on loneliness have been centred on older population. However, these studies on impact of residence, rural or urban (Karmakar & Raychaudhuri, 2015) and gender (Theeke, Carpenter, Mallow, & Theeke, 2019) have contrary findings to the present study. This could be that age could play a part in the impact location and gender would have on loneliness. Further analysis that looked at the impact of number of social media sites registered with on undergraduate students' loneliness showed significant mean differences. Variations on social media site registration could account for differences in loneliness. Moderately Internet addicted undergraduate students had a higher significant mean score in loneliness than students who are just average Internet users. This agrees with other findings that have shown that the more one is compulsively drawn to the use of the Internet the more one may be drawn away from face to face interactions (Brain, 2017; Kathait & Singh, 2014; Signorelli et al., 2018).

Our result further showed that age and number of social media sites registered had very weak significant negative relationships with Internet addiction, but not with loneliness while undergraduate students' loneliness and Internet addiction are significantly positively correlated. There is a significant positive relationship between loneliness and Internet addiction. This shows that the more respondents are Internet addicted the more they will be lonely. This is in agreement with the study of Moidfar and Gatabi (2011). This may be as a result of the fact that time that could be devoted to face-to-face relationships with peers and significant others are sacrificed online.

Internet addiction has to do with compulsive tendencies that redirect attention and concentration of the addict to online activities to the detriment of interpersonal relationships.

We conducted a multiple regression analysis which showed that the predictor variables accounted for 10.3% variances in the student teachers' responses. This, even though significant, is considered low. However, looking at the individual contributions of the variables, findings showed that only Internet addiction made significant contribution. Our findings on the predictive nature of Internet addiction on students' loneliness is in agreement with that of Bhatti and Ali (2017) and Peighambari, Khoshfar, Peighambari, and Shirdel-Havar (2019) which showed that Internet addiction is a significant positive predictor of students' loneliness. Our findings, however, contradicts the findings of Hasmujaj (2016) which showed Internet addiction to be negative significant predictor of loneliness. This contradiction might have arisen from cultural differences given that the African society still remains deeply communal in social interactions. Evidence abound in literature that culture impacts on loneliness (Sonderby & Wagoner, 2013; Stein & Tuval-Mashiach, 2015). Our findings showed that the number of social media sited registered by students did not predict significantly their loneliness, it supports a recent similar study that found that Facebook use is a non-significant predictor of loneliness (Yavich, Davidovitch, & Frenke, 2019). Evidence has also emerged in literature that some casual positive relationships exist between mental health problems and social media use (Keles, McCrae, & Grealish, 2020). This discrepancies could be that there may be other intervening variables since the impact of social media sites on psychological variables have depended on whether it is used for either meaningful or harmful social connections (Clark, Algoe, & Green, 2018). More so, our finding that only Internet addiction predicted students' loneliness implies that variables that have to do with the redirection of the respondents to compulsive Internet use are the ones that will account for their being socially isolated.

6. CONCLUSION AND LIMITATION

We established that there is a positive significant relationship between loneliness and Internet addiction amongst adolescents. Regression analysis established that Internet addiction predicted loneliness. It is concluded that factors associated with loneliness may be linked to those that redirect the attention of the respondents from interpersonal relationships. This shows that unhealthy and problematic Internet exposure could affect undergraduate students' perceived accomplishment in their social relationship.

Our findings have significant implications for teacher education in Nigeria. Neto (2015) studied teacher loneliness and discovered that teachers also feel lonely and that those who are lonelier are the ones likely to be stressed out and dissatisfied with teaching job. This could lead to ineffectiveness. Therefore, early detection of teacher loneliness in undergraduate programmes could help stakeholders mount interventions that can help them improve on their emotional intelligence. It becomes pertinent that teacher education integrates courses that help students develop life skills in their programmes. Based on our findings, it becomes necessary that teacher education offer students the opportunity for training on effective and productive use of the Internet to ensure healthy social interactions.

Though our study is very relevant for intervention programmes, and the understanding of the mechanism of loneliness especially among 21st century youth, some limitations for result generalizability exist. First, our data is mainly made up of female students up to the tune of 78.6% which can result in a significant gender bias. This is, however, understandable given that Faculties of Education in Nigeria are mostly made up of female students because of the general perception of the teaching profession in Nigeria. Second, our instrument on the measurement of loneliness showed marginal reliability index, though it is one of the most employed instrument in the measurement of loneliness (Sonderby & Wagoner, 2013). This may suggest development of a culturally suitable scale given that culture can influence loneliness (Sonderby & Wagoner, 2013; Stein & Tuval-Mashiach, 2015).

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