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PERSONALITY TRAITS, SOCIAL ANXIETY AND GENDER AS PREDICTORS OF SMARTPHONE ADDICTION AMONG STUDENTS IN TERTIARY INSTITUTIONS

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ABSTRACT: The study investigated whether personality traits, social anxiety, and gender have predictive relationship with Smartphone addiction. Data were collected using cross-sectional design from a sample of 203 (121 female and 82 male) youths in Enugu State. Participants completed self-reported measures of personality traits (Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience), Social Anxiety and Smartphone addiction. Hierarchical multiple regression results showed that personality traits (Extraversion (β=.19), Agreeableness (β=.02), Conscientiousness (β=-.09, p=.00), Neuroticism (β=.18, p=.00) and Openness to experience (β=.05) and gender (β=-.00, p=.00) had no predictive relationship with Smartphone addiction but Social Anxiety (β = .27, p<.01) had a significant positive predictive relationship with smart phone addiction. It is thus recommended that parents and significant others regulate Smartphone use of their wards so as to promote a healthy and optimal health functioning in them.

Keywords: Personality Traits, Social Anxiety, Gender, Smartphone Addiction, Enugu State.

INTRODUCTION

Technology undoubtedly has a notable influence on our everyday life. Tales on the ever remarkable 21st century cannot be complete without mentioning the various technological devices of that era such as portable personal computers, Televisions, electric cars, etc. Of note in the era is the birth of a multipurpose and portable cell phone or device popularly called Smartphone. This device houses and allows the transmission of instant messages and permits the user to expediently explore the internet without restrictions. With this device mails, thousands of photos, games, videos are comfortably sent, shared and utilized among individuals without stress (Hawi & Samaha, 2016). The device comes with a built-in application, internet connection and very affordable. Little wonder, it has become a common tool virtually owed by all and sundry including adolescents. This Smartphone device tends to perform almost the same functions with a computer system, possessing a touch screen interface, internet access, and an operating system that runs downloaded applications. Following the wondrous features of the Smartphone devices, it has metamorphosed into a device which people can barely do without. Individuals now make

friends, meet up and hang out with relatives and school mates using Smartphones, and further enjoy convenience both in shopping and banking activities with the help of the device. Presently, the smart phone has become part and parcel of peoples' lives that many do not feel comfortable ordinarily without a Smartphone around them. In the case of students, some forget to prepare early for classes, get carried away by chats and unable to tidy up their assignments, spend unnecessary money in online purchases etc. The use of this device and its preoccupation results to a neglect of other assignments and tasks. In various classrooms and lecture halls today, students engage in surfing the web, logging into social media sites, checking emails and text messages and consequently pay less attention to their lessons (Hiscock, 2004) leading to poor performances in examinations (Hawi & Samaha, 2016).

The Smartphone over use coupled with the psychological symptoms associated with it constitutes a form of behavioral addiction called Smartphone addiction (Phillips & Bianchi, 2005). Although Smartphone addiction is not formally recognized as a behavioral dependence along clinical diagnostic criteria (American Psychiatric Association 2013), it possesses similar addictive characteristics that are quite similar to symptoms of substance-use disorder as contained in the Diagnostic Statistical Manual for Mental Disorder (DSM-5). This includes; preoccupation, tolerance, inability to control craving, impairment of daily life functions, disregard to harmful consequences, and withdrawal. Individuals who are addicted to Smartphones tend to neglect work, study, separate themselves from friends and family, and often remain attached to the Smartphone while over depending on it to communicate with others and satisfy their needs. This form of addiction has attracted the attention of health workers all over the world as it has led to a serious behavioral addiction. An over use of Smartphones may cause sleeping problems, stress, as well as various health disorders (Thomée, Härenstam, & Hagberg, 2011). Many researchers around the world have shown concern about Smartphone addiction among youths and students as this addiction can also affect individuals economically, socially and psychologically (Walsh, White, & Young, 2007; Gökçearslan, Mumcu, Haşlaman, & Çevik, 2016).

A number of factors have been suspected as contributing to addiction among which is personality traits. Personality identified by several researchers (Boogar, Tabatabaee, & Tosi, 2014; Chen, Quan, Lu, Fei, & Li, 2015) as an important factor for substance dependency and internet addiction, is also suspected to be a significant risk factor for addictive smartphone. Notably, it has been viewed as a latent trait underlying every addictive behavior. They refer to descriptions of people in terms of relatively stable patterns of behavior, thoughts, and emotions (McCrae & Costa, 2003). These personality traits describe how individuals tend to feel, think, and behave. They are therefore an individual's responses and behaviors to certain situations. One of the encompassing models developed to capture a detailed idea of personality is the five factor model. This model views traits such as openness to experience, conscientiousness, extraversion, agreeableness and neuroticism as the core components of an individual personality.

Anxiety remains the most commonly explored psychopathological constructs in relation to problematic smartphone use and usage frequency (Elhai, Dvorak, Levine & Hall, 2017). Social anxiety is a form of anxiety. Researchers like Kessler, Berglund, Demler, Jin, Merikangas, & Walters (2005) views social anxiety as the fourth most common mental disorder. There are

notably two distinct aspects of social anxiety. They include; anxiety related to social interaction (such as attending a social gathering, making small talk) and fear of being scrutinized in specific performance situations (for example formal speaking, eating, drinking, and writing in the presence of others), respectively. An individual who experience severe social anxiety withdraw themselves from social situations and go into isolation. The Smartphone today, undoubtedly permit its users to disengage from the conventional demands of face to face communication, thus an addictive usage might predict problems with socialization. Studies have found that isolated and anxious individuals engage and benefit from online interaction using Smartphone and are the most likely group of people to develop addictive Smartphone use (Caplan, 2002).

Gender is another construct studied to ascertain its roles in addictive smartphone use. Gender differences have been noted on scholars' reports in patterns of smart phone use and addictive behaviors. Compared to male students, Pierce (2009) reported that female students have higher levels of social anxiety, which leads them to talk with others online more (especially via instant messaging, IM) and to feel more comfortable using only text. Similarly, Igarashi, Takai & Yoshida (2005) indicated that in Japan, female students tend to be more active than male students in forming larger and more intimate social networks by sending more text messages via mobile phones. While some studies have shown gender differences in smart phone addictive use, others have proved that gender and smart phone use are not significantly related (Perry & Kevin, 2007).

Statement of the Problem

The contradictory and inconsistency of findings provoked the researcher to clear the air and as well add more information to the existing literature on the relevance of personality, social anxiety and gender in the maintenance of Smartphone addictive use. In the light of the forgoing, the researcher developed interest in investigating these variables as there are rare studies that have combined these variables simultaneously in one study.

Objectives of the Study

This study seems warranted at this time considering Smartphone negative impacts on individuals' mental health and academic performances as the awareness of possible negative consequences of smart phone addictive usage certainly reduces the excessive use of the device. Thus the major aim of this study is to examine whether personality traits, social anxiety and gender predicts smartphone addiction among students in tertiary institutions.

Hypotheses

Therefore, the following hypotheses were tested in the study:

1. Extraversion will be a significant negative predictor of smart phone addiction.
2. Agreeableness will be a significant negative predictor of smart phone addiction.
3. Conscientiousness will be a significant negative predictor of smart phone addiction.
4. Neuroticism will be a significant positive predictor of smart phone addiction.

5. Openness to experience will be a significant negative predictor of smart phone addiction.
6. Social anxiety will be a significant positive predictor of smart phone addiction
7. Gender will be a significant negative predictor of smart phone addiction.

METHOD

Participants

The researcher recruited 203 students who are residents of Enugu State of Nigeria using accidental sampling technique. Ownership of smart phone device was made a prerequisite for an individual's participation in this study. Thus, 203(100%) participants indicated owning a smart phone device. These participants are students who were drawn from the various tertiary institutions that exist in Enugu State viz; Enugu State University of Science and Technology (50), University of Nigeria, Nsukka (63) and Enugu State College of Education, Eha-Amufu (90). The schools were chosen using simple random sampling technique. Other characteristics of the participants are shown in the table below;

Variables	**Features of Variables**	**Number of participants**	**Percentage (%)**
Gender	Male	82	40.4
	Female	121	59.6
Marital Status	Married	7	3.4
	Single	196	96.6
Ethnic Group	Igbo	181	89.2
	Hausa	2	1.0
	Yoruba	9	4.4
	Others	11	5.4
Religious Denomination	Catholic	79	38.9
	Protestant	33	16.3
	Pentecostal	72	35.5
	Islam	18	8.9
	Others	1	0.5
Geographical Zone	South East	181	89.2
	Others	22	10.8

Then multiple sampling techniques were used in obtaining data. While simple random sampling technique was used to select institutions, Faculties and Departments, accidental sampling technique was used to select participants.

Instruments

Instruments such as Big Five Inventory (BFI-44), Social Anxiety Inventory (SAI) and the Smartphone Addiction Scale (SAS-SV) were used to collect the data.

Big Five Inventory (BFI-44): This scale was developed by John and Srivastava (1999). The scale is a 44 item scale with five subscales embedded in it; Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. The inventory uses a 5-point rating scale (ranging from 1=Disagree Strongly; 2=Disagree a little; 3=Neither agree nor disagree; 4=Agree a little to 5=Agree Strongly). The BFI-44 was also validated by the researcher through a study involving 94 youths. The results showed that the scale exhibited an acceptable Cronbach's apha of .73. The internal consistency for the subscales was as follows: Extraversion (Cronbach's $\alpha = .65$), Agreeableness (Cronbach's $\alpha = .60$), Conscientiousness (Cronbach's $\alpha = .64$), Neuroticism (Cronbach's $\alpha = .50$), and Openness to Experiences (Cronbach's $\alpha = .65$). The concurrent validity when administered together with Big Five Inventory-10, BF1-10, was .70.

Social Anxiety Inventory (SAI): The social anxiety inventory was developed by Immanuel (2014). SAI accesses two aspects of social anxiety, i.e., the anxiety related to social interaction (such as attending a social gathering, making small talk) and fear of being scrutinized in specific performance situations. The inventory comprises 14 items using a 5-point rating scale (ranging from 1= Not at all; 2= A little; 3= Often; 4= usually to 5= Always). All of the 14 items are directly scored. A sample item for SAI is "Do you get anxious if you have to speak or perform in any way in front of any group of strangers"; "Do you feel uncomfortable when you meet new people?" The SAI has Cronbach's alpha of r=0.90 and the split-half reliability was 0.83. The SAI has two factors, namely: Performance anxiety (8 items, 1,2,9-14) - Alpha = .87; and Social sensitivity (6 items, 3-8) – Alpha = .83 . The SAI was further validated by the researcher through a study involving 94 youths and an internal consistency of .86 was obtained. The concurrent validity when administered together with Interaction Anxiousness Scale, IAS, was .57.

Smart phone Addiction Scale- Short Version (SAS-SV): The Smartphone addiction scale-short version developed and validated by Kwon, Kim, Cho, & Yang (2013) is rated on a 6-point Likert scale (ranging from 1= Strongly Disagree; 2= Disagree; 3= Weakly Disagree; 4= Weakly Agree; 5= Agree to 6= Strongly Agree). The internal consistency was verified with a Cronbach's alpha of 0.911. The SAS-SV was further validated by the researcher through a study involving 94 youths and an internal consistency of .84 was obtained. Also a concurrent validity of .68 was obtained when administered together with Mobile Phone Problematic Use Scale-10, MPPUS-10.

Procedure

The researcher approached the participants in their respective schools, established rapport and sought their participatory consent in the study. The questionnaire forms were issued and retrieved from the participants upon completion. Administration of the questionnaires lasted for two weeks. And those properly filled and retrieved were further analyzed by the researcher. Out of the 250 copies of questionnaires distributed, 227 questionnaires were recovered from the participants. Of the 227copies of questionnaires distributed, 220 questionnaires were completely filled. Within the 220 questionnaires that were completely filled, 203 participants owns a Smartphone whereas 17 participants do not own a smart phone as at the time they took part in the study, thus their response were discarded. The remaining 7 questionnaires were not completely filled, therefore were not analyzed.

Deign/Statistics

The design of the study was cross-sectional design while the descriptive statistics and hierarchical multiple regression were used for data analysis.

RESULTS

Table 1: *Means, Standard Deviations, and Correlations among the variables*

		M	SD	1	2	3	4	5	6	7	8
1	Gender	1.60	.49	-							
2	Social anxiety	35.93	9.89	.06	-						
3	Smart phone addiction	29.60	11.01	.00	.22**	-					
4	Extraversion	24.39	4.57	.06	-.10	.06	-				
5	Conscientiousness	31.28	6.36	.04	-.13	-.10	-.03	-			
6	Agreeableness	32.37	5.62	.17*	-.12	-.05	.06	.47**	-		
7	Neuroticism	23.24	4.95	.09	.25**	.14*	-.06	-.31**	-.28**	-	
8	Openness	35.14	5.49	.15*	-.08	.00	.12	.28**	.31**	-.04	-

* = p< .05 (two-tailed), ** = p< .01

The results in Table 1 indicated that gender did not have significant correlation with smart phone addiction. Social anxiety was positively and significantly correlated with smart phone addiction (r = .22, p = .00). Extraversion, agreeableness, conscientiousness, neuroticism, openness did not have significant correlation with smart phone addiction.

Table 2: Hierarchical multiple regression for predictors of smart phone addiction Smart Phone Addiction

Variable	Beta	Step 1B	Step 2 B	Step 3 B
Control				
Gender	-.02	-.00	-.30	-.64
Predictors				
Social anxiety	.20		.27**	.23**
Extraversion	.07			.19
Conscientiousness	.14			-.09
Agreeableness	.01			.02
Neuroticism	.08			.18
Openness	.02			.05
Adjusted R^2		-.01	.04	.03
ΔR^2		.00	.05	.07
ΔF		.00	10.28	.72

** = p< .01

Table 2 shows that personality traits did not predict smart phone addiction. Thus, extraversion (β=.19, *NS*), Conscientiousness (β=-.09, *NS*), Agreeableness (β=.02, *NS*), neuroticism (β=.18, *NS*), Openness to experience (β=.05, *NS*). They accounted for 2% variance in smart phone addiction. Social anxiety is a positive predictor of smart phone addiction (β = .27, $p<.01$). Social anxiety accounted for 5% of variance in smart phone addiction. This means that for every .27 unit rise in smart phone addiction, social anxiety increased. Finally, the Table 2 indicated that gender (β=-.00, *NS*) did not predict smart phone addiction as it accounted for 0% of variance in smart phone addiction.

DISCUSSION

The primary aim of the current study was to examine how personality traits, social anxiety, gender predict smart phones addiction. Among the personality traits under study is extraversion. The current study has found no relationship between extraversion and smartphone addiction. Also extraversion did not predict smart phone addiction in the study. Extraverts are usually lively and sociable. These attributes may discourage the addictive use of smartphones just to keep themselves company and its features. This finding contradicts the work of researchers (e.g., Bianchi & Phillips, 2005; Augner & Hacker, 2012; Andreassen, Griffiths, Gjertsen, Krossbakken, Kvam, et al., 2013) who reported that extraversion was linked to problematic smart phones use. It is also interesting to note that the finding of this work supports the works of other researchers (e.g., Pearson & Hussain, 2016; Hussain, Griffiths & Sheffield, 2016).

Furthermore, the study examined agreeableness as a negative predictor of Smartphone addiction. The study showed that agreeableness did not predict smart phones addiction. The finding in this context supports previous works done which states that agreeableness is not a predictor of smart phones addiction (Pearson & Hussain, 2016). Since social interaction is an attribute of agreeableness, it is unlikely for an agreeable person to be addicted to smart phone as addiction to Smartphone often represents poor communication and interpersonal skills with increased levels of preference for online social interaction. More so, an agreeable person naturally enjoys social settings and interactions thereof hence the study established no relationship between agreeableness and Smartphone addiction.

Conscientiousness is another trait investigated in this work. The data acquired from this study failed to establish that conscientiousness is a predictor of smart phones addiction. This could be because of the absence of lack of self-disciple and control on the part of participants which actually led to the addiction. More so, at lower levels, conscientiousness can facilitate the emergence and maintenance of addictive processes and help protect individuals from engaging in addictive behaviors at higher levels (Pontes & Hussain, 2018). The finding of this work further supports the works of other researchers (e.g., Pearson & Hussain, 2016; Roberts, Pullig & Manolis, 2015) who found that conscientiousness had no relationship with smart phones addiction. It is also important to note that the result of the finding also contradicts the work of researchers (e.g., Hussain et al, 2016) who found that conscientiousness significantly and negatively predicted problematic smart phones use.

Also the results failed to confirm the hypothesis that neuroticism will be a significant positive predictor of smart phones addiction. Specifically, the study found no significant relationship between neuroticism and Smartphone addiction. In line with this finding is the work of Bianchi & Phillips (2005), who found that neuroticism does not predict smart phones addiction. The result of this work also contradicts several research works (e.g., Ehrenberg, Juckes, White & Walsh, 2008; Roberts et al., 2015; Pearson & Hussain, 2016) who found that more neurotic individuals reported stronger mobile phone addictive tendencies. The need to belong or be part of a group inherent in neurotic people could be seen as a possible reason why neurotics may not be smartphone addicts.

In similar vein, openness to experience as a trait of personality was investigated as a possible negative predictor of smartphones addiction. The finding of this present work established that openness to experience is not a predictor of smart phones addiction as there tends to be no relationship between the variables. Whereas this finding lends credence to the works of Roberts, et al., (2015), who found that openness to experience has no relationship to smartphones addiction and thus is not a predictor of smart phones addiction. The finding further contradicts the results found in previous studies which stated that openness to experience is a positive predictor of smart phones addiction (Pearson & Hussain, 2016; Andreassen, et al., 2013; Hussain, et. al., 2016). The study thus revealed that the knowledgeable, curious and sophistication nature of individuals may likely reduce the amount of time spent on smartphones as they may find it less interesting since other things needs to be attended to due to their curious nature.

The result of the analysis provides evidence which predicted a relationship between social anxiety and smart phones addiction. This means that participants in the study who are experiencing social anxiety tend to be addicted to smart phones use. This finding that social anxiety positively predicted smart phones addiction in the present study is consistent with some research works (Darcin, Noyan, Nurmedov, Yilmaz & Dilbaz**,** 2015; Ha, Chin, Park, Ryu & Yu, 2008) which states that social anxious individuals are more prone to an addictive usage of smart phones. Thus social anxiety is a significant positive predictor of smart phones addiction. The result of this work also contradicts the works of researchers (Xu, 2007; Sinead, 2017) which found no relationship between social anxiety and smart phones addiction. The study further established that students who feel a sense of anxiety especially socially tend to use smartphones a lot and are at risk of smartphones addiction as they barely withstand other people in the course of their interaction. Thus they withdraw themselves from others and resort to excessive smartphones use for communication and other activities.

Another factor suspected to having an overwhelming influence on smart phones addiction is gender. But in the study, the data generated failed to confirm the hypothesis that gender will be a significant negative predictor of smart phones addiction. The results of this study showed that gender differences did not predict smart phones addiction. The finding that gender differences is not a negative predictor of smart phones addiction in the present study lends credence to the works of researchers (like Chen, Liu, Ding, Ying, Wang et al., 2017; Alhassan, Alqadhib, Taha, Alahmari, Salam et al., 2018; Bianchi & Phillips 2005). It as well contradicts the findings of researchers (e.g., Andreassen et al., 2013; Augner et al., 2012; Rozgonjuk, Rosenvald, Janno &

Täht, 2016) that earlier found that the female genders are more prone to smart phones addiction than men counterparts. The finding could be possible because the need for and use of smartphone devices is proportional across sexes.

Conclusion

The present findings offer some insights for parents, guardians, clinicians and significant others seeking to promote and maintain optimal functioning in their wards. Firstly, a key to reducing Smartphones addiction in youths is to identify its consequences and to diagnose the factors that induce it. Thus, given that youths may be at risks of social anxiety and the results of the present study attest to that, identifying effective ways of minimizing social anxiety among youths and thus, avert the negative consequences associated with it will be beneficial. Therefore, a holistic approach is paramount. Parents and significant others should be cognizant of this and realize that any improvements in relationship and communication between and amongst wards would go a long way on reducing the rate of addiction to Smartphones devices.

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