DEPRESSION, STRESS AND OBSESSIVE –COMPULSIVE DISORDER AS PREDICTORS OF SMARTPHONE ADDICTION AMONG SMARTPHONE USERS IN IBADAN

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ABSTRACT

Research has shown that the addictive rate of smartphone is 8.7% and it is expected to increase with the rise of smartphone users. This study examines depression, stress and obsessive-compulsive disorder as predictors of smartphone addiction among smartphone users in Ibadan. Smartphone addiction is one of the biggest 21st century non- drug addiction because of its compulsive – addictive nature. However, there is a dearth of such researches in Nigeria. The research employed a cross sectional survey using Expost-facto design. Three hundred and seventy one (371) smartphone users were purposefully sampled. Their age ranges between 21 years to 60 years. The standardized research instruments used were; Depression, Anxiety, Stress Scale (DASS), Florida Obsessive Compulsive Disorder Inventory (FOCI) and smartphone addiction scale developed for this research. Psychological variables; anxiety, depression, stress and OCD jointly predicted smartphone addiction ($R^2 = 0.25$, $F_{(4,300)} = 30.05$ $p < .01$) but only anxiety (($\beta = -.20$ $t = -2.51$, $p<.05$) and OCD ($\beta = .33$, $t= 6.46$, $p<.001$) individually predicted smartphone addiction. There was significant effect of occupational status on smartphone addiction ($F_{(3,368)} = .38$, $p>.05$), students reported higher smartphone addiction than the employed, and the unemployed. There was no gender differences in smartphone addiction among smartphone users ($t=.38$, $df =369$, $p>.05$). 119 (32.1%) were high on smartphone addiction. This study demonstrated that the incidence of smartphone addiction is on the increase among smartphone users in Nigeria. Thus there is need to educate smartphone users on their vulnerability to smartphone addiction especially if they have some level of underlining psychological distress. The study also notes that anxiety disorders are on the increase, mental health worker should rise up to challenges posed by the increase.

Keywords: Smartphone Addiction, Depression; Stress, Obsessive –Compulsive Disorder

INTRODUCTION

The quick development and widespread use of multifunctional smartphones, and their vast effect on communication and interactions and as people around the world have become increasingly enthusiastic in embracing mobile digital communication equipment have made it important to study possible negative health effects of smartphone exposure. The increasing number of smartphone users has attracted attention from psychologists, psychiatrists, sociologists and the public (Katz & Aakhus, 2002; Chen, (2006). Unrestrained use of technology such as the smartphone may affect development, social, mental and physical well-being. It has been observed to provide gratification such as entertainment, sociability, coping strategies, time management (Panaova & Carbonell, 2018). According to Global Smartphone Penetration Data (GSPD, 2019), 66.53% of people around the world own a cell phone that is, more than one out of five people worldwide now have smartphones. In Nigeria, it has been reported that between 25 to 40 million people use smartphones (Holst, 2019) and Nigeria has been identified as the 15th country with highest smartphone sales. For many people in Nigeria, the smartphones have become an essential part of everyday life (Azeez, 2011).

The smartphone is a devise designed for making and receiving calls and sending messages, access to the internet and other internet related processes, game playing, inbuilt camera, music and video player, calendar, long lasting battery, plenty of storage space, multiple windows, applications. In short, smartphones have become computers. The smartphone is very useful; people use it for instant communication with family and friends, business, academics searches, finding answers to questions and productivity applications (QuimiNet, 2012). As Nigerians rely

on the smartphone for business and social network, the level of use of the device is becoming more worrisome. Smartphone is not only becoming an indispensable tool for high flying Nigerians but for regular individuals too. The increasing demand for smartphone and current fad as a status symbol has resulted in widespread physical and psychological health hazards for Nigerians (Azeez, 2011). The documented physical effects of smartphone use are road accidents, explosions due to phone use around gasoline, eye defects, neck problems, and increased illness due to germs. While that of the psychological effects are sleep disorders, relationship problems, stress, depression, dependency, obsessive compulsive disorder, and anxiety (PsychGuide, (2019); De-Sola, Rodriguez & Rubio (2016); Alavi, Ferdosi, Jannatifard, Eslami, Alaghemandan & Setare (2012).

Almost half the respondents in a 2010 Stanford study were reported to be addicted to their iPhones, and a 2006 study at Rutgers University in New Jersey claimed that smartphone was increasing email and internet addiction in their users. Scholars have argued that excessive use of various technologies, such as mobile phone use, internet surfing, TV watching, and computer gaming, can or should be called an "addiction" (Leung, 2007b), others suggest the term 'problematic' (Panaova & Carbonell, 2018). However, the Diagnostic and Statistical Manual of Mental Disorders (DSM) has not formally identified the smartphone addiction as a diagnosis (Chamberlain & Grant, 2016). Studies have shown that texting and the instant gratification of getting a text back floods the brain's pleasure centre with the mood enhancing dopamine which is also implicated in individuals suffering from depression. "Neuro-imaging studies have also shown that those who are texting have the same area of the brain light up as an addict using heroin (Tommy, 2011). "The paradox of the phone is that it gives independence but it also creates dependence" (James, 2007).

Smartphone addiction is a term used to describe an over reliance on and almost obsessive need to use one's phone. Smartphone addiction has become a prevalent condition for many professional and non-professional users of the device. Some common symptoms of smartphone addiction include constant checking of emails and texts, answering phone calls at inappropriate times and the need to always have the device within reach, running up huge bills and having irrational reactions and anxiety to being with, forget or lost the phone, difficulty concentrating and restlessness when phone is taken away or switched off (James, 2007). Merlo (2012) argues that the hallmark of smartphone addiction is the need to be connected, to know what is going on and be available to other people". in another study (Limayem , 2011; Limayem & Walton, 2011) it was reported that, the underlying motivator to use a smartphone is not pleasure, but rather a response to heightened stress. Frequent users often become anxious and stressed when they are forced to turn off their device (Health, Research, Technology, 2007).

Researchers (Leung, 2007a; Singer, 2010; Bradly, 2012) have researched into the relationship between stress and addiction. Singer (2010) in her study used little number of addicts and realised that stress was a reason for addiction. Several stressors like job loss, death of loved ones, illness, financial worries, occupational and relationship problem were chosen as the theme for stress. The relationship between stress and addiction is deeper than circumstantial. Indeed, it runs down to the cells of our brain (Singer, 2010). Bradly (2012) also came out with the same conclusion that stress and addiction can be deeply intertwined. For recovery to be successful, addicted people need coping strategies and treatment for stress (Bradly, 2012). Stress came out to be strongly correlated with addiction, she concluded in her work that stress and addiction produce some of the same changes in the brain systems and so they are intimately connected. The more the number of times the phone was used (to receive calls or

read text messages) the more restless the teens got. The restlessness leads to consumption of alcohol and caffeine which in turn lead to stress, fatigue and sometimes depression.

Smartphone over use really becomes problematic for a lot of people because of an underlying anxiety or depression; this can really exacerbate it or (cause) their symptoms to manifest themselves (Merlo, 2012). In a study it was suggested that people who use the internet a lot have something in common with depression, they usually report higher incidence of moderate to severe depression as the internet is a basic feature of the smartphone (Health day, 2010). A significant link was found between compulsive usage, anxiety and dangerous cell phone usage (Chorpita & Barlow, 1998). Ramazan and Abbas (2011) discovered that there was no significant difference between SMS addiction in male and female, there was significant difference between SMS addiction in students of university with different course or academic groups, there was significant difference between SMS addiction in students of university with different age.

HYPOTHESES

The following hypothesis will be tested;

      (1) Psychological variables of anxiety, depression, stress and OCD will significantly predict smartphone addiction.

      (2) Occupational status (employed, unemployed and student) will significantly have an influence on smartphone addiction.

      (3) There will be a significant influence of gender on smartphone addiction among smartphone Users.

      (4) Demographic factors (age, sex and occupation) will jointly and independently predict smartphone addiction among smartphone Users.

METHODS

The study utilized the Expost-facto research design. The researcher utilised the cross sectional survey method using purposeful sampling technique. The research instruments were; Section A: Consent form, Section B: Demographic factors, Depression Anxiety Stress Scales by Lovibond & Lovibond (1995), Section D: Florida Obsessive Compulsive Disorder Inventory (FOCI) by Goodman (1994), Section E: Smartphone Addiction Scale was developed by the researcher, the reliability of the instrument, Cronbach's Alpha Reliability Coefficient was calculated to be 0.8. The researcher did not create any formal setting. All respondents were approached wherever they were. A total of 371 smartphone users participated in the research. 203 (54.7%) were males, while 168 (45.3%) were females.

RESULTS

The first hypothesis stated that psychological variables of anxiety, depression, stress and OCD will significantly predict smartphone addiction. The hypothesis was tested using multiple regression analysis.

Table 1: Summary of multiple regression analysis showing the influence of anxiety, depression, stress and OCD on smartphone addiction

Predictors	β	T	Sig.	R	R^2	F	Sig.
ANXIETY	.20	2.51	<.05				
DEPRESSION	.03	.45	>.05	0.49	0.25	30.05	<.01
STRESS	.04	.47	>.05				
OCD	.33	6.46	<.001				

The result revealed that psychological variables of anxiety, depression, stress and OCD jointly predicted smartphone addiction (R^2 = 0.25, F (4,300) = 30.05 p < .01). Collectively, anxiety, depression, stress and OCD accounted for 25% of the change observed in the reported smartphone addiction of respondents examined. Meaning that, the collective presence of the psychological variables has significant influence on the smartphone addiction of smartphone users. The result also demonstrated that anxiety (β = - .20 t = -2.51, p<.05), and OCD (β = .33, t= 6.46, p<.001) were significant independent predictors of the smartphone addiction among respondents studied. However, the influence of depression (β = -.04, t = -.70, *p>*.05) and stress (β = .06, t= 1.07, *p>*.05), were not significant. Implying that, smartphone users who were high on anxiety and OCD reported more symptoms of smartphone addiction.

The second hypothesis stated that Occupational status (students, employed and unemployed) will significantly influence smartphone addiction was analysed using one way ANOVA.

Table 2a: One-way ANOVA showing the differences smartphone addiction based on the occupational status

Source	SS	Df	MS	F	Sig.
Between Groups	95.785	2	47.893	.39	>.05
Within Groups	45755.600	368	124.336		
Total	45851.385	370			

The result showed that there was significant effect of occupational status on smartphone addiction (F (3,368) = .38, p>.05), students reported higher smartphone addiction than employed, and unemployed. The hypothesis was supported.

Table 2b Descriptive statistics showing mean difference in smartphone addiction based on occupational status

Occupant	N	Mean	S.D
Student	255	32.1020	11.25288
Employed	106	33.1321	11.13388
Unemployed	10	33.7000	8.00069
Total	371	32.4394	11.13206

*. The mean difference is significant at the 0.05 level.

Descriptive analysis revealed that there was no significant difference in the reported smartphone addiction by students compared to employed or unemployed smartphone users. Also, unemployed were not significantly different in smartphone addiction compared students and employed smartphone users.

Hypothesis three which states that there will be a significant influence of gender on smartphone addiction among smartphone Users was tested using an independent sample t-test.

Table 3 showing independent sample t-test effect of Gender on smartphone addiction among smartphone users

Gender	N	Mean	S.D	Df	t-value	Sig
Male	203	31.98	10.98			
				369	.38	>.05
Female	168	32.99	11.32			

The result reveals that there was no significant effect of gender on smartphone addiction among smartphone users (t=.38, df =369, p>.05). The hypothesis was rejected.

Hypothesis four states that demographic factors will jointly and independently predict smartphone addiction among smartphone Users. It was tested using multiple regression analysis.

Table 4 showing multiple regression analysis of influence of demographic factors on smartphone addiction among smartphone Users.

Variable	R	R^2	Beta	t-value	F	P	Sig
Age			-.08	-1.392			>.05
Gender			.03	.492			>.05
Occupation	0.10	0.01	.08	1.391	1.18	<.05	>.05

The result reveals that there was significant joint influence of demographic factors on smartphone addiction among smartphone Users (F(7,146)=2.499, p<.05). The r value of 0.327 shows a positive relationship between the independent variables and smartphone addiction. However, the independent influence of the predictor variables shows that age, gender and occupation did not significantly predicted smartphone addiction. Based on this result, the hypothesis is not confirmed.

DISCUSSION

The result demonstrated that anxiety, and OCD were significant independent predictors of the smartphone addiction among respondents studied. This is a pointer that smartphone users who were high on anxiety and OCD reported more symptoms of smartphone addiction and that the presence of anxiety and OCD reduced the strength of depression and stress. Marlene Busko (2008) discovered similar outcome which maintained that anxious individuals are compulsive phone users. Self-report anxiety, however, significantly correlates with cell- phone abuse scores. He concluded that individuals with OCD use the phone to check things to satisfy the checking impulse. In a path analysis (Ahmet and Murat, 2011), the results showed that anxiety was predicted positively by internet addiction.

Been a student, an employee or an unemployed smartphone user had relationship with smart phone use. Students reported higher smartphone addiction than the employed, and unemployed. Students have most times been found to be prominent users of the smartphone until recently when digital marketing became popular in Nigeria and irrespective of the occupational category an individual belongs, smartphone use becomes imperative. Furthermore, the result revealed that there was no significant effect of gender on smartphone addiction tendency among smartphone users. Being male or female has no relationship with smartphone addiction. Unlike previous studies that found out that females are less likely to be addicted to anything than the males Ramazan and Abbas (2011). The outcome is so because, majority of the smartphone users are students and they all agreed to the following irrespective of their gender; that the smartphone phone is used to interact with friends, connect with the family and loved ones, to keep busy when bored and browse the internet which in turn help boost their academic grade because they are exposed to instant information. They all also agreed that, it can be stressful when there is low battery, having to charge the smartphone all the time or change batteries, inability to respond to a chat and when the network is bad. Based on the finding of the result enumerated above, it is obvious that smartphone users are on the increase and smartphone addiction is most likely to increase.

CONCLUSION
The research investigated the influence of depression, anxiety, stress and OCD on smartphone addiction tendency among smartphone users. OCD and anxiety account for a significant possibility of smartphone addiction while stress and depression were not significant. Age, gender and occupational status (student, employed and unemployed) collectively did not predict smartphone addiction. Though, amongst the categories of occupational status, students reported more smartphone addiction than the employed and unemployed. Thus there is need to educate smartphone users on their vulnerability to smartphone addiction especially if they have some level of underlining psychological distress. The study also notes that anxiety disorders are on the increase, mental health worker should rise up to challenges posed by the increase.

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