Psycho-demographic Characteristics as Predictors of Smartphone Addiction among Undergraduates of Obafemi Awolowo University, Ile-Ife, Nigeria

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ABSTRACT

The thrust of the study was to investigate the use and prevalence of smartphone addiction among undergraduates of Obafemi Awolowo University, Ile-Ife, Nigeria, and examine the influence of psycho-demographic characteristics on students' smartphone addiction. The survey research design was employed for the study. A sample of 600 undergraduates and six faculties were selected from the university using a multistage sampling technique. An adapted questionnaire titled "Questionnaire on Smartphone Addiction among Undergraduates" (QSAU) was used to collect the data from the participants. The reliability test result of the instrument after trial-tested was 0.71% at a 0.05 level of significance. Percentages, Relative Significance Index (RSI), ranking order, t-test, One-Way Analysis of Variance, and multiple regressions were employed to analyse the data collected. The results showed a high prevalence rate of smartphone addiction among 124 (20.7%) undergraduates. Educatve information (0.801), charting (0.787), and sports and recreation (0.778) were the frequent information undergraduates sourced from their smartphones. Again, the results showed a significant influence of personality characteristics (F(5,546) = 51.870, p < 0.05); sex (the t-test = 0.2.612; df = 598, p > 0.05) age (F(2,596) = 9.433; p < 0.05), students’ level (F(4,594); = 57.209, p < 0.05) and smartphone addiction among the students. Finally, the result showed that all variables contributed 65.3%. This indicated psycho-demographic variables greatly contributed to students’ smartphone addiction (R2 = 0.653; F = 57.209, p < 0.05). The study concluded psycho-demographic variables predisposed undergraduates to smartphone addiction.

Keywords: Smartphone addiction, psycho-demographic, undergraduates
1. INTRODUCTION

There is no doubt that the emergence of Information and Communication Technology (ICT) and internet facilities have greatly impacted every aspect of human life. Recently, the use of smartphones has become an important tool and aid to teaching-learning activities. Its significance in course delivery, information accessing, and online learning platforms cannot be over-emphasized. Fawareh and Jusoh (2017) acknowledged that, all over the world, many people have adopted the new and recent technology provided by smartphones as part and parcel of their lives. The Smartphone is considered as a technologically improved mobile phone with many features which allow the users to access websites for information such as entertainment, weather reports, sporting activities, social networking and educational materials. Wang, Lee, Yang, and Li (2015) revealed that the device is very efficient especially in the areas of entertainment, information upgrade, immediate communication, social relationship, and self-education. Even, in the field of education, it has been affirmed that Smartphone allowed students to learn, access their school information, get any kind of learning materials or web-based contexts, remix it and share it with other students (Halder, et al., 2015; Ali, Puah, Ayob, & Raza, 2018). For this reason, the Smartphone may be seen as a veritable tool in the advancement of knowledge in all areas of human endeavours because of its convenience and effectiveness.

According to Ebije (2015) smartphone is a smart device used for fast access to knowledge, geared towards students achieving their teaching and learning and academic research objectives. Arefin, Islam, Mustafi, Afrin, and Islam (2017) defined a smartphone as a document from which information on education and entertainments are obtained through the usage of numerous applications. Also, Technorati (2019) viewed Smartphone as a mobile phone with highly advanced features. Besides, Technorati (2019) explained that a typical smartphone has a high-resolution touch screen display, WiFi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications.

The emergence of the Smartphone is traced back to the year 2000. Hejab and Jusoh (2014) stated that Smartphone came into existence in the year 2000. Its introduction has since been widely accepted by mobile phone users. According to the report made available, about 4.5 billion people worldwide have been using the Smartphone as at 2010 (Singla, 2010). Besides, Sarfoah, (2017) indicated that about 60% of the world's population has access to mobile phones. Previously, Henry and Quansah (2013) had confirmed that there were more mobile phone users in the developing nations as compared to the advanced countries. Nigeria, as one of the developing countries, had the birth of mobile telephony in 2001. Until then, there were about 500 thousand telephone lines in the country. As of 2009, Nigeria had recorded more than 30 million mobile phone subscribers (Omeruo, 2009). According to a Pew Survey (2016), about twenty-eight percent of adults reported owning smartphones in Nigeria. Not done yet, the Nigerian Communication Commission (2020) disclosed that internet users in Nigeria, as of 2018, have increased to about 112 million. The report also put the number of smartphone users in Nigeria at roughly 25 and 40 million.
Through the prediction, the number of smartphone users in Nigeria may rise to more than 140 million by 2025.

There is no iota doubt that the introduction of the Smartphone has united the world into a global village. Its use has made it easy to solve daily accessibility problems. Today, the Smartphone has made many communication needs available and has helped us in obtaining effective information in our lives and learning what is going on in our environment, in our country and in the world. In particular, students now find it easy to access their school information or materials and engage in electronic learning via Smartphone. In recent times, where the covid-19 pandemic is ravaging the world, the users of the Smartphone are presumed to have been increased to a great extent. Smartphone has become an important tool that keeps many online human activities such as learning, business, banking going. Even, Pavithra, Madhukumar, and Mahadeva (2015) reported that smartphone addiction is prevalent and higher than the population in some countries. Indeed, the Smartphone may be regarded as one of the most useful devices among communication devices.

In the meantime, studies have shown that smartphone addiction is prevalent among the youths in the world. The population of youths who uses Smartphone has increased astronomically. Pavithra, et al. (2015) noted that a greater number of youths in the world utilize the internet via different modes, with portable implements. In support of the above, Argumosa-Villar, Boada-Grau, and Vigil-Colet (2017) explained that youths are noted for adopting novel technologies promptly. Similarly, Hurley, (2019) opined that it is a noticeable phenomenon that youth have a complex relationship with technology. That may explain their over-dependence on Smartphone. From the foregone, students in higher institutions who form buck of the youths, depend heavily on the Smartphone to perform their daily activities. Especially, the activities that are related to the students’ academics. In their own submission,

In the past, studies have been carried on different information that university students usually sourced using their smartphones. For instance, Park (2005) found that 49% of students used mobile phones to access websites for entertainment or concert information, 52% use it for movie viewing, 61% for news, 87% for weather reports while 57% of students reported using it for searching and 51% reported making one or more calls per day. According to Yahaya (2013), the Smartphone becomes the tool of choice for 29% of students to search for information for online learning. Besides, the study conducted by Wang, Lee, Yang, and Li (2015) revealed that many youths used smartphones to get information on entertainment, information upgrade, immediate communication, social relationship, and self-education. Likewise, Vogels, (2017) affirmed that percentages of students used smartphones on: Facebook, 17 % on entertainment (particularly on YouTube), 15% in gaming, 10% in browsing and 8% in utility, 2% in news, 4% in productivity and 10% on other applications. In Nigeria, findings on the use of mobile phones at the University of Ibadan Nigeria, showed that staff and students used their mobile phones
principally for social activities (Olatokun & Bodunwa 2006). While corroborating the above, Olukotun, Jame and Olorunfemi (2013) disclosed that only an insignificant number of students use smartphones for research and academic activities.

As important as the Smartphone to all and sundry, the rate at which university students indulge themselves in the Smartphone is becoming worrisome. The excessive use of the Smartphone has led to smartphone addiction among students. Many researchers, for instance, Beydokhti et al., (2012) observed that most students develop addictive behaviour over time in form of spending long hours browsing on smartphones searching for information. In their own contribution, Boumosleh and Jaalouk (2017) observed that most students addicted to their Smartphone to the point that 71% of them sleep with their cell phones by their sides; 35% of students think of their phones moment they wake up and only 10% of students think of other important issues. According to Pearson and Hussain (2016), the unwarranted use of smartphone technology has increased drastically resulting in a risk of addiction to certain web applications.

It can be said that the use of smartphones in the world and among university students in Nigeria has become addictive and this can have far-reaching effects on psychological lives of the users. The smartphone addiction may be seen as extreme, continuous and uncontrollable use of Smartphone daily. According to Ozen and Topçu (2017), smartphone addiction is a type of addiction that harms the social relations of users by using excessive and uncontrolled smartphones. Likewise, Cha and Seo (2018) opined that smartphone addiction is the action of continuously using a smartphone without the ability to control the usage despite knowing the harmful effect of over-dependence on the Smartphone.

Without doubt, technology can have both positive and negative effects. Overuse of the Smartphone when becomes addictive can lead to various problems such as physical, social, spiritual or health to the individuals who overused it. Researchers have established that when the Smartphone is abused, the abuser tends to suffer mental health (Fullwood, Quinn, Kaye, & Redding, 2017, Ejie, Ejie, Ejie & Ejie, 2019), antisocial feelings of rejection (Rosman, 2006; Demir, 2018), clinical health problems (Shin & Dey, 2013) and poor academic performance (Yahaya, 2013; Jumoke, Oloruntoba & Blessing, 2015, Lee & Lee, 2017). Apart from the above, the smartphone addiction has been related to suicidal ideation (Katsumata, Matsumoto, Kitani, & Takeshima, 2008) and even death (Selwyn, 2003; Hiscock, 2004).

Previous studies have been carried out on smartphone addiction. For instance, nomophobia-mobile phone dependence (Pavithra, Madhukumar & Mahadeva 2015) and smartphones' effects on academic performance (Kibona & Mgaya, 2015). However, not much has been done on the influence of psycho-demographic characteristics on smartphone addiction. Consequently, the present study was designed to examine the extent to which personality traits and demographic characteristics could influence
smartphone addiction among the students. This was the view to providing necessary recommendations.

Meanwhile, it is believed that one's personality is the unique form of factors that affect his/her human thinking, feeling, and behaviour. According to Magnavita (2016), personality is the way the individual is accustomed to thinking, feeling, perceiving and reacting to the world. In his own position, Adeniyi (2018) defined personality as the individual's totality which includes attributes, interest, abilities, likes and dislikes, disposition or attitude to life which makes him/her a different entity from other individuals. An individual's personality is that thing that predicts one's perception, feelings, disposition and behaviour in life. To this end, it is appropriate to pinpoint that certain personality traits may predispose university students to smartphone addiction. Goldberg (1998) identified five traits that are common to every individual. According to him, personal traits could be classified into openness, conscientiousness, extraversion, agreeableness and neuroticism. An individual possesses these five traits. However, Adeniyi, (2018) affirmed that the type of personality trait that is dominant in someone's genetic make-up will ultimately determine the individual's overall behaviour. In other words, it is possible that specific combinations of the above personality traits can trigger one's proclivity to addiction.

Arising from the above, different scholars have established the relationship of the five traits on the students' smartphone addiction. One of such studies believed that because openness students exhibit curiosity to new ideas; they are more susceptible to using new technology. Hence, they could develop a positive disposition toward smartphone addiction (Devaraja et al., 2008). However, Widiger (2011) report showed no significant relationship between openness and smartphone addiction. Also, it is believed that neurotic people have a tendency to exhibit fear, shyness, sadness and moody behaviour. For these reasons, Devaraja et al., (2008) established that neurotic individuals have stronger mobile phone addictive tendencies. While buttressing the above, Roberts, Pulig and Manolis (2015) conducted a study on the influence of personality traits and cell phone addiction. The finding of the study showed a significant correlation between neuroticism and cell phone addiction. From the result, it is sufficient to state that neurotic people have a passion to spend more time online because of their desire to belong or be part of a group.

Another trait that is likely to predispose students to smartphone addiction is agreeableness. People who have this trait are seen as very cooperative, ready to reach out to people, sympathetic, have good team spirit and may have a stronger tendency toward using technology. To this end, Ehrenberg et al. (2008) reported that agreeable individuals exhibited stronger instant messaging tendencies. On the other hand, Andreassen et al., (2013) found agreeableness to be negatively associated with cell phone addiction. While corroborating above, Cahit and Ahmet (2020) revealed that agreeableness was a negative predictor of smartphone addiction. Again, conscientious students have the attributes of being organized, diligent, and reliable in whatever they do. Hence, Devaraja et al (2003)
reported that individuals that exhibited higher conscientiousness were disposed to technology use than those with lower conscientiousness. But, Cahit, et al. (2020)’s study showed no significant relationship between conscientious people and smartphone addiction. Extroversion is defined as a personality trait that can be characterised as talkative, happy-go-lucky and outgoing whereby individuals prefer to be in the centre of social interaction.

In addition, extroverts are regarded as outgoing, outward, action-oriented and feel comfortable when interacting with visitors (Cherry, 2018; Panda & Jain, 2018). Takao (2014) in his findings discovered that extroversion trait and smartphone addiction was significantly related. Takao noted that the sociable and talkative nature of extroverts predisposed them to smartphone addiction behaviours. The finding was supported by the duo of Biglu and Ghavami (2016) that claimed that extroversion was positively correlated with smartphone addiction. Contrarily, the study conducted by Hussain, Griffiths, and Sheffield (2017) showed no association between extroversion and smartphone addiction. Again, Horwood and Anglim (2018) indicated that extroversion had no significant relationship with smartphone addiction. In summary, Volungis, Kalpidou, Poopores and Joyce (2019) held that among the five traits, it was only neuroticism that showed a positive relationship with smartphone addiction. But the other traits: extraversion, openness, agreeableness, and conscientiousness resulted in a negative relationship with smartphone addiction.

Finally, it has been established that there is no line of agreement among the scholars on the influence of demographic characteristics (age, sex and level) on smartphone addiction among undergraduate students. According to Turner, Love and Howell (2008), there was a positive correlation between age, gender and phone-related behaviours of the users. To buttress the above, Nayak (2018) in his study established a significant relationship between gender and students' disposition to mobile phones. The result held that women were more inclined to using smartphones than males. While agreeing with the above, Yang, Lin, Huang, and Chang (2018) indicated that females exhibited significantly higher degrees of smartphone dependence and smartphone influence. Contrarily, Chen, Liu, Ding, Ying, Wang, and Wen (2017) affirmed both male and female addicted to the Smartphone. However, they were addicted to different information on the Smartphone. Again, it is possible that some age groups may be more at risk of smartphone addiction than others. For example, Lemola, Perkinson-Gloor, Brand, Dewald-Kaufmann and Grob (2015) opined that smartphone addiction was common among adolescents aged 14 to 18 years. However, it decreases among older age groups. The finding was confirmed by Csibi, Griffiths, Demetrovics and Szabo (2019) that addiction has differed between the age groups. From the above, it is pertinent to investigate which of the psychodemographic characteristics are responsible for smartphone addiction among undergraduate students. Hence, this study.

1.1. Objectives of the Study
• investigate the prevalent rate of smartphone addiction among undergraduates of O. A. U., Ile-Ife;
• identify the information frequently source for using Smartphone by the undergraduates;
• examine the influence of personality characteristics (openness, conscientiousness, extraversion, agreeableness and neuroticism) on the smartphone addiction among undergraduates in the study area;
• assess the influence of demographic characteristics (sex, age and level) on the smartphone addiction among the undergraduates; and
• determine the predictive ability of each of the personality and demographic characteristics on the smartphone addiction among the undergraduates.

1.2. Methodology

The study adopted a quantitative research method. A survey method was used to sample 600 undergraduates out of the entire population. The students were selected using a multistage sampling technique. First, six out of the thirteen faculties in the university were selected using a simple random sampling technique. From each of the faculties selected, 100 students from Parts 1 – 4 were selected using a convenience sampling technique. Students used for the study were met during one of their faculties' courses lecture periods. Thereafter, the students used for questionnaire administration were those who showed interest in the study. An adapted instrument titled "Questionnaire on Smartphone Addiction among Undergraduates" (QSAU) with four sections was used to collect data from the students. The first section of the instrument comprised five items demographic characteristics of the students. The items included students' faculty, department, sex, age-range and academic level. Section B of the instrument consisted 21 items on smartphone addiction among the students. Also, section C of the instrument was designed to investigate the information which students frequently sourced from the Smartphone. The section consisted of 10 items. Lastly, section D was on the personality characteristics of students. The section had 28 items that were meant to collect information on the five personality traits (openness, conscientiousness, agreeableness, extraversion and neuroticism). The validation of the instrument was properly carried. The construct and content validity of the instrument were duly determined. The reliability test of the instrument when Spearman-Brown split-half correlational was employed yielded a result value of 0.71% at 0.05 level of significance. Percentages, Relative Significance Index (RSI), ranking order, t-test, One-Way Analysis of Variance, and multiple regressions were employed to analyse the data collected.

2. Results

Research Question One: What is the prevalent rate of smartphone addiction among undergraduates of O. A. U., Ile-Ife?
Data collected on prevalent rate of smartphone addiction among undergraduates were analysed using percentages as presented in Table 1.

**Table 1:**

Prevalent rate of Smartphone addiction among undergraduates of O. A. U., Ile-Ife

<table>
<thead>
<tr>
<th>Prevalence</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>262</td>
<td>43.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>214</td>
<td>35.7</td>
</tr>
<tr>
<td>High</td>
<td>124</td>
<td>20.7</td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The above results showed the prevalent rate of smartphone addiction among undergraduates. The table showed that there was a low rate of smartphone addiction among 262 (43.7%) students, a moderate rate among 214 (35.7%). Whereas, the result showed a high rate of 124 (20.7%) smartphone addiction among undergraduates. To this end, it is sufficient to state only a quarter of the students in the university demonstrated a high rate of smartphone addiction.

**Research Question Two:** What are the information students frequently source for using Smartphone?

Data collected on the information students frequently source for using Smartphone were analysed using percentage, RSI and ranking order. The result as presented in Table 2 below:

**Table 2:**

Information Students Frequently Source for Using Smartphone

<table>
<thead>
<tr>
<th>Information</th>
<th>Strongly Agreed N(%)</th>
<th>Agreed N(%)</th>
<th>Disagreed N(%)</th>
<th>Strongly Disagreed N(%)</th>
<th>RSI</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Educative information</td>
<td>204(34%)</td>
<td>286(47.7%)</td>
<td>68(11.3%)</td>
<td>10(1.7%)</td>
<td>0.801</td>
<td>1st</td>
</tr>
<tr>
<td>2. Charting</td>
<td>208(34.7%)</td>
<td>250(41.7%)</td>
<td>96(16%)</td>
<td>14(2.3%)</td>
<td>0.787</td>
<td>2nd</td>
</tr>
</tbody>
</table>
The table above showed the result on information that undergraduates frequently sourced from their smartphones. It was shown that the most frequently sought information among the students were educative information (0.801), charting (0.787) and sports and recreation (0.778). But the least information which students sought through their smartphones were business matters (0.753), political matters (0.734) and discoveries and service deliveries (0.715). Arising from the above, it pertinent to state that the students frequently used their smartphones on educative information, charting and sports and recreation information.

**Hypothesis One:** There is no significant influence of personality characteristics (openness, conscientiousness, extraversion, agreeableness and neuroticism) on the smartphone addiction among undergraduates in the study area.

**Table 3: One-Way ANOVA on Influence of Personality Characteristics on Smartphone Addiction among Undergraduates**
From Table 3, the result showed that both sum and mean squares values of between groups were 35494.571 and 7098.914. While sum and mean squares values of within groups stood at 33667.537 and 136.860 respectively. It was also indicated that $F_{(5,546)} = 51.870$, $p < 0.05$ was significant. Hence, there is a significant influence of personality characteristics on smartphone addiction among the students.

**Hypothesis Two:** There is no significant influence of sex on the smartphone addiction among undergraduates in the study area.

**Table 4:**

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>S.D</th>
<th>df</th>
<th>t-test</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone male</td>
<td>276</td>
<td>54.8261</td>
<td>12.90895</td>
<td></td>
<td>-2.612</td>
<td>.000</td>
</tr>
<tr>
<td>Addiction   female</td>
<td>322</td>
<td>59.6708</td>
<td>18.95711</td>
<td>598</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 showed t-test analysis of the influence of sex on smartphone addiction among the students. The result indicated that values for male and female were 54.8261 and 59.6708 respectively. Also, the t-test = 0, df = 598, $p > 0.05$. The result indicated a significant influence. This implies that the sex of the students significantly influenced their smartphone addiction.

**Hypothesis Three:** There is no significant influence of age-range on the smartphone addiction among undergraduates in the study area.

**Table 5:**

One-Way ANOVA on Influence of Age Range on Smartphone Addiction among the Undergraduates

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4966.501</td>
<td>2</td>
<td>2483.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>77106.978</td>
<td>596</td>
<td>260.497</td>
<td>9.533</td>
<td>0.000</td>
</tr>
<tr>
<td>Total</td>
<td>82073.478</td>
<td>598</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The above table showed the influence of age range on students' smartphone addiction. The result showed that between groups and within groups values of 4966.501 and 77106.978. Also, it revealed the means square values of 2483.250 and 60.497 for between and within groups. Again, the result indicated that students' age significantly influenced smartphone addiction (F_{2,596} = 9.533; p < 0.05). The above result rejected the null hypothesis.

**Hypothesis Four:** There is no significant influence of level on the smartphone addiction among undergraduates in the study area.

**Table 6:**
One-Way ANOVA on Influence of Level on Smartphone Addiction among the Undergraduates

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>14830.720</td>
<td>4</td>
<td>67242.758</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>67242.758</td>
<td>594</td>
<td>228.717</td>
<td>16.211</td>
<td>.000</td>
</tr>
<tr>
<td>Total</td>
<td>82073.478</td>
<td>598</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result from above showed the sum of squares of between and within groups values of 14830.720 and 67242.758. It also revealed their mean squares values of 67242.758 and 228.717 respectively. Lastly, the result showed that F_{4,594} = 57.209, p < 0.05. This shows a significant influence of the independent variable (students' level) on the dependent variable (smartphone addiction). The result negates the null hypothesis.

**Hypothesis Five:** Each of the psycho-demographic characteristics will not significantly predict smartphone addiction among undergraduates

**Table 7:**
Logistic Regression Analysis of Predictive Ability of Each of the Psycho-demographic Characteristics on Smartphone Addiction among Undergraduates

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>45175.961</td>
<td>8</td>
<td>5646.995</td>
<td>57.209</td>
</tr>
<tr>
<td>Residual</td>
<td>239861.146</td>
<td>543</td>
<td>98.708</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>69162107</td>
<td>551</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Smartphone Addiction
b. Predictors: (Constant), Openness, gender, level, Agreeableness, Neuroticism, Extraversion, age, Consciousness

**Table 8:**

Multiple Regression of Predictive Ability of Each of the Psycho-demographic Characteristics on Smartphone Addiction among Undergraduates

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R = 0.800^a$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2 = 0.653$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>0.642</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Constant)  16.876  4.696  3.594  .000  
Gender  10.314  1.450  .310  7.116  .000  
Age  -1.957  1.469  -.069  -1.333  .184  
Level  5.959  .799  .378  7.462  .000  
Extraversion  .064  .255  .011  .250  .803  
Agreeableness  .505  .359  .065  1.407  .161  
Consciousness  -1.870  .335  -.307  -5.580  .000  
Neuroticism  2.847  .190  .628  14.988  .000  
Openness  -1.203  .246  -.243  -4.892  .000  

a. Dependent Variable: Prevalence

The results obtained as presented in Table 7 showed that there existed a significant predictive ability of each of the psycho-demographic characteristics on smartphones addiction among undergraduates. For instance, $R^2 = 0.653$ which is amounted to 65.3% indicated that all the variables greatly contributed to smartphone addiction. Specifically, given that $F = 57.209$, $p < 0.05$, the result of the multiple regression showed that level and gender have a significant predictive contribution effect on smartphone addiction among undergraduates. Also, psychological variables such as consciousness, neuroticism and openness significantly predict smartphones addiction among undergraduates. Hence, the hypothesis is rejected and it was concluded that there exists predictive ability of each of the Psycho-demographic characteristics on smartphone addiction among undergraduates.
The expression in the table is shown in the equation below:

$$DV = 16.876 + 10.314(\text{Gender}) - 1.957(\text{Age}) + 5.959(\text{Level}) + .064(\text{Extraversion}) + .505(\text{Agreeableness}) - 1.870(\text{Consciousness}) + 2.847(\text{Neuroticism}) - 1.203$$

From the equation, it is discovered that gender with 10.314 was the highest contributor to students' smartphone addiction. The next contributor was the students' educational level with 5.959. Again, it was revealed that neuroticism, agreeableness and extraversion positively contributed to smartphone addiction with scores of 2.847, 0.505 and 0.064 respectively. However, conscientiousness, age and openness contributed a negative change (decrease) in smartphone addiction.

### 3. DISCUSSION

One of the findings in this study was that the incidence of smartphone addiction was prevalent in about a quarter of students. It is implied that for every four undergraduate students; there would be at least one of them that is addicted to the Smartphone. From the finding, it is pertinent to state that the number of students addicting to the Smartphone is increasing daily. For example, Yahaya (2013) established that about 29% of students were addicted to the Smartphone. He opined that students frequently engaged the Smartphone to search for information for online learning. While corroborating the above, Hurley, (2019) opined that have a complex relationship with technology. From the foregone, it is right to state that students depend heavily on the Smartphone to perform their daily activities.

Also, it was found out in the study that the students frequently used their smartphones to access educative information, charting and sports and recreation information. The finding was a departure from Olukotun, et. al (2013) 's claim. According to the scholars, most undergraduate students used their Smartphone for non-educative matters. They believed that only an insignificant number of students use smartphones for research and academic activities. In his support, Park (2005) found that 49% of students used mobile phones to access websites for entertainment or concert information, 52% use it for movie viewing, 61% for news, 87% for weather reports while 57% of students reported using it for searching and 51% reported making one or more calls per day. Also, Wang, et al. (2015) corroborated the finding by stating that many youths used smartphones to get information on entertainment, information upgrade, immediate communication, social relationship, and self-education. Arising from the above, it is expedient to state that most undergraduate students may devote most of their time to search for materials that can only give them pleasure.

Again, the study established a significant influence of personality characteristics on smartphone addiction among the students. In the finding, it was revealed that although,
all the five personality characteristics significantly influenced the students' smartphone addiction. However, each of the traits contributed differently. Neuroticism, agreeableness and extraversion positively contributed to smartphone addiction. But, conscientiousness and openness were found to negatively contribute to smartphone addiction. In their different studies, Ehrenberg, et al. (2008) Roberts, et al. (2015) Biglu, et al. (2016) had claimed that neuroticism, agreeableness and extroversion were positively correlated with smartphone addiction. However, other studies conducted by Horwood, et al. (2018) and Cahit, et al. (2020) indicated that there was no significant influence of each of agreeableness and extraversion on smartphone addiction. In the same vein, Volungis, et al. (2019) held that among the five traits, it was only neuroticism that showed a positive relationship with smartphone addiction. Similarly, Widiger (2011) report showed no significant relationship between openness and smartphone addiction. Besides, Cahit, et al. (2020) 's study showed no significant relationship between conscientious people and smartphone addiction. On the other hands, Devaraja et al (2003) and Devaraja et al., (2008) in their separate studies reported that individuals that exhibited higher openness and conscientiousness were disposed to technology use than those with lower openness and conscientiousness. Consequent upon the different findings above, it can be summarized thus that the degree to which each student is addicted to Smartphone depends on the type of information being sought for.

Finally, the study revealed that all the demographic characteristics (age, sex and level) greatly influenced smartphone addiction among the students. The findings were in support of Turner, et al. (2008) and buttressed Nayak (2018) that a positive correlation existed between age, gender and Smartphone addiction. Besides, Chen (2017) had previously affirmed that both male and female addicted to the Smartphone. But they were addicted to different information on the Smartphone. While expressed their own different beliefs, Lemola, et al. (2015) opined that smartphone addiction was common among young students than adult students. Also, et al. (2019) indicated that addiction has differed between the age groups. From the above, it important to state that all the demographic characteristics have the potential of predicting students' smartphone dependence. However, the degree of their students' addiction is largely based on the nature of the information students are interested on

### 4. CONCLUSION AND RECOMMENDATIONS

The conclusion emanated from this study was that there was a high prevalence rate of smartphone addiction among undergraduates in the study area. Also, it was concluded that all the psycho-demographic characteristics that were considered could predict smartphone addiction among the undergraduates. Consequently to the conclusion, it was recommended students should be mindful of the adverse effects of
smartphone addiction on their general well-being. Hence, they should exercise restraint or not lose focus when using their smartphones.

Apart from the above, students should endeavour as much as possible to use their smartphones for information that will add good value to their academics. Besides, schools should take a hard stand or measure on students who disturb or play with their Smartphone during lecture periods. Finally, parents should ensure they monitor and guide their children/wards on what they use their phones for.

5. REFERENCES


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