



INTERNET ADDICTION AMONG ADOLESCENTS: THE INFLUENCE OF GENDER AND PERSONALITY

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ABSTRACT

The increasing use of internet for economic and societal sustenance, along with adolescents' exposure and encouragement towards being computer inclined has necessitated the need to investigate the extent and contributions of personality traits on internet addictions among male and female adolescents separately. Using the expo-factor design, 300 adolescents (male = 165; female = 135) whose age ranges from 16 to 21 (Mean = 20.52; SD = 2.49) were selected from a State University in Nigeria. Administering the Big Five Inventory and Internet Addiction Test, 5 hypotheses were tested. The findings revealed that internet addiction decreases with increase in agreeableness ($R^2 = .16$, $\beta = -.40$, $p < .01$) and conscientiousness ($R^2 = .19$, $\beta = -.21$, $p < .05$) personality traits among male adolescents, while internet addiction decreases with increase in agreeableness ($R^2 = .16$, $\beta = -.40$, $p < .01$) among female adolescents, but with less variance contributed compared to that of male. Both gender experienced internet addiction increasing with increase in neuroticism personality trait [male- ($R^2 = .27$, $\beta = .12$, $p > .05$); female- ($R^2 = .20$, $\beta = .12$, $p > .05$)], with more variance contributed by male compared to female adolescents. The society and concerned care giver should consider adolescents with these personality factors and provide the required support and control as regard utilization of the internet.

Keywords: Personality traits, internet addiction, gender, adolescents

INTRODUCTION

Globalization and the world development evolve around networking within human race (Borcuch, Piłat-Borcuch, & Świerczyńska-Kaczor, 2012). For humans to attain and maintain a good economic state of development, they have to continually build and improve their utilization and accessibility to the internet. In Nigeria, government bodies and educationist are encouraging children exposure to early use of computer and the internet at large (Ifejiofor & Nwanko, 2015; Emmanuel & Barau 2012). Early exposure to internet use will help and increase the pace at which children, adolescents and youths adapt to changes around the world (Oseni, 2007). This implies that the society seek a continuum in the encouragement of youths with internet use. The benefits from computer usage by youths are numerous (Ifejiofor & Nwanko, 2015). Similarly, the rate of addicting to the internet is on the increase (Bahrainian & Khazaee, 2014; Eksi, 2012; Kesici, Şahin, Özteke & Li, 2010). Thus, this indicates the reason why precaution has to be exercise in the usage of computer and internet by youths.

Internet addiction may be considered as a pathological state that occurs due to internet abuse and overuse (Dhir, Chen, & Nieminen, 2015). Eksi (2012) defined it as using the internet 'out-of-control' and harmfully. This is an excessive use of the internet without a conscious control on what to access, when to access them and what the internet should be utilized for (Eksi, 2012). Researchers (Abdullah, Hatim, & Mohammed, 2015; Ayatollahi, Ayatollahi, & Bahrololoomi, 2010) studying internet addiction have identified the increase in its prevalence among adolescents, thus emphasising the continuous need to investigate internet addiction and factors that could reduce its' occurrence (Kesici, Şahin, Özteke & Li, 2010).



Internet addiction is a disorder and it is assumed to possess similar strength of risk just as any other type of addiction to the individual (Günüç & Kayri, 2010; Ozturk, Bektas, Ayar, Oztornaci & Yagci 2015). It also stands the chances of creating a part way for other psychiatric disorders (Griffiths, 2003; Eksi, 2012). Several findings (Gross, 2004; Oji, 2007; Omotayo, 2006; Ofodu, 2012; Ozturk et al., 2015) have unveiled internet addiction as creating psychological, social and physical health problems. These includes; sleep deprivation, excessive fatigue, decreased immune system, lack of proper exercise, poor personal hygiene, back or eye strain, social isolation, lack of real-life social relationships, neglect of daily chores, increased family conflicts, academic problems, cyber bullying, sexual predators and exposure to pornographic materials (Gross, 2004; Oji, 2007; Omotayo, 2006; Ofodu, 2012; Ozturk et al., 2015). It is envisaged that internet addiction may become a serious problem in the near future (Andreassen, Torsheim, Brunborg, & Pallesen, 2012; Herrera & Bazaga, 2010; Teke, 2011), if the determinants are not understood and managed properly to curb its negativities.

Studies (Kausar & Zobia, 2006; Omotayo, 2006; Ofodu, 2012) have established the fact that the most conspicuous users of the internet are adolescents and undergraduates. Also, Moayedfar, Habibpoor-Gatabi, and Ganji (2007) explained that young people use the internet more than other age groups. The need for socialization and belongingness to a desired and welcoming group might have been one of the factors that increased the utilization of internet among adolescents. Overtime, the continuous use of the internet will substitute for the environmental socializing process of such individuals as they will be relying on the internet rather than commune and socialize with people around (Tutgun, Deniz & Moon, 2011). This change could increase the chances of addiction among adolescents. Consequently, the daily lives of such adolescents will be badly affected because, they gradually show the symptoms of pathological/unhealthy internet use (Ceyhan, 2008).

Another factor that placed adolescents at high risk of addiction is the fact that they are always interested in developing and seeking explanations for things happening around them (Liu & Potenza, 2007). The theoretical explanation for addiction with internet by Katz (1959) had explained that people tend to use the internet to satisfy their psychological and social needs. Uses and gratification theory (U&G Theory) of Katz (1959) explained addiction as the satisfaction of a motivating drive and this drive could be directed form personal factors. The variability of adolescents in developing their cognitive control and boundary setting skills (Casey, Tottenham, Liston, & Durston, 2005; Liu & Potenza, 2007) put them at risk of internet addiction since they can hardly control drives pushing them towards attaining satisfaction. It could have a variety of detrimental psychosocial and physical outcomes for adolescents and these may require professional intervention (King, Delfabbro, & Griffiths, 2012).

Aside the desire to develop and seek explanations, adolescents seek personal confort and attachment with activities on the internet. There has being notably positive significant correlation between friend attachment and computer attachment (Büyükşahin-Çevik, & Çelikkaleli, 2010). This implies that adolescents who find it difficult to make friends around or those that are somewhat restricted towards associating with peers around could seek attachment of substitute with the computer where they could also get the desired attentions. Anonymous projection of the individual is possible with the internet such that deficiencies in a user's life may be counteracted with an alternate online personality that they become emotionally attached to and they find it more satisfying with online relationships than social relationships in the real world (Whang & Chang, 2004; Huang, Zhang, Li, Wang, Zhang & Tao, 2010).



The internet may not just provide friends for adolescents, but also they have the chances of sharing pressing matters online, to get advice while hiding identities and could easily put a halt to the friendship without pressing or compelling questioning from the other party (Azizah, Marina & Marini, 2013). With the technological advances, some are lured into the process through peer influence and desire to fit into the current trend of the society (Azizah, Marina & Marini, 2013; Huang, Zhang, Li, Wang, Zhang & Tao, 2010).

Among the major notable factors facilitating internet addiction are personal, psycho-social and internet enabling tools itself (Dargahi & Razavi, 2007; Bahrainian & Khazaei, 2014). Encompassing the listed three is the personality of the individual. Personality may be defined as those thoughts, feelings and behaviours that differentiate an individual from others and make them unique. Thus, in relation to the above mentioned three factors facilitating internet addiction, personality may be a function of the individual personal characteristics, psychological characteristics and even determines their perception and behavioural attributes towards objects including the internet tools and equipment.

Personality is operationalized within this study using the Big Five Personality factors (John, Donahue & Kentle, 1991). The big five personality is a measure designed to assess personality from a five-dimension perspective. The five dimensions prove to be the best representation of a person's personality (Liao & Lee, 2009). These five dimensions have also been found to include extensive items, as proven by powerful real-world examples of personality (O'Connor, 2002) and they measure different traits in personality without overlapping. The five traits are extraversion, agreeableness, conscientiousness, neuroticism (emotional stability), and openness. For example, the items assessing extraversion were carefully structured such that it does not overlap in meaning and into measures of traits within other dimensions.

Considering gender differences in the factors relating to internet addition; like socializing, gambling and online gaming (Griffiths, 2000), there is the possibility that males would differ from their female counterparts in their level of addiction to the internet. Overtime, studies on internet addiction had indicated that males possess higher risk of addiction compared to females (Bahrainian & Khazaei, 2014; Chien & Cheng, 2006; Çelik, Atak & Basal, 2012; Griffiths, 2000). Bahrainian and Khazaei (2014) explained that girls have higher chances of successful relationships in social field than boys, thus creating more avenues for males to utilize their free time on internet activities and could be less conscious about satisfying their desire for emotional comfort. Griffiths (2000) opined that males are more likely to use the internet to achieve their desire for gambling and gaming unlike the females with less interest in such.

Based on the observed gender variations, little or no attention had been placed on the roles of gender and the personality traits of adolescents affecting their extent of internet addiction. Just as personality is definite; that it had been explained without overlaps in definitions (O'Connor, 2002) - it has also been explained to differ between genders (Costa, Terracciano & McCrae, 2001; Schmitt, Realo, Voracek & Allik, 2008). For example, males could display higher traits of extraversion compared to their female counterparts (Costa et al., 2001). There has been little or no definite explanation on the possible differences in the attribute of male and female adolescents' personality traits and how they relate with internet addiction. The present study will be considering this lacuna and literatures will be reviewed in concordance with the noted personality traits and internet addiction.



Gender, Personality and Internet Addiction

Personalities are unique traits, but yet, there have been some notable differences in the experiences of these traits among males and females (Costa et al., 2001). Although, gender differences in personality are not a concern of the present study, it is important to discuss some aspect of this as it widens our understanding of the relevance in gender differences while explaining the influences of personality on internet addiction.

Studies on internet addiction had found boys prone to on-line games' addiction and girls prone to on-line relations' addiction (Zheng et al.'s diary as cited in Ge, Se & Zhang, 2015; Ayas, Cakir & Horzum'un, 2011). This also tells on their personality and health such that individuals who are addicted to on-line relations show healthier and more normal traits in various tests of personality trait, emotion and cognition (Huang et al.'s diary as cited in Ge, Se & Zhang, 2015). On the contrary, individuals show more problems and pathologic propensities when addicted to on-line games (Huang et al.'s diary as cited in Ge, Se & Zhang, 2015). This revealed differences in the type of addictions and how it affects the personality of the individuals. The physical and psychological effect of internet addiction just like any other addiction is determined by how intense the individual is addicted. It is possible that the extent at which a female adolescent is addicted to on-line relations exceed that of a male adolescent, who is addicted to on-line games. Does this still follow the suit that males are more addicted to females?

Considering personality differences, researches have shown that males differ from females in various personality traits. For instance, women tend to be higher than men in neuroticism, extraversion, agreeableness, and conscientiousness using big five inventory (Schmitt, Realo, Voracek, & Allik, 2008). Another finding indicated that men exhibited higher assertiveness (a facet of extraversion) and openness to ideas, while women were more consistent with reporting higher neuroticism, agreeableness, warmth (an extraversion facet) and openness to feelings (Costa, Terracciano, & McCrae, 2001). A study of gender and changes in personality revealed that females experience gradual decrease in openness at adolescence compared to male that experience gradual increase from their adolescence. For neuroticism, males are explained to experience a constant decrease in neuroticism through their developmental stages, while females tend to start experiencing decrease from their adolescence stages of life (Soto, John, Gosling, & Potter, 2011).

Extraversion and Internet Addiction

An extroverted personality tends to be sociable, assertive, gregarious, talkative, and ambitious (Cooper, 2003). They are characterized as sociable, fun-loving, and affectionate versus, retiring, sober, and reserved. Research had proven that internet addiction reduces with increase in extraversion personality traits (Samarein, Far, Yekleh, Tahmasebi, Yaryavi, Ramezani, & Sandi, 2013; Charlton, & Danforth, 2010; Huang et al., 2010; Zamani, Abedini, & Kheradmand, 2011; Ahlan, & Balogun, 2013).

Addicts have been noticed to possess shyness, loneliness, depressing mood, introversion and social withdrawal (Samarein et al. 2013), thus regardless of how much time extroverts spend on the internet, they have better self-control, and a more positive self-concept, as well as an awareness of the importance of their social ties. This could reduce the chances of extroverts getting addicted, although, some researchers do not concur with the view (Batigün, & Kilic, 2011; Floros, & Siomos, 2014; Mehroof & Griffiths, 2010).

Zamani, Abedini, and Kheradmand (2011) opined that extrovert students prefer interaction with other individuals in social situations to interaction with the virtual world, thus the introverts are less likely to communicate with others face to face due to their



shyness and feelings of shame (Lavin, Yuen, Weinman, & Kozak, 2004). Males had been identified with high level of assertiveness and females with high level of warmth; both of which are facet of extraversion. The explanation for extroverts engaging less in internet addiction was that they are more assertive and could do more of the face to face contact interactions (West & Brown, 2013; Ozturk et al., 2015). Since the explanation for extroverts is more evident among males compared to females, thus there is the possibility that the negative influence of internet addiction among adolescents will be higher among males compared to females. It is therefore hypothesized that;

1) Internet addiction will decrease with increase in extraversion personality traits in male adolescence more than female adolescence

Agreeableness and Internet Addiction

Agreeableness personality dimension suggests a courteous, flexible, trusting, good-natured, cooperative, forgiving, soft-hearted and tolerant person (Cooper, 2003), thus they are not ruthless, suspicious, and uncooperative. Disagreeable individuals, on the other hand, are less pleasant to others, argumentative, uncooperative, and harsh. Buckner, Caastille and Sheets (2012) opined that individuals that are disagreeable may turn to the Internet as a means to satisfy their needs for antagonism. On the other hand, agreeableness trait had been noted in researches to boost internet addiction negatively (Charlton & Danforth, 2010; Samarein et al., 2013; Van der Aa, Overbeek, Engels, Scholte, Meerkerk, & Van den Eijnden, 2009; Meerkerk, Van den Eijnden, Franken, & Garretsen, 2010; Ahlan & Balogun, 2013; Servidio, 2014). This is such that it reduces the tendency of addiction.

Individuals high in agreeableness are soft hearted, cooperative, has good nature and trusting, thus they are less likely to involve in activities that involves hidden identities or ambiguous use of identities. They probably will not have problems socializing easily with people and would not want a substitute with the computer or internet. Also the males that are said to be more attached with on line games will not want to be untrusted by spending excess or working periods for gaming on the internet. Male and female adolescence with high level of agreeableness personality traits may have less tendency of being addicted to the internet, but the chances of females may be more than males since females engage more in online relation. This is where issues of trust, cooperativeness and good nature could be affected. Unlike online gaming, there is every tendency for an individual to be involved with online gaming without faulting their trust, cooperative behaviour, tolerance and good nature. Based on these, it is hypothesized that;

2) Internet addiction will decrease with increase in agreeableness personality traits in female adolescence more than male adolescence

Conscientiousness and Internet Addiction

The features associated with conscientiousness personality traits are, competence, order, dutifulness, achievement striving, self-discipline, careful and deliberation. They are less likely to be disorganized, careless, and impulsive. Negative correlation had been identified between conscientiousness and internet addiction (Meerkerk, Van den Eijnden, Vermulst, & Garretsen, 2007; Charlton & Danforth, 2010; Samarein et al., 2013). It was envisaged that adolescents who are less conscientious would choose to use the internet rather than engage in less pleasurable activities, such as doing their homework, thus they are at increased risk of using the internet excessively (Kuss, Griffiths, & Binder, 2013). The features within conscientiousness are perceived to be more expressed as faulty in males with their engagement in online gaming/gambling. Seeking pleasure could be more related to games (male activities) than just social



relations (female activities), thus the effect of high conscientiousness is expected to reflect more among males compared to females.

3) Internet addiction will decrease with increase in conscientiousness personality traits in male adolescence more than female adolescence

Neuroticism and Internet Addiction

This is also referred to as emotional stability. A neurotic personality experiences anxiety, depression, anger, insecurity, self-pitying and worry (Barrick & Mount, 1991), and this tend to create negative opinions. On the contrary, one low in neuroticism would be emotionally stable such that they have the tendency to be calm, secure, self-satisfied, self-reliant, stable, and adaptable to new situations.

Unlike the earlier discussed personality traits, neuroticism has a positive relationship with internet addiction (Samarein et al., 2013; Griffiths, 2003; Kuss, Griffiths, & Binder, 2013). Social phobia is one of the factors associated with internet addicts (Eksi, 2012) and this could be attributed to anxiety and the worry in socializing. The negative perception attached with other features combine buffer the effect of neuroticism on internet addiction as individuals seek to replicate the lost social interaction with false identity in the internet and when the desired responses or feedback is gotten, they tend to spend longer hours and become addicts.

Online games, gambling and pornography allows fluidity of identity along with the pleasures of control, relieve dysphoric moods and negative affects especially among young male adolescents (Whang & Chang, 2004). Males also could engage in online relationship since most of the relations created by the female adolescents are with male partners, but females are not required in the activities of males in online gaming. Aside that, few females had being attributed to online gaming. This creates higher chances for the influence of neuroticism among male more than female adolescents.

4) Internet addiction will increase with increase in neuroticism personality traits in male adolescence more than female adolescence

Openness and Internet Addiction

Openness to experience includes the ability to be imaginative, independent, unconventional, curious, broadminded, and cultured (Clarke & Robertson, 2005). Those low in openness are always conforming, and interested in routine. Due to curiosity, open-mindedness, courage, high creative, imaginative and innovative cognitive levels adolescents may seek the internet (Ozturk et al., 2015). Also, a high rate of novelty-seeking may make adolescents prone to heavy internet use because they perceived it as pleasurable. Samarein et al. (2013) studied adolescents and found no association between openness trait and internet addiction. From another study, the male gender had being associated more with openness personality trait (Costa, Terracciano, & McCrae, 2001), thus it is envisaged that male adolescents will desire to explore the internet more based on several inquisitive desires. With this, it is hypothesized that;

5) Internet addiction will Increase with increase in openness personality traits in male adolescence more than female adolescence

Several literatures had linked personality traits with internet use. Several of them have also reported conflicting findings on the effects of same personality traits on internet use (Samarein et al., 2013; Batigun & Kilic, 2011; Floros & Siomos, 2014; Samarein, Far, Yekleh, Tahmasebi, Yaryavi, Ramezani, & Sandi, 2013; Servidio, 2014; Young, 2004; Ozturk et al., 2015) and these could be as a result of the neglect in gender differences. With the existence of variation in personalities of male and female adolescents, it is



therefore important to understand the role of personality traits on internet addiction among male and females differently.

METHOD

Participants

The research was an expo-facto designed study and 300 undergraduate students (male = 165; female = 135) of Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria, whose age ranges between 16 and 21 years were selected using purposive and accidental sampling techniques. The participants were mostly Christians such that 277 (92.3%) were Christians, while 23 (7.7%) were Muslims. The distribution of participants within academic level was such that 95 (31.7%) were in 100 level, 69 (23%) were in 200 level, 51 (17%) were 300 level students and 85 (28.3%) were 400 level students.

Instrument

Personality traits were measured using Big Five Inventory by John, Donahue and Kentle (1991). The scale was designed to measure five dimensions of personality; Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness. Items were scored on a 5-point Likert scale (Agree strongly = 5; Disagree strongly = 1). Sample item include: "I see myself as someone who is outgoing", "I see myself as someone who has a forgiving nature", "I see myself as someone who does things efficiently", "I see myself as someone who worries a lot", "I see myself as someone who is inventive". The scale was adapted for Nigerian use by Omoluabi (2002) and he reported a Cronbach's alpha of .80 for the overall scale. A Cronbach's alpha coefficient of .72, .77, .72, .79 and .85 respectively was obtained for the five dimensions with the present sample. The mean scores obtained for the 5 dimensions within the study were; 24.12, 35.11, 33.67, 21.19 and 36.04. The mean serves as the basis for interpreting the scale. Scores from the mean and above indicates that an individual manifest the specific type of personality trait, while scores below the mean implies otherwise.

Internet addiction was measured using Internet Addiction Test (IAT) developed by Young (1998). The scale consists of 20 items which was adopted to evaluate the respondents' level of internet addiction. Each item is scored using a five-point Likert scale, ranging from (1 = "rare" to 5 = "always"). Sample items include, "How often do you find that you stay on-line longer than you intend" and "How often to you lose sleep due to late night log-ins". It covers the degree to which internet use affect daily routine, social life, productivity, sleeping pattern, and feeling. The scale had reliability coefficient of 0.90 (Young, 1998) and in this study, a Cronbach's alpha of .88 was obtained. Scores above the mean indicate that the respondents is addicted with the internet and vice versa.

Procedure

Students were approached within the school premises and after detailed explanation of the research purpose done with the students, their allegiance was ascertained with the knowledge and assurance of confidentiality of their responses. With the aid of a research assistance, the questionnaire were administered to the participants and retrieved immediately afterwards. This study adopted both purposive and accidental sampling technique in the distribution of the questionnaire because the students were not easily found at a particular location, some were visited in their various hostels, and others were met in their lecture theatre. Those who consented were given a copy of the questionnaire with the assurance of anonymity and confidentiality of responses. Three



hundred and thirty questionnaires were administered, and three hundred were collected and found usable for the analysis, yielding a response rate of 90.9%.

Data analysis

Pearson Product Moment Correlation was used to test the relationship among the study variables. Two hierarchical linear regressions with each consisting of five steps were conducted to test hypotheses 1-5.

RESULTS

Table 1: Means, Standard Deviations (SD) and Correlations of all Variables

Variables		1	2	3	4	5	6
1. Extraversion		-	.09	-.02	-.11	.18*	-.03
2. Agreeableness		-.02	-	.55**	-.28**	.57**	-.40**
3. Conscientiousness		.14	.59**	-	-.25**	.47**	-.26**
4. Neuroticism		-.08	-.45**	-.43**	-	-.17*	.28**
5. Openness		.17*	.54**	.53**	-.34**	-	-.16
6. Internet Addiction		-.03	-.40**	-.38**	.44**	-.20*	-
Male	Mean	24.50	34.87	33.26	20.74	35.95	46.37
(N=165)	SD	3.88	5.71	6.45	4.65	5.10	14.02
Female	Mean	23.65	35.39	34.16	21.75	36.15	40.65
(N=135)	SD	3.89	5.33	6.22	4.88	4.68	13.49

Note: **p < .01, * p < .05

Results for male adolescents are below the diagonal and for female adolescents are above the diagonal.

The test of relationship among the study variables indicated that extraversion had no significant relationship with internet addiction among male and female adolescents ($r = -.03$, $p > .05$; $r = -.03$, $p > .05$ respectively). Agreeableness was significantly related with internet addiction negatively among male and female adolescents ($r = -.40$, $p < .01$; $r = -.40$, $p < .01$ respectively). In a similar trend, Conscientiousness was significantly related to internet addiction among male and female adolescents negatively ($r = -.38$, $p < .01$; $r = -.26$, $p < .01$ respectively). The relationship between internet addiction and neuroticism personality type was positively significant among male and female adolescents ($r = .44$, $p < .01$; $r = .28$, $p < .01$ respectively). That of openness with internet addiction was negatively significant among male adolescents ($r = -.20$, $p < .05$), but was not significant among female adolescents ($r = -.16$, $p > .05$ respectively).

**Test of Hypotheses****Table 2: Hierarchical Linear Regression Analysis showing Personality predicting Internet Addiction**

Predictors	Male					Female				
	Step 1	Step 2	Step 3	Step 4	Step 5	Step 1	Step 2	Step 3	Step 4	Step 5
Extraversion	-.03	-.04	-.00	.01	-.01	-.03	.13	.01	.02	.01
Agreeableness		-.40**	-.27**	-.18*	-.22*		-.40**	-.36**	-.33**	-.38**
Conscientiousness			-.21*	-.15	-.18*			-.07	-.04	-.07
Neuroticism				.30**	.30**				.18*	.18*
Openness					.12					.12
R	.03	.40	.44	.51	.52	.03	.40	.40	.44	.45
R ²	.00	.16	.19	.26	.27	.00	.16	.16	.19	.20
ΔR ²	-	.16	.03	.07	.01	-	.16	.00	.03	.01
Df	1, 163	2, 162	3, 161	4, 160	5, 159	1, 133	2, 132	3, 131	4, 130	5, 129
F	.13	15.56**	12.59**	13.80**	11.51**	.09	12.44**	8.42**	7.69**	6.45**
ΔF	-	30.97**	5.72*	14.32**	2.02	-	24.76**	.48	4.77*	1.41

Note: ** $p < .01$, * $p < .05$ N (male=165, female=135)

Two 5-step hierarchical linear regression analyses were conducted to test the predictive strength of personality traits on internet addiction among male and female adolescents. In the first step, internet addiction was regressed on extraversion; among male adolescents, extraversion did not significantly predict internet addiction ($R^2 = .00$, $\beta = -.03$, $p > .05$). Also among the female adolescents, extraversion did not significantly associate with internet addiction ($R^2 = .00$, $\beta = -.03$, $p > .05$). This negates hypothesis 1.

Agreeableness was included in step 2 of both hierarchy and it was indicated that internet addiction decreases with increase in male agreeableness personality traits ($R^2 = .16$, $\beta = -.40$, $p < .01$), accounting for 16% variance in internet addiction. Among female adolescents, a significant decrease in internet addiction was noted with increase in agreeableness personality traits ($R^2 = .16$, $\beta = -.40$, $p < .01$) explaining 16% of the variance in internet addiction. This implies that both male and female adolescents had similar percentage variance contributed by agreeableness in the observed variance in internet addiction. The result negates hypothesis 2. In the third step, conscientiousness personality trait was added and the result revealed that conscientiousness was negatively associated with internet addiction among males adolescents ($R^2 = .19$, $\beta = -.21$, $p < .05$) contributing 3% variance. Among females, conscientiousness was not associated with internet addiction ($R^2 = .16$, $\beta = -.07$, $p > .05$). This partially confirms hypothesis 3. Added in the fourth step is neuroticism personality trait.

Confirming hypothesis 4, it was indicated that neuroticism was positively associated with internet addiction among males ($R^2 = .26$, $\beta = .30$, $p < .01$), explaining 7% of the variance in internet addiction. Among female adolescents, neuroticism also had a positive association with internet addiction ($R^2 = .19$, $\beta = .18$, $p < .05$), contributing just 3% of the variance. This implies that neuroticism personality traits had influence on both male and female adolescents, but indicated higher influence among male adolescents compared to what was observed among females. Adding openness personality in step 5 revealed no major difference as openness to experience did not significantly associate with internet addiction among both male ($R^2 = .27$, $\beta = .12$, $p > .05$) and female ($R^2 = .20$, $\beta = .12$, $p > .05$) adolescents. This negates hypothesis 5.



DISCUSSION

This study explored the relationship between personality traits and internet addiction among male and female adolescents. It was observed that extraversion personality traits do not associate with internet addiction. This contradicts the reviewed literatures (Huang et al., 2010; Charlton & Danforth, 2010; Zamani et al., 2011; Ahlan & Balogun, 2013; Batigün & Kilic, 2011; Floros & Siomos, 2014) and it could be explained based on the contributions of earlier equivocal findings on this trait. The characteristics of extroverts include the desire for sociability, fun-loving, affectionate and a strong awareness of the importance of their social ties. These characters will make extroverts' adolescents spend more of their time to engage in social interactions with the virtual world. Definitely, one can hardly spent all day with everyone they desire, thus extroverts could continue to maintain much of their desired social contacts by going online to maintain these interactions even in a larger size. The desire to also maintain the required socialization, extroverts will want to be up dated with other functions and uses of the internet (such as; games, educative and current events/information) among social gatherings and peers, thus they will be spending much time also attending to personal quest online and could end up addicted. With these, adolescents that are highly extroverts has both tendency to spent much time online and end up as addicts just like introverts had been perceived (Zamani et al., 2011) or resist it by utilizing self-control mechanism and spending much of the time in socializing within the virtual world. In line with U&G theory (Katz 1959), both extroverts and introverts has different needs and gratifications that is directed towards the internet for satisfaction. Although, the motivating factors of extroverts differs from that of introverts, both are directed towards the internet for gratification.

The test on agreeableness personality trait revealed that both male and female adolescents experience equal level of decrease in internet addiction along with increase in agreeableness trait. In concordance with earlier findings (Charlton & Danforth, 2010; Ahlan, & Balogun, 2013; Servidio, 2014), adolescents with high level of agreeableness trait (either attached with online gaming or online relations) are likely to express their good nature, trust and being cooperative. Thereby serving as a caution on maladaptive behaviours which the society will frown at and that could be explained as addiction to the internet.

Just as hypothesized, males with high level of conscientiousness tend to experience lowered threat of becoming addicted to the internet. This is because males engage more in online activities that could be categorized as purely fun seeking unlike some females that compensate their personal deficiency (probably socializing) with online anonymous activities (West & Brown, 2013; Ozturk et al., 2015; Servidio, 2014). Aside this, male adolescents with high level of conscientiousness are less likely to be disorganized, thus conscious of their dealings and activity online. They will be able to control the trend of being addicted compared to those low in conscientiousness. The female adolescents do not really participates much in online activities that could be categorized with indiscipline and lacking dutifulness or order, therefore the traits lets less on their addiction tendencies. The findings support researches that affirm conscientiousness' negative association with internet addiction, but it has further shown that this is more reflected among male samples.

The major trait that researches had found unanimously to associate positively with internet addiction was neuroticism (Griffiths, 2003; Kuss, Griffiths & Binder, 2013; Eksi, 2012; Whang & Chang, 2004). The current research also affirmed this and further revealed that male adolescents high in neuroticism have more chances of becoming internet addicts compared to their female counterparts. Aside social relations, some other time-consuming events adolescents engage in when online are online games, gambling and



pornography. These requires most of the fluidity of identity along with the pleasures of control, relieve dysphoric moods and negative affects especially among young male adolescents (Whang & Chang, 2004), thus making them more prone to addiction compared to the female adolescents.

The openness personality trait had no association with internet addiction. This support Samarein et al. (2013) findings, but contrary to Ozturk et al. (2015) and Costa, Terracciano and McCrae (2001), both male and female adolescents' openness trait seems not to determine their addiction towards internet. It could be that their imaginative and creative minds increases their use of the internet, while their exposure level increases their precaution and curb the chances of getting addicted. Therefore making the trait ineffective to either increase or decrease addiction level of adolescents on internet.

Conclusion

Continuously, youths and adolescents are encouraged to be technologically inclined. This trigger their chances of getting addicted with the internet, especially with a lot of social vices engulfed in the internet. It is thus pertinent to study personality traits that could predict internet addiction among male and female adolescents. The findings had affirmed agreeableness, conscientiousness and emotional stability as factors that buffer internet addiction among males negatively, while agreeableness and emotional stability are the major personality traits that buffer internet addiction among females negatively. It is thus recommended that parents, guardians and the society at large should concentrate on managing the activities of adolescents with such traits when exposed to the internet. If adolescents with these sensitive traits (as far as internet addiction is concern) are properly oriented and given the necessary monitoring and attentions from parents and the society, there are high chances that the trend of addiction with the internet among adolescents will reduce. In addition, there should be increased public orientation of the danger attached with addiction to the internet along with the sensitization of its advantages. Further research should consider specifically, how these personality traits associate with the various aspect of addiction to the internet. This will create a better certainty on individual differences with specific chances of addiction to the internet even beyond adolescents. Also, the present study was limited to one geographical location within Nigeria (Ondo State). Further research should consider using other geographical zones as diversity in culture, ethnicity and increased number of samples could enhance the generalizability of the findings.

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