

Effects of Self-Control on Smartphone Addiction among Secondary School Students in Lagos State

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Abstract

Smartphone addiction connotes excessive use on a daily basis. It involves repetitive and excessive use of smartphone and it is a destructive behaviour. Smartphone addiction has the capacity to negatively affect an individual in his/her physical and mental health, relationships, productivity and academic performance. This paper examines effects of self-control on smartphone addiction among students in secondary schools in Lagos state. One research question and three hypotheses were formulated to guide the research. The sample consisted of one hundred and twenty (120) students randomly selected from secondary schools in Lagos state. A 20-item questionnaire on “Self-Control and Smartphone Addiction of Student Scale” (SSASS) was designed for data collection. Results show a significant effect of self-control on smartphone addiction and also that addiction is not gender- or age-based. Students should be taught self-control in to reduce smartphone addiction.

Keywords: self-control, smartphone addiction, secondary school students

Introduction

In its broader form, addiction could be described as too much dependence on a particular product, substance, item or device. Addiction is similar to compulsion, obsession or craving. It is not limited to substance or gambling, it can also be extended to the ubiquitous smartphone devices that have become a major threat to human health across the globe. Smartphone addiction connotes excessive use on a daily basis, involves repetitive and excessive use and is a destructive behaviour. Smartphone addiction has the capacity to negatively affect an individual’s physical and mental health, relationships, productivity and academic performance. The smartphone today has become a lifeline for many. Singla (2010) estimates that around 4.5 billion people use smartphones worldwide. It comes as no surprise that a huge chunk of this demography is the youth.

The smartphone is more of a necessity for students than a luxury. Surveys conducted on the youth worldwide figure that they consider smartphones an integral part of survival and some have even gone to the extent of saying they would rather go without food for a day than without their smartphones. With constant chatting, snap chatting, facebooking, instagramming, twittering, calling, listening to music, playing games being such an integral part of their

lifestyles, it is little wonder that not having it around strikes them with paranoia. Smartphone devices enable people to search for information, communicate with friends, watch videos, express themselves, make video calls and play games. The portability and accessibility of a smartphone make it possible to use it anywhere, for any duration.

Smartphone addiction could be considered a form of technological addiction. Specifically, Griffiths (1996) operationally define these addictions as non-chemical behavioral addictions that involve human-machine interaction. Other than “gambling disorder,” “internet gaming disorder” is currently the only nonsubstance-related disorder proposed for inclusion in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a substance-related and addictive disorder (American Psychiatric Association, 2013). Although a primary smartphone characteristic is the use of internet-based applications, smartphone portability and capability for installing applications (“apps”) that are suited to individual needs and lifestyles make it a versatile, multipurpose object that many carry with them at all times.

In one of the earliest studies, Bianchi and Phillips (2005) argue that the problem of smartphone use may be a symptom of an impulse control deficit or depression. Addressing the underlying problem as well as inappropriate smartphone use, they use some dependent variables to predict smartphone addiction, such as reported times per week spent simply using the device, reported percentage of use socially based, and reported percentage of business-based use. Other variables were also considered include reported percentage of use in other features. The results indicate that technological addictions offer an appropriate starting point for a consideration of problem smartphone use. The results also reveal that young people, in particular, appear to be susceptible to high use and problem use. They were the heaviest users of the SMS function and other features of smartphones.

Ross (2011) observes three characteristics of smartphone addiction, people addicted to smartphone always keep their smartphones on. The second is that they tend to use their smartphones even when they have a landline phone at home. Finally, they normally are confronted with financial and social difficulties due to their excessive smartphone use. carried our Research on smartphone use by Australian college students find a large use rate of 1.5-5 hours a day, showing a range of characteristics associated with addictive use—impulsiveness, mounting tension prior to using the device, failure of control strategies, and withdrawal symptoms (James & Drennan, 2005).

The results also identify some factors that correlate with consumer engagement in addictive or compulsive behaviour. Situational factors affecting excessive use included special events, alcohol abuse and depressive circumstances. A wide range of other negative consequences from smartphone addiction includ-

ed financial issues, damaged relationships, emotional stress, and falling literacy. Park (2005) asked respondents to report their minutes of smartphone use and divided them into light users who reported less than nine minutes of use, and heavy user who reported more than nine minutes of use. Smartphone addiction was measured based on seven criteria of dependency. These were: tolerance, withdrawal, unintended use, cutting down, time spent, displacement of other activities, and continued use. The results show that smartphone users grew tolerant of smartphones despite the fact that they might cause such problems as high phone bills and public annoyance. Also, when the smartphone was unavailable for a time, users became highly anxious and irritated. This behaviour continued, although these were troubling signs of addiction. Teenagers who excessively use their smartphone are more prone to disrupted sleep, restlessness, stress and fatigue. 58% of Asians use mobile phones when travelling by air. According to the survey, they have also found that Indians are the “most social,” with 69% most likely to use their smartphones in cinema halls/movie theatres, 21% use it in a place of worship, and 79% while attending a wedding ceremony. 25% of users across the markets surveyed say they use smartphones in meetings, 80% of Asians use a mobile phone apps while eating. With so many utility made available on smartphones, be it to surf the internet or to pay bills, this dependency on mobile phones is escalating at a greater pace.

Turner, Love and Howell (2008) suggest that “user personality and individual attributes such as age and gender were found to be differentially associated with some aspects of phone-related behaviours.” Billieux, Linden and Rochat (2008) tested gender differences in both teams of impulsive and problematic smartphone use among the young. The results show that men use their smartphones more frequently in dangerous situations, whereas women are more dependent on their smartphones. The results on impulsion show that men exhibit significantly higher levels of sensation-seeking and lower levels of perseverance, while women reveal significantly higher levels of urgency. Howell, Love and Howell (2008) investigated gender differences related to smartphones and users’ perception and attitude towards their use in public and private places. They conclude that while females perceive the service very positively, there is a persistent trend for males to dislike the service, regardless of location.

Smartphone addiction is a behavioral problem, and one of the most effective ways of combating it is through psychological remedies. Lin, Chang, Lee, Tseng, Kuo and Chen (2014), demonstrate that smartphone addiction has several similar aspects to DSM-5 substance-related disorders including the following four main factors: compulsive behaviour, functional impairment, withdrawal, and tolerance. Based on clinical interviews to establish the sensitivity and specificity of these factors for classifying individuals with and without smart-

phone addiction, they propose several diagnostic criteria for smartphone addiction such as self-control therapy

Self-control is the ability to subdue one's impulses, emotions, and behaviours in order to achieve longer-term goals. Self-control is primarily rooted in the prefrontal cortex, which is significantly larger in humans than in other mammals with similar brains. The prefrontal cortex, rather than immediately responding to every impulse as it arises, individuals can plan, evaluate alternative actions, and ideally avoid doing things they will later regret. The ability to exert self-control is typically called willpower. Willpower is what allows people to direct their attention, and it underlies all kinds of achievement, from school to the workplace.

According to Rehm (1977), one of the most famous studies of self-control is known as "the marshmallow test," which finds that children who were able to resist eating one marshmallow in order to be rewarded with two in the future later showed higher academic achievement than those who had wolfed the treat down immediately. The result of the study indicates that self-control is an innate ability with wide-reaching implications for people's lives, but later studies suggest that self-control actually changes significantly over a lifetime, and can be improved with practice. A better understanding of why individuals give in to some impulses but are able to successfully resist others is critical for understanding addictive behaviour, impulsivity, and eating disorder. Whether one is most tempted by drugs, food, or scrolling through Twitter instead of working, everyone has areas of their lives in which they wish they could exercise a little more willpower.

Managing smartphone addiction is all about developing and improving self-control, a character trait that is so critical to successful living. Addiction in this context is not addiction that meets criteria for medical treatment. Self-control is much more than simply being an instrument to achieve more sleep, meaningful communication, awareness and appreciation of the moment. It allows us to transcend our humanity and our basic human instincts. According to Billieux, Linden, and Rochat (2008), smartphone addiction has a negative effect on school life adaptation. The internet addiction level among high-school students is higher than that of primary-school students, and the level of internet addiction is related negatively with that of self-control. But, there are few studies that have examined the mediating effects of self-control on smartphone addiction and school-life adaptation.

To improve self-control of high school students for their school-life adaptation, an intervention program is necessary. Chóliz (2010) asserts that self-control influences smartphone use. Aside from the possibilities that the smartphone offers, there are also side-effects such as distraction while studying, driving, or at work. Differences in personality in an individual's capacity for

self-control can explain whether people react immediately to smartphone signals. It is important to understand which motivations lead to people reacting immediately to a signal and pulling out their smartphone

Recent research point to the use of rewards, routines, and mindfulness as a few possible ways to establish better habits and regulate behaviour over the long term. Strengthening willpower may not always be easy, but the benefits can significantly improve health, performance at work, and quality of life. According to Fuchs and Rehm (1977), people who under duress for a period of time have less self-control. In one experiment participants sat in front of a plate of cookies but were told not to eat any. Later, these same people demonstrated more aggressive behaviour after receiving negative feedback from a loved one than those whose self-control had not been tested.

Accumulating evidence also connects excessive smartphone use with increasing psychopathological symptoms, such as those related to depression and anxiety. Smartphone checking can constitute safety behaviour in anxious individuals. Internet-enabled devices may encourage checking behaviours by hosting a range of applications with regular updates and notifications. Thus, smartphone use may increase habitual checking behaviours, which may contribute to developing and maintaining symptoms of psychopathology, such as addictive use. Consequently, a growing number of studies are conducted to determine whether smartphone overuse constitutes a genuine addictive disorder.

According to Berger, Annika and Daria (2018), past research on problematic smartphone and addictive smartphone behaviours employed quantitative methodologies to examine negative consequences associated with smartphone use. Various ways of measuring problematic smartphone use have been proposed considering different criteria and sources, including empirical evidence, substance-abuse criteria, pathological gambling criteria, reviews of the relevant literature, or Internet addiction criteria. When it comes to determining when smartphone use becomes problematic, it is important to be aware that time spent using these devices is not a sufficient indicator.

For instance, it has been found that time spent socializing on mobile apps left users with positive mood. Thus, the types of smartphone interactions appear to have varying impacts on user wellbeing. However, merely reading, removing, and scrolling through messages leaves users with negative emotions. In addition to utilizing a quantitative research approach, an experiential perspective based on users' own perceptions and understanding of their smartphone use may offer significant insights into what constitutes problematic smartphone use and how it is experienced on an individual level. User perceptions of smartphones can help to define what aspects of this technology are beneficial or problematic.

In addition, because the smartphone has become so visible in daily life, it

is becoming a critical tool in impression management. Not being able to be reached, for example, might cause symptoms of stress because this unavailability might result in bad impressions when someone expects you to communicate instantly. According to Lin, Chang, Lee, Tseng, Kuo and Chen (2014), most secondary school students and human behaviour in general is regulated by forethought: people motivate and control their behaviour to achieve desired outcomes, also named self-regulation.

Failure of self-regulation is controlled by emotions, automatic behaviour, and steered by impulses. It can lower a person's self-efficacy, self-esteem, and can lead to stress (LaRose & Eastin, 2004). To alter such negative effects, one might use media to escape, feel better, or find a feeling of belonging (LaRose & Eastin, 2004). Self-regulation has been shown to play a critical role in disorders such as internet addiction. A failure of self-regulation might begin with consciously using the smartphone to relieve negative feelings. This allows habits to form when the undertaken actions do not result in the desired outcomes and the behaviour is not adapted. Behaviour then can become addictive, as it is no longer consciously observed. Therefore, this study investigated effects of self-control on smartphone addiction among secondary school students in Lagos state.

Research Question

To aid the study, one research question was asked:

1. What is the level of self-control of students in secondary school in Lagos state?

Research Hypotheses

Three research hypotheses were also formulated and tested:

1. There is no significant effect of self-control on smartphone addiction of high-school students in Lagos.
2. There is no significant effect of gender on smartphone addiction of students in secondary school in Lagos state.
3. There is no significant effect of age on smartphone addiction of students in secondary school in Lagos state.

Methodology

The study adopted descriptive design to seek information about effects of self-control on smartphone addiction on students. The sample for the study consisted of 120 high school students in Lagos state. The participants were randomly selected. A 20-item questionnaire designed by the researchers titled "Self-control and Smartphone Addiction of Students Scale" (SSASS), which consisted of three sections: A, B & C, designed for data collection, was personally administered on the study sample

Section A sought information on students' demographic data, section B

sought students' level of self-control, while section C sought information on smartphone addiction. The instrument was validated by experts in the field of psychometrics. The reliability of the instrument was tested using Cronbach's alpha and its reliability coefficient stood at 0.88. The questionnaire was administered on individual basis. The collected data from the instrument was analyzed using percentage, t-test and ANOVA to test the hypotheses at 0.05 level of significance.

Results

The level of significance was set at $p < 0.05$.

Result

Research question: What is the level of self-control of students in secondary school in Lagos?

Table 1: Self-control level of students

		Frequency	%	Cumulative %
Valid	High level	84	70.0	70.0
	Low level	36	30.0	100.0
	Total	120	100.0	

From Table 1 above, 70% of respondents, (84 respondents) had high self-control level while 30% (36 respondents) had low self-control level. Hence, the findings reveal that more students (70%) have high self-control levels.

Testing Hypotheses

Hypothesis 1: There is no significant effect of self-control on smartphone addiction among high school students in Lagos state.

Table 2: Independent samples test of students' self-control level and smartphone addiction

Levene's test for equality of variances		t-test for Equality of Means								
		F	Sig.	t	Df	Sig. (2-tailed)	Mean diff.	Std. error diff.	95% confidence interval of the diff.	
Addiction	Equal var. assumed	.881	.350	-4.142	118	.000	-6.611	1.596	-9.772	-3.451
	Equal var. not assumed			-4.397	76.331	.000	-6.611	1.504	-9.606	-3.617

From table 2 above, the independent t-test conducted reveal that $df = 118$, $F =$

0.881, $p < 0.05$. This result shows that a statistically significant difference between the variables. Hence, the null-hypothesis is rejected. In other words, there is significant effect of self-control on smartphone addiction of students in Lagos. This implies that students who scored high in self-control scale also have low smartphone addiction levels.

Research hypothesis 2: There is no significant effect of gender on smartphone addiction of students

Table 3: Independent samples test of students’ sex and smartphone addiction

Levene’s test for equality of variances		T-test for Equality of means								
		F	Sig.	t	Df	Sig. (2-tailed)	Mean diff.	Std. error diff.	95% confidence interval of the difference	
									Lower	Upper
Addiction	Equal var. assumed	.862	.355	1.519	118	.131	2.389	1.572	-.725	5.502
	Equal var. not assumed			1.551	112.784	.124	2.389	1.540	-.662	5.439

From table 2 above, the independent t-test conducted reveals that $df = 118$, $F = 0.862$, $p > 0.05$. This result shows there is no statistically significant difference between the variables. Hence, the null-hypothesis is accepted. In other words, there is no significant effect of sex on students’ smartphone addiction. This implies that both male and female students are addicted to their smartphone.

Research hypothesis 3: There is no significant effect of age on smartphone addiction of students in secondary school in Lagos.

Table 4: ANOVA of age on smartphone addiction of students

	Sum of squares	Df	Mean square	F	Sig.
Between groups	411.939	2	205.969	2.916	.058
Within groups	8263.528	117	70.628		
Total	8675.467	119			

Table 1 above reveals that $F(2, 117) = 2.916$ and that $p > 0.005$. This result then shows there is no statistically significant difference between the variables. Hence, the null-hypothesis is accepted. In other words, there is no significant effect of age on smartphone addiction of students in Lagos.

Discussion

This study investigated effects of self-control on smartphone addiction of students in secondary schools in Lagos. The first research hypothesis that there is no significant effect of self-control on smartphone addiction of students in sec-

ondary school in Lagos is not accepted. The findings reveal significant effect of self-control on students' smartphone addiction. This implies that self-control has a great effect in remediating the problem of smartphone addiction among students. This is in agreement with the findings of Billieux, Linden and Rocha (2008) that smartphone addiction has a negative effect on school life adaptation. The internet addiction level among high school students is higher than that of primary school students, and the level of internet addiction is related negatively with that of self-control, but, few studies have examined the mediating effects of self-control on smartphone addiction and school-life adaptation.

Second research hypothesis which stated that there is no significant effect of sex on students' smartphone addiction of students in secondary school in Lagos state is accepted. The findings reveal that both male and female students are addicted to their smartphone in the same proportion. This finding is at variance with Billieux, Linden and Rocha (2008), who tested gender differences in both teams of impulsion and problematic smartphone use among the young. The results show that men use their smartphones more frequently in dangerous situations whereas women are more dependent on them. The results on impulsion show that men exhibit significantly higher levels of sensation-seeking and lower levels of perseverance, while women reveal significantly higher levels of urgency.

Further, the third research hypothesis that there is no significant effect of age on smartphone addiction of students in secondary schools in Lagos is accepted. The findings reveal students of all ages are addicted to their smartphone in the same proportion. The findings agree with the positions of Turner, Love and Howell (2008) that user personality and individual attributes such as age and gender were found to be differentially associated with some aspects of smartphone-related behaviour.

Conclusion

Basically, the problem of smartphone use may be a symptom of an impulse-control deficit or depression. It is very important to address the underlying problem as well as inappropriate smartphone use. The results reveal that the technological addictions offer an appropriate starting point for a consideration of problem of smartphone use. The findings equally reveal that young people, in particular, appear to be susceptible to high and problematic use of smartphone. They are the heaviest users of the SMS function and other features of smartphones. Hence, the need for counselling against smartphone addiction among students in general. Students in secondary schools should be taught self-control in order to reduce smartphone addiction among them.

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