Smartphone Addiction and Subjective Well-being: A Case of International Students at Northeast Normal University, China

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ABSTRACT

Since many years there is an augmentation in researches about smartphone usage, addiction of smartphone and how smartphone addiction affects the health of users. The smartphone was also used as an aid to learning, but recently it turns out to be contributing negative effects on learning outcomes. This study inquires about the smartphone addiction of international students of Northeast Normal University (NENU). These students come from different nationalities with varied disciplines possessing distinctive attitutes. This research investigates about the differences of smartphone addiction between male and female (gender) students by using the independent sample t-test with unequal sample size. It also explores the differences of smartphone addiction (SA) and subjective wellbeing (SWB) between different age groups using the ANOVA. Correlation and Regression is calculated to find the relationship and impact of two variables (SA and SWB) on each other. The age group 1 has more SA and lower SWB, while there is little difference found with different genders.

Keywords: *Smartphone addiction (SA), Subjective wellbeing (SWB), Gender, Age, Health, International students, Northeast normal university.*

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Highlights of this paper

- Smartphone addiction affects subjective well-being of students at NENU.
- Due to Smartphone addiction, the subjective well-being of both genders is affected equally.
- Smartphone addiction is inversely proportional to subjective well-being.

1. INTRODUCTION

Smartphone is a very common machine which is being used all over the world excessively due to its wonderful features particularly the usage of internet. Internet is very useable for different kind of aims, such as to reinforce the emotions, to share the information rapidly, to amuse, to access electronic business and to build a connection with other societies and cultures (Scherer, 1997; Kraut *et al.*, 1998; Morahan-Martin, 1999). Statistical data shows that the quantity of smartphone users in China in years 2017 and 2018 will be multiplied till the year 2023. There were 713 million smartphone users in China in 2018, while the prediction shows that the quantity of smartphone users to increase 2.5 billion by the year (Statista, 2019). According to China Daily (2017) smartphone has become a necessary part of daily life very quickly in a few years instead of a communication machine, it allowed public to hire a taxi, organize their money, online shopping, buy food and fraternize at their fingertips. With the entertainment and communication that smartphone provide to the users, it make the users cannot live without it. Globally, 47 percent of smartphone users attempted to limit their usage in the past, only 30 percent were successful (Bankmycell, 2019) here in China, it is observed that there are many local and international students who are always on their phone while walking, eating, and meeting or even in the classroom. This extreme engagement to the smartphone usage will harm the physical and psychological condition of users.

The excessive use of smartphones by today's wired generation (most probably the youngsters) is a vital reason of academic, social and familial problems (Barnes, 2009; Gökçearslan *et al.*, 2016). There were many researches concentrated on association between smartphone addiction, subjective wellbeing and social anxiety, Nazir and Maya (2017); social anxiety and loneliness (Darcin *et al.*, 2016) loneliness and self-regulation (Mahapatra, 2019).

1.1. Study Purpose

Ambition of this research is to enquire how smartphone addiction affects international students of Northeast Normal University in China and to discover the relationship and effects of SA and SWB between each other. This study also determines the level of smartphone addiction and the subjective well-being in a sample of Students in Northeast Normal University, China.

1.2. Significance of the Study

There are so many studies investigated the satisfaction of life and broadly acknowledged as a substantial aspect of subjective wellbeing, Diener *et al.* (2002). This study is undertaken to find out the addiction of smartphones and its relationship with subjective wellbeing. This research also points out which age group has more addiction and how smartphone addiction varies with gender.

2. LITERATURE REVIEW

In the case study of Nigerian university students Rivers State University (RSU), Amadi and Jabe (2018) inquired about the special effects of social media network services (SNS) on educational activities of students. This research conclude that the usage of SNS by the students of RSU for many reasons ranging from communication and entertainment, education and socialization. Spending most of their time on SNS the study time reduces and it affects

the studies of RSU students. The use of SNS on mobile phones during class and library session reduces study timing and negatively effects on student's studies and grades as well.

As stated by Salehan and Negahban (2013) on the growing dispersion of cell phones in people, there is a huge growth of mobile phone usage specifically among the youngsters, with the fast growth of mobile phones, the use of SNS (social network services) also increasing. The usage of technology extensively can command users to addiction. In this research "Salehan et al" discovers that the usage of SNS and mobile applications are weighty predictors of mobile phone addiction. An outcome of this study also displays the usage of SNS and applications of mobile phone are both depend on how much a user affected by SNS and also with the intensity of users. Jeongmin *et al.* (2015) concluded in the research work "Smartphone Addiction between students of University and Its Consequences on Learning" that the students have higher level of addiction of smartphones are at the lower level of self-regulated learning, over and above when they study the stream of their study level is lower than normal people. Interview was conducted for further research from the group of smartphone addiction; it has been found that during the study concentration of mobile phone addict learners continuously interjected by the different notification from different applications actively working in their phones. Abuses of smartphones accelerate in twenty first century and most of the youngsters in the age of adolescence spent their free times to discover the different features of their smartphones.

According to Tuckman (1975) Presentation as the understandable appearance or protest of sympathetic, thoughts, abilities and knowledge of an individual and intentional score clearly point out the enactment of a pupil. So pupil's educational presentation is given more importance and reserving in assessment all the facets harmfully or beneficially effects at their educational performance. In the mainstream of the students practices, the main purpose to use the smartphone is relaxation uses of smartphone which is very rare for the purpose of development and learning.

A number of fresh studies in China on college learners discovered that practice of smartphone is related with worry, lower psychological wellbeing and loneliness (Huang *et al.*, 2013; Bian and Leung, 2015; Long *et al.*, 2016).

A research paper 'technological addictions' published by Griffiths (1995) according to this a lot of researchers have labeled problematical use of internet or mobile phone is addiction, there are different terms used for it, such as the internet addiction, smartphone addiction and mobile phone addiction, (e.g. (Young, 1998a;1998b; Griffiths, 2000; Widyanto and Griffiths, 2006; Liu and Kuo, 2007; Hong *et al.*, 2012)).

According to Diener *et al.* (2002) many studies observed 'life satisfaction' and has been acknowledged broadly as some significant facets of the subjective wellbeing.

According to Griffiths (2005); Grant *et al.* (2010) there are two things which are included in 'Smartphone addiction' regarded as behavior addiction and Internet addiction. Seven essential signs of internet and behavior addiction are in mutual, specifically conflict, mood modification, salience, withdrawal, tolerance, relapse and problems. Smartphone overemployment linked with psychological signs establishes a system of behavior addiction. The addiction of Smartphone is also measured as a scientific addiction which includes human machine communication (Griffiths, 1995).

According to Shaffer (1996); Young (1999); Van Deursen *et al.* (2015) addiction of smartphone is measured such as incapability to regulate the usage of smartphones even though users face negative effects on them. The smartphone use is not only to yield happiness but also to decrease discomfort situations and feelings of pressure but moreover leading to disappointment to constrain the range of usage in spite of significant hurtful penalties in psychological, physical, financial, and social facets of user's life.

Kids using the mobile phone showed more behavioral difficulties for instance mental distraction, nervousness, indolence, and temperament, and these difficulties get worse if kids at the age of primary level began using a mobile phone (Divan *et al.*, 2012). As said by Kwon *et al.* (2013) fast growth and revolution of the communication technologies and information has consequently directed to the ideas of smartphone addiction or internet gaming.

Different rapports, for example 'problematical use of mobile phone', 'habitual usage of mobile phone' and 'the use of mobile phone at extreme level' have formerly been accustomed, defined as addiction of mobile phone in the collected works (Kim and Byrne, 2011).

As stated by Takao *et al.* (2009) the usage of smartphone is more common due to its applications and features similar to computer. For this reason the word 'smartphone addiction' is used in this research. The problematical usage of mobile phones with spending huge time on it is measured as the mobile addiction.

The use of smartphones among youngsters is becoming addiction whereas, the smartphone was opted as a learning tool though Jeongmin *et al.* (2015).

3. METHOD

3.1. Study Design

Data collected from international students at Northeast Normal University randomly. It's a pure Quantitative research with 106 sample size of foreign students. The validity, reliability, independent t-test with unequal sample sizes, smartphone addiction between male and female, subjective wellbeing between male and female and smartphone addiction and their relationship with subjective wellbeing is measured.

3.2. Population

The population of foreign students in Northeast Normal University is 1013 at this time.

3.3. Sample

A sample of 106 foreign students recruited through purposive sampling at Northeast Normal University Changchun, Jilin province of the People's Republic of China. The participants are the students of different programs and also have dissimilar age groups. The average age of students was 30 years. In the sample there were 61 males and 45 females. All these participants were belonging to different variety of programs language, under graduate, graduate, masters and Ph.D.

3.4. Sampling Procedure

The researchers choose 106 students to investigate the problem from 1013 university foreign students.

3.5. Sample Size

One hundred six foreign students participated in this study to help the researchers to find required results.

3.6. Research Tool

Questionnaire tool is adopted in this study and this questionnaire is adopted from two authors; first is smartphone addition (SA) tool. Smartphone addiction questionnaire consist of 10 items with a five-point Likert Scale (1: "strongly disagree" to 5: "Strongly agree"), adopted to find the smartphone addiction among people. It was developed by Hyunna (2013).

Second tool is adopted to measure the subjective wellbeing (SWB). SWB tool consists of 19 items and divided into 4 dimensions (Control, Autonomy, Self-Realization, and Pleasure). It is used to find the level of life satisfaction among the people, and it was developed by Clark (2015).

3.7. Reliability

Reliability of these both tools is conducted through Cronbach's Alpha, it states; the Reliability of the SA scale checked through Cronbach's alpha and the scale is reliable. The minimum level of reliability is .7 so we can use this scale for further research as shown in Table 1.

Table-1. Reliability statistics.

Cronbach's alpha	N of Items
0.720	19

Source: SPSS (our data)

Reliability of SWB: The researcher checked the reliability of (SWB) scale and found it reliable for further research as shown in Table 2.

Table-2. Reliability statistics.

Cronbach's alpha	N of items
0.723	10

Source: SPSS (our data)

3.8. Ethics

The data was taken only for scientific use, all participants informed about this purpose and researcher removed its original source.

3.9. Limitations and Recommendations of the Study

This study delivers new views against the smartphone addiction (maximum use of smartphone) in small area and used a specific pattern of Northeast Normal University foreign students studying in China, who are living in a particular cultural and social environment, and everyone has different patterns of addiction, this research has few limitations as well.

The questionnaire was conducted for this survey and there is no test used to check the relationship between different people and their addiction with subjective wellbeing. Secondly, it does not focus on how mobile phone addiction impacts the studies of students and how much it influences at different level of studies.

This study is a subjective which provide us a wide image of smartphone addiction and use along with its relationship with subjective wellbeing, while this research could not deliver hub and deep compact. This research is conducted on a small portion of international student's smartphone addiction and subjective wellbeing at Northeast Normal University China. Further studies could be made to focus on a single motive related with the smartphone, for example, games, shopping and sexual content. Different types of addiction would show different patterns and user characteristics.

4. DATA ANALYSIS AND RESULTS

4.1. Data Analysis for the Difference of SA between Male and Female Students

4.1.1. Hypothesis Testing

Independent sample t-test with unequal sample size is conducted because male and female students are independent sample of each other and their sample size is also not equal.

Research hypothesis: $H_R: \mu_1 \neq \mu_2$

There is significant difference of Smartphone Addition between male and female students through Smartphone Addiction Scale (SAS).

Table-3. Independent sample T-test with unequal sample size.

	Gender	N	Mean	T	df	p
Mean SAS	Male	61	3.4499	1.353	104	0.179
	Female	45	3.2778			

Source: SPSS (our data)

Independent t-test with unequal sample sizes conducted to see the difference between male and female smartphone addiction. The test result in Table 3 shows no significant difference between males and females. So we cannot reject our null hypothesis. There is no significant difference of smartphone addiction between males and females.

4.2. Data Analysis for the Differences of Subjective Wellbeing (SWB) between Male and Female Students

4.2.1. Hypothesis Testing

Independent sample t-test with unequal sample size is conducted because male and female students are independent sample of each other and their sample size is also not equal.

Research hypothesis: $H_R: \mu_1 \neq \mu_2$

There is significant difference of Subjective Wellbeing (SWB) between male and female students.

Table-4. Independent sample T-test with unequal sample size.

	Gender	N	Mean	t	df	p
Mean SWB	Male	61	3.0647	1.011	104	0.314
	Female	45	2.9977			

Source: SPSS (our data)

The test result in Table 4 shows no significant difference of subjective wellbeing (SWB) between males and females hence we cannot reject our null hypothesis. There is no significant difference of subjective wellbeing (SWB) between males and females students.

4.3. Data Analysis for the Differences of Smartphone Addition (SA) between Age Group 1, Age Group 2 and Age Group 3

ANOVA (analysis of variance) is conducted here to see the diversities between three age groups because there are more than two independent variables (age group 1, age group 2, and age group 3).

Research hypothesis: $H_R: \mu_1 \neq \mu_2 \neq \mu_3$

Table-5. Smartphone addition (SA) between age group 1, age group 2 and age group 3.

SAS		Mean difference	P
I	J	(I-J)	
Group 1	Group 2	.03638	1.000
	Group 3	.82791	.042
Group 2	Group 3	.79153	.165

Source: SPSS (our data).

The Table 5 shows that there is significant difference of Smartphone Addition (SA) between age group 1, age group 2 and age group 3.

The researchers divide the sample into three groups to check the smartphone addiction between different age groups. Age group1 consists of (16 to 25) years old students, in age group 2 the students were (26 to 35) years old and the age of third group is (36 to 45) years old students. The results showed the age group 1 and age group 3 are significant with each other but the others age group 1 and 2 and age group 2 and 3 are not significant.

4.4. Data Analysis for the Differences of Subjective Wellbeing (SWB) between Age Group 1, Age Group 2 and Age Group 3

ANOVA (analysis of variance) is conducted here to see the diversities between three age groups because there are more than two independent variables (age group 1, age group 2, and age group 3).

Research hypothesis: $H_R \mu_1 \neq \mu_2 \neq \mu_3$

Table-6. Subjective wellbeing (SWB) between age group 1, age group 2 and age group 3.

SWB		Mean difference	P
(I)	(J)	(I-J)	
Group 1	Group 2	-.18862	.015
	Group 3	-.22185	.593
Group 2	Group 3	-.03323	1.000

Source: SPSS (our data).

The Table 6 depicts that there is significant difference of Subjective Wellbeing (SWB) between age group 1, age group 2 and age group 3. Results show that there is significant difference of subjective wellbeing (SWB) between age group 1 and age group 2. Age group 1 with age group 3 and age group 2 with age group 3 has no significant difference with each other.

4.5. Data Analysis for the Relationship between Smartphone Addition and Subjective Wellbeing among the International Students

Correlation is conducted here to see the relationship between smartphone addition and subjective wellbeing among the international students through correlation coefficient *(r)*.

Table-7. Correlation.

Statistical analysis	Types	Mean SAS	Mean SWB
Mean SAS	Pearson correlation	1	-.459
	Sig (2-tailed)		.000
	N	106	106
Mean SWB	Pearson correlation	-.459	1
	Sig (2-tailed)	.000	
	N	106	106

Source: SPSS (our data).

Pearson correlation conducted according to results shown in Table 7, it is clear that the smartphone addiction (SA) has significant negative relation with subjective wellbeing.

4.6. Data Analysis to see the Impact o SA on SWB of the International Students

Regression is conducted to see how smartphone addiction impacted on the subjective wellbeing of the international students.

Table-8. Coefficients: Dependent variable: mean SWB

Model	Unstandardized coefficients		Standardized coefficients		
1	B	Std. error	Beta	t	Sig.
(Constant)	3.844	.156		24.613	.000
Mean SAS	-.239	.045	-.459	-5.266	.000

Source: SPSS (Our Data)

The regression in the Table 8 showed the negative relationship between independent variable (SA) and dependent variable (SWB) who is 23 percent in negative direction.

5. DISCUSSION

The ambition of this study was to discover whether foreign students of Northeast Normal University involved in mobile phone addiction and their addiction impacted on their subjective wellbeing, there was no difference of smartphone addiction found between the gender. In conflict with our hypothesis, there was no specific relation of smartphone addiction between gender and somewhere with age. The findings are very consistent with some of those studies which already reported that genders have no significant relation of smartphone addiction (Prezza *et al.*, 2004; Attamimi, 2011; Chung, 2011; Kwon *et al.*, 2013). In conflict with our hypothesis, there arise no difference between both groups in life, subjective wellbeing and life satisfaction. Socialities are partially related with life satisfaction (Kahneman and Krueger, 2006), and regular social communication has been discovered to apply a positive impact on satisfaction of life (Diener *et al.*, 1991). Face to face interaction of those people who mostly watch television is very rare; internet users also do the same (Nie, 2001). The smartphone and internet addicted people did not get better face-to-face interaction and always looked busy with their phones. The internet with smartphones also have some plus points to buy something when you don't find time to visit the market, for payment, viewing the T.V shows, messaging and downloading related materiel as well.

As stated by Lopez-Fernandez *et al.* (2017) the everyday usage of mobile phone augmented online shopping, watching television programs, interested activities downloading, forbidding of any advance payment as contract, adolescents are dependent on mobile phones for chatting and massaging and also enhanced the social network among females. The smart phones addicted devote most of their time on mobile phones are compulsory to lessen their time of face-to-contact. Consequently shyness and loneliness are related with smartphone addiction (Bian and Leung, 2014). Most of the time smartphone addiction makes the people alone but in this research results showed only young students are affected with smartphone addiction.

6. CONCLUSION

It is obvious the age group 1 has more smartphone addiction, and also the subjective wellbeing of age group 1 is affected with the most. There is no difference found between different genders, so we can say the young foreign

students in Northeast Normal University have greater smartphone addiction (SA) and lower subjective wellbeing (SWB).

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