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Kalaivani A/P Munusamy, Akmar Hayati Ahmad Ghazali

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## Behaviour Factors and Smartphone Addiction among Youth in Selected Public Universities in Klang Valley

<sup>2</sup>Kalaivani A/P Munusamy, <sup>1,2</sup>Akmar Hayati Ahmad Ghazali

<sup>1</sup>Institute for Social Science Studies (IPSAS), Universiti Putra Malaysia, Malaysia, <sup>2</sup>Faculty of Modern Languages and Communication, Universiti Putra Malaysia, Malaysia

Email: ani\_vani88@yahoo.com, akmar@upm.edu.my

### Abstract

The smartphone has become an indispensable tool for reshaping human existence and life. Smartphones have been created as a valuable variety of functions and greater movability as a result of the development of smartphones, which has increased the high prevalence of smartphone use, specifically youngsters. Smartphone use is a part of digital technologies, like internet, and it has been expected to have a comparable impact, mainly on youth. People are becoming addicted or dependent on smartphones as a result of its appealing and convenient features, as well as their multipurpose function, to the point where a day without smartphone use seems to them to be an incomplete day. However, such social issues seem to elicit less attention from academicians, resulting in poor understanding of the topic. As a result, this research aims to identify behaviour factors on smartphone usage and determine the relationship between behavior factors and smartphone addiction among youths. There were employed survey method in this study. The research was carried out on 400 youths from four public universities in Klang Valley. The finding identified most of the respondents spent more than 12 hours on Internet usage. Based on the result concluded smartphone addiction is correlated with behavior factors namely loneliness, shyness, and stress. Higher assessment on the Internet tie-up on smartphone addiction. To mitigate the negative consequences, it is suggested that government need to give serious attention and must come out with prevention strategies focusing on attitudes that helping youths to set limits for their smartphone accessibility. Apart from that, future studies require different group of respondents and widen range of geographical scope in identifying smartphone users' behaviors and mental health issues.

**Keywords:** Youth, Smartphone Addiction, Smartphone Usage, Loneliness, Shyness, Stress

### Introduction

Smartphones have become ingrained in our everyday life. The usage of smartphone increased every year and now reaching almost 2.4 billion worldwide. In today's life we can't take our eyes away from our phone screens because we rely on phones for communicate and connect with others. Even though people are far from distance, smartphone brought them

close frequent interaction and integration. Despite of this benefit offered; the society has been affected by smartphone addiction mainly to the university students. As mentioned in past studies (Boumosleh & Jaalouk, 2017; Hughes & Burke, 2018) even though smartphones brought in tremendous beneficials to people's lives, they also cause issues such as "smartphone addiction".

Based on Andrew (2018), smartphone usage has increased dramatically, primarily towards the numerous apps that these gadgets can serve. There are numerous research (Oviedo-Trespalacios et al., 2019; Lee et al, 2017) have been looked into the causes and consequences of frequent use of smartphone and adverse outcomes to the users behavior. According to Oviedo-Trespalacios et al (2019), the problematic issues of smartphone are consistently increasing. In this modern era, smartphone is widely used as a necessary communication mode and as an integral component. Smartphones are widely seen as a necessary mode of communication and became an integral component of society. That's not unavoidable because the younger generations are technology savvy and are naturally attracted to new electronic inventions.

As a result, in human life mobile phones have become fundamental requirement in today's world, and they are no longer considered as luxury products (Fadzil et al., 2019).

Smartphone technology has expanded the pervasiveness of smartphone use, particularly among youths, by providing a valuable set of functions. The smartphone has become one of the most popular electronic gadgets among young adults who use community-based services (Adams & Paul, 2017). Researchers also emphasized that, in comparison to their older peers, adolescent buyers are becoming more knowledgeable of the capabilities and features of mobile phones. Past studies (Kumcagiz & Gunduz, 2016; Settley, 2020), discovered that there were significant psychological requirements. Low psychological needs can produce physical and psychological complications, including addictive behaviours like internet addiction and mobile phone addiction, whereas high psychological requirements can cause physical and psychological troubles. According to the findings of a previous study (Kim & Koh, 2018), youth with a low degree of psychological stability rely on mobile devices such as smartphones to connect with others, which increases the risk of mobile phone dependency. Smartphones are increasingly being used to connect with others, raising the risk of mobile phone addiction. Self-determination theory, an inspirational framework that describes phenomenon of self motivation on influencing humans' development. Furthermore, in past studies implies when a person has long-term psychological expectations, he or she may feel compelled to meet those requirements in various social situations, for example, the digital world (Ryan & Deci, 2020). As a result of the foregoing, people's fulfilment with psychological desires is influenced not just by their social circumstances, but also by an internal motivation to engage in antisocial problems. In nutshell, teenagers can satisfy their psychological wants by playing computer games, watching films on the internet, or conversing on the internet (Allaby & Shannon, 2020; Vacchiano & Bolano, 2021).

One the other hand, result among 319 Turkish university students found that smartphone overuse, and the overuse would link to depression or anxiety (Demirci, Akgonul & Akpınar, 2015). Apart from that, research on undergraduate students in Lebanon were found there is a link between smartphone addiction and mental illness (Matar-Boumsleh & Jaalouk, 2017).

Contrastively based on sample of 514 adults in China, more smartphone use for call was related with improved mental wellness and positive affect and was negatively associated with social anxiety (Chan, 2015; Gao et al., 2016). Eventhough smartphone is a reliable information providers with powerful processing capabilities that have reduced Internet access disparities and give equal chances to many individuals.

The swift of smartphone technology has resulted in a great acceptance among the community particularly the university students. In this modern era, smartphone considered as the basic need for the people all over the world. It transformed the way of interaction, connect, seek information, work, do duties, and socialize. Based on the Statistic Department on individuals and families's ICT utilization survey there were identified almost 98.2% individuals are using mobile phone mainly smartphone in their daily life compare to computer fixed line telephone, pay TV channel and television (DOSM, 2020). The statistics showed smartphone become as essential part in everyone's life. In addition, because of lonely, stress, shyness individuals are willing to establish contact with their peers by repeated calls to satisfy their isolation (Takao et al., 2019). Overuse of smartphones will cause stress, loneliness and anxiety similar to an addiction (Ithnain et al., 2018; Patoz et al., 2021).

According to numerous surveys, young people acquire electronic devices earlier than other demographic groups. Cha and Seo (2018) asserts youth seems in a considerable risk of being addicted to smartphones. Smartphone addiction is described as the inability to restrict one's use of a smartphone despite being aware of its negative consequences (Cha & Seo, 2018). Attachment to a smartphone leads to problems with emotional comprehension that could result into serious relationship problems. People that spend a lot of time on their smartphones or different fforms of media seem to be highly conceal their emotions.

Furthermore, Liu and Ma (2020) claim that the highest direct impact of smartphones is on university students, who report greather mobile phone consumption, would impact on their academic accomplishment. Thus, the researcher believes there have significant connection between youth mental health and smartphone use. Also some agree there is a negative or ambiguous connection between them. Most importantly, in the academic performance, mobile phone use associated negatively with academic success (Ng et al., 2017).

Adolescents are more vulnerable to smartphone addiction than adults since they have not yet developed self consciousness when it comes to their smartphone use. Teenagers whose parents working are more likely to become addicted to their smartphones since they might not have been cared for by their parents after school and perhaps this group of teenagers might use smartphones without any boundaries or control (Cha & Seo, 2018).Extreme consumption and addictive behaviors of smartphone are associated with this problem, which poses a risk. As a result, it is necessary to solve the problem, mainly for university students.

Thus, the objective of this study was to identify behaviour factors on smartphone usage and determine the relationship between behavior factors and smartphone addiction among youths. To reach this objective, there were selected variables that may be related on the smartphone use. There variables are loneliness, shyness, phone usage and perceived stress.

This type of study is more relevant in identifying the greater of smartphone use and addiction among youth.

## **Literature Review**

### **Smartphone Addiction**

The use of smartphones is a part of interactive technology such as internet, and it is anticipated to have similar impact. There are 90 percent of the world's population owns a mobile phone (Pew Research Center, 2018). This research explores the hypothesis that higher smartphone usage will result in increased addiction to the mobile phone and associated problems. In the past studies has found problematic pattern and behaviors of smartphone usage (Sohn et al., 2019), and there has been extensive research on the various harms produced by mobile phone addiction, including family conflict, decreased sleep quality and academic performance (Lisewski et al., 2020; Zhang & Wu, 2020). Generally, smartphone addiction is more addictive than other technology addiction. This research explores the factors that indicate on the smartphone addiction. The frequent use of the smartphone phone would increase the chances to addict with this gadget.

Smartphone addiction is described as the inability to restrict one's use of a smartphone despite being aware of its negative consequences (Cha & Seo, 2018). Addiction to a smartphone causes problems with emotional understanding, which may lead to more interpersonal problems. People who are more reliant on cell phones or other forms of media are more likely to conceal and cover up their emotions.

According to Zhang and Wu (2020), youths were found not only addicted to smartphones but also indicate some issues such as experiencing severe sleep and behavior disorders as a result of phone usage. Apart from this, past studies have found that mobile phone addiction not only indicate sleep problems, but also more procrastination (Lian et al., 2021). Addiction to smartphone is a serious problem. More attention on mobile phone among adolescents could impact their academic performance (Nayak, 2018; Cocoradă et al., 2018), which could have a significant impact on their professional growth. Hence, this study will determine the demographic factors on smartphone addiction.

### **Behavior Factors towards Smartphone Addiction**

#### **Loneliness and Smartphone Addiction**

One of the predictors of smartphone addiction is loneliness. There is one constant in many theories over the years, and that is humans are social animals. This indicates that people require social engagement, social interactions, communication, and other forms of social interaction on a daily basis in order to survive, and maintain a good lifestyle. Kara et al (2020) asserts it may be inferred if these demand declines, their quality of life will deteriorate. Loneliness is one factor contributing to the decline in social interaction.

There have few studies on finding association between excessive smartphone usage and psychological conditions such as loneliness. Based on Mahapatra (2019), 'loneliness' and 'self-regulation' as the main precursors for smartphone addiction, as well as family, personal problems, and poor academic performance as the major negative outcomes of its excessive use. Playing online games, taking videos and photos, browsing for information,

messaging friends and reading online books are all activities for lonely and shy people (Bian & Leung, 2015).

Basically, adolescents experience more loneliness than other ages, and the multifunctional smartphone becomes an effective tool for them to alleviate their loneliness (Tateno, *et al.*, 2019). It been identified loneliness strongly associated with contentious smartphone use among high school students (Akturk *et al.*, 2018) and other findings identified this connection between university students (Darcy *et al.*, 2015; Koc & Turan, 2021). Meanwhile, contradict statement from another findings revealed no link mediate loneliness and smartphone addiction on university students implying that more research is needed (Darcin *et al.*, 2016; Akturk *et al.*, 2018). Past study findings identified overuse of social network has been connected problematic issues such as health issues (depression), troubling to speak face-to-face, craving for a quick gratification, disregard of offline connections and loneliness (Kuss & Griffiths, 2017). In addition, Primack *et al.*, (2017) discovered people who are using social media upper percentile were likely to feel isolated and lonely. A large amount of prior research has shown that the higher the level of loneliness, the more likely youths will use smartphones (Kim *et al.*, 2017; Gao *et al.*, 2020).

Eventhough social network has been singled out, smartphone is a main tool that used to accessing on it (Haug *et al.*, 2015) and only a few research have looked into the association with both social network accessment and smartphone addiction. and social network accessment. Basically, social network use connected with loneliness. When people felt lonely, they will find space to fill their time and one of the way is through social networks. The greater they access on the social network would increase smartphone attachment. It is inline with Laurence, Busin, Lima and Macedo (2020) studies where problematic smartphone use linked with social media and loneliness.

Smartphone usage gives similar satisfaction as internet gives. Basically, with the internet support smartphones can install applicattions (Apps) like WhatsApp, WeChat and other social networking services rather than verbal communication. Those type of applications allow people connect to one another without meet physically. Loneliness is characterised as an inability to meet new people and a feeling of unease in social situations. Hence, lonely people preferred this kind of method to engage with other peoples. Furthermore, features of smartphone give accessibility to entertainment such as games or information searching via Internet browsing, assist timid persons in avoiding awkward feeling in public by submerging themselves in a digital or private mobile virtualized environment. Thus, people who are lonely could be more reliant on their devices, potentially leading to greather smartphone usage

**H1: There is positive correlation between loneliness and smartphone addiction among university students.**

### **Shyness and Smartphone Addiction**

People may want communicate socially with others, but fear, anxiety, and a lack of self-confidence prevent them to meet and communicate face-to-face (Chen, 2018). There is a lot reason which indicate shyness among individuals. Shyness creates a barrier to satisfactory communication, which can result in ineffective and stressfull connectivity, anxiety and loneliness (Tan *et al.*, 2016). It can have little effects such as discomfort or emotional distress,

but it can also have big consequences such as low self-esteem and the onset of depression or anxiety (Brakespear & Cachia, 2021). In the prior studies shyness has been associated to various issues as an example, inappropriate internet usage (Tian *et al.*, 2020) and mobile phones addiction (Han *et al.*, 2017; Bian & Leung, 2015).

According to past research, those with psychological and personality issues such as shyness, difficulties regulating emotions, impulsiveness and boredom proneness are most affected by problematic smartphone usage (Elhai *et al.*, 2018; Fu, *et al.*, 2020). This is because, smartphone and Internet usage gives a comfortable, private and remote environment for shy people. This demonstrates when communicating online or through social networking sites, there are options for marginalisation and anonymity, which is an enticing way of communication for shy people who may express themselves more openly. This is inline with Laghi *et al.*, (2013) studies where, shy people find alternative way to engage and communicate with people without affect their space and privacy. It is supported by past studies (Han *et al.*, 2016), that instead of face-to-face interactions, shy people prefer online interactions to reduce their emotional distress in situations involving personal encounters.

Internet on smartphones provides wide range of availability for shy peoples to choose and use it instead of interacting with others. They prefer to pass time with using smartphones when they are waiting for someone, riding a bus or line up in crowd (Chotpitayasunondh & Douglas, 2016). Hence, its shows the greater and satisfaction with smartphone usage to engage in social relationships most likely hooked to smartphone addiction. Several researchers (Bian & Leung, 2015; Han *et al.*, 2017) also come out with the finding that smartphone addiction and shyness have a significant and strong correlation.

**H2: There is positive correlation between shyness and smartphone addiction among university students.**

### **Smartphone Usage Pattern and Addiction**

In this globalization era everything is connected and technology taken humans nearer to machine learning, intelligent systems, and the digital phenomenon than ever before. With the technology development communication and networking have become increasingly important. greater advancement. Digital communication technology has had a significant impact on current societal connectivity, protection, stability, and economic and social coordination. However, prior studies revealed the use of smartphones among school and university students disrupts the academic performance and health problems.

Smartphone addiction is defined as a pattern of behaviour characterised by excessive usage of smartphones for the goal of obtaining relaxation, comfort, or excitement, which results in continual desires when the phone is out of range and sensation (Buctot *et al.*, 2018). Based on Durak (2019), there were identified the usage pattern of the smartphone associate with the addiction among the users. On the contrary, Panova and Carbonell (2018), argued duration of smartphone usage not be a good measure the addiction because when answering the survey, the participants does not mention what they are doing during that time.

Based on Kim *et al* (2018) smartphone usage such as average usage hours on weekdays, average usage hours on weekends might link with the smartphone addiction. When the

exposure is higher there have greater chances to addicted with smartphone. This is in line with Laurence et al (2020) studies that more free time will sink with smartphone addiction. Since, there have two contradict statements in this study will identify the duration of use per day and the addiction level among the university students and leads to third hypothesis.

**H3: There is positive correlation between usage of smartphone and smartphone addiction among university students.**

### **Stress and Smartphone Addiction**

In identifying smartphone addictions, nemorous study discovered that people are using digital devices and platforms such as smartphones and social media to handle stressful situations. (Jun & Choi, 2015). Internet addiction is a form of behavior characterized by increased or persistent online or offline internet use, as well as loss of self-control of over use. Based on the compensatory Internet use theory, varied reasons combined with psychological issues lead to undesirable Internet impacts such as online gaming and social networking. According to the theory, problematic Internet use is considered as a compensatory action with both positive and bad repercussions, rather than a compulsive or addictive behaviour. It would be the cause for smartphone use frequently to connect with the internet (Kim et al., 2018). Chronic non-specific arousal, tension, aggravation and hostility are connected with stress where dysphoria, lack of motivation and pessimism are associate with depression (Jovanović et al., 2019).

The concept in this theory can be used to investigate smartphone addiction or problematic smartphone use as well. There are terms such as utilitarian and hedonic (use) are used to characterise two different forms of smartphone usage. Smartphone use that serves daily tasks and necessities such as online banking, surfing the web, using location tracking, talking, and so on is referred to as utilitarian use. One the othe hand, hedonic meaning desire for rapid satisfaction motivates the usage of the smartphone. Activities such as watching movies, playing games, watching pornography, online shopping, unwinding, self-distracting from a stressful situation, and so on provide such satisfaction (Linnhoff & Smith, 2017). In fact perceived stress associated with smartphone addiction (Vahedi & Saiphoo, 2018; Sebastian et al., 2020; Zhai et al., 2020).

Smartphone addiction has long piqued the curiosity of psychologists who are looking for ways to forecast undesirable outcomes. One of the negative consequences was stress and anxiety. The casual of stress lead to over use of smartphone which indicate to the addiction. Depression is a general expression of psychological well-being that is regarded to be strongly linked to smartphone addiction (Alhassan et al., 2018). Psychological distress can have a detrimental impact on an individual's quality of life by affecting not only their psychological health but also their physical health (Geng et al., 2020).

Hence, in people depressive mood highly use smartphones to alleviate negative feelings may cause enhancement of smartphone overuse and social isolation (Kim et al., 2015). It also supported by Elhai et al (2017) that stress positively associated to smartphone use. Apperantly a substantial preponderance of facts indicates stress, anxiety, depression and internet addiction were linked to frequent smartphone use (Ben-Yehuda et al., 2016; Choi et al., 2015; Kim et al., 2015; Kim, et al., 2018). As a result, based on past research, it's possible to



conclude that people with high levels of stress feel driven to impose control over their environment, and smartphones give them the means to do so, such as directing their online conversations, affecting their characters in online games, and influencing the hours spent on every task. Those assumptions take us to final hypothesis for this study.

**H4: There is positive correlation between perceived stress and smartphone addiction among university students.**

### Methods

This paper involves primary data which data are collected through quantitative method. There were 400 youths from four public universities involved. The study's participants were undergraduate students from 4 public universities in Klang Valley. Appropriately, the researchers might be unable to collect data with the entire general public who do not meet the study's qualifying criteria.

There were employed multi-stage random sampling to identify the sample. In the first stage, multi-stage cluster random sampling was employed where all the six IPT in Klang Valley were listed. After listing the IPTA, four IPTAs were selected. After that, faculties are randomly selected from each of the IPTA and at the final stage of the sampling, a total of 100 students per faculty have been selected as the respondents, making the total number of 400 respondents (4 IPTA x 1 faculty x 100 respondents). The sample size for this study was determined by the G-Power. The G-Power analysis is based on the moderate effect size, alpha value = .005 and the magnitude of power between .90 - .95.

This research questionnaire is divided into six main sections. Section A indicates gender and age. Section B will measure about smartphone usage. This section consists of 11 items. Each statement was measured in the form of Likert Scale of 1 (very rarely), 2 (rarely), 3 (average), 4 (often) and 5 (very often). Third section consist of 20 items on loneliness. Those items were measured 1 (Never), 2 (Rarely), 3 (Sometimes) and 4 (often).

The fourth section based on 20 shyness items. The participants answered items on asking what degree of shyness 1 (Very uncharacteristic or untrue) to 5 (Very characteristic or true) on shyness and smartphone usage. Following with fifth section assessed participants perceived stress consist of 10 items. A four-point Likert scale, 1 (Never), 2 (Rarely), 3 (Sometimes) and 4 (often) were used to measure stress and smartphone addiction. Last section was smartphone usage addiction which consist of 10 items. The smartphone addiction been measured based on 5 scales namely 1 (Strongly disagree), 2 (Disagree), 3 (Somewhat agree), 4 (agree) and 5 (strongly agree). The data were collected from April 2018 to February 2019. In analysis finding, there were employed two statistics procedures namely descriptive statistics and inferential statistics.

### Results

The demographic of the respondents in this study were demonstrated into gender and age. There were used questionnaires to collect the data. The questionnaires dropped and collected later from the respondents. It been taken eleven months to collect the data which is from April 2018 to February 2019. This study included 400 participants from public universities, and the results of the respondents' socio-demographic profiles are presented in Figure 1. Finding

of the study indicated majority of the respondents were male (63.5%) and rest of the participant were female (34.5%).

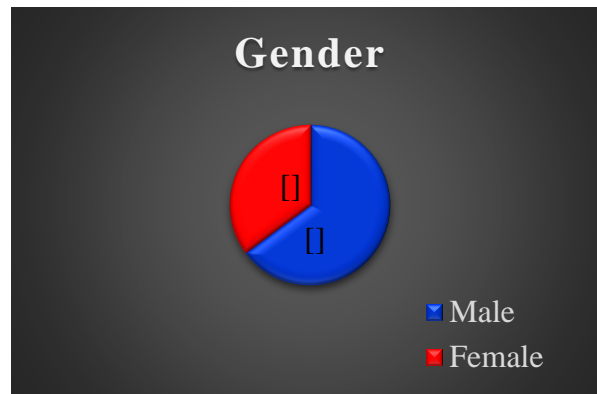


Figure 1. Diagram of the respondent's gender

On the other hand, Figure 2 indicates respondents age group. The age group of the respondents divided into two groups namely 20 years and below and 21 and older than that. The finding of the study shows more than half of the respondents were 21 years old and younger (66%) and 34% of the respondents were less than 20 years old.

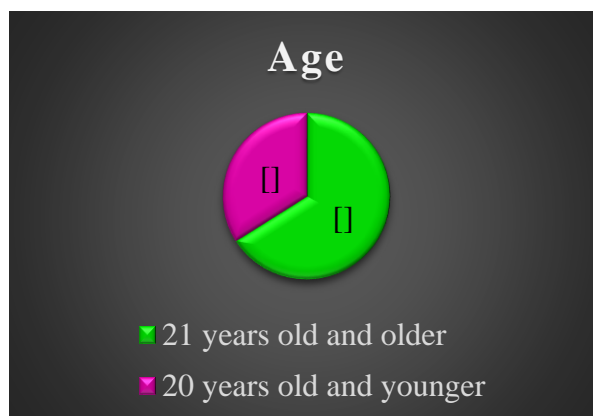


Figure 2. Diagram of the respondent's age

### Internet Usage Pattern

Youth's excessive internet and smartphone usage has become a serious social issue. The data in Table 1 presented majority of youths (28.2%) spent at least 13 hours per day on internet. Furthermore, the study's findings found that only 20% of youths spent 3 hours or less than that on internet.

Table 1

*Pattern of internet usage (n=400)*

Time spent on internet usage	Frequency	Percentage (%)
3 hours or less	80	20.0
4 -7 hours	100	25.0
8 – 12 hours	107	26.8
13 hours or more	113	28.2
Total	400	100

**Behavior Factors on Smartphone Addiction****Loneliness towards Smartphone Addiction**

The mean score and standard deviation to the extrovert statements are shown in Table 2. All these statements were developed based on previous literature. Each of statements was measured in the form of Likert Scale of 1 to 4. Scale 1 (never), Scale 2 (rarely), Scale 3 (sometimes) and Scale 4 (often). According to Table 2, more than half of the respondents (52.5%) had agreed that “they often feel part of a group of friends” (Mean = 3.36, SD = .786). This shows that youths are highly engage to their friends. They will frequently communicate with each other in the daily basis. Apart from that almost half of the respondents (48.55%) indicated “they are people they have to talk” (Mean = 3.33, SD = .763). The result demonstrate that the youths are have peers to share their opinions with one another and mainly use smartphones as a medium to communicate.

The least contributed item to measure extroverts among youths was “I am no longer close to anyone” (Mean = 1.56, SD = .782). The finding demonstrated that the majority (86.3%) of the youths have least agreed that they not close to anyone. These findings indicate that public university students have high interpersonal relations and they engage more to discuss about subject matters, activities and so on.

Table 2

*Distribution of Youths in Public Universities by Loneliness (n=400)*

Items	Percentage (%)				Mean	SD
	1	2	3	4		
1. I feel part of a group of friends.	2.8	10.8	33.8	52.5	3.36	.786
2. There are people I can talk to.	2.5	10.5	38.5	48.5	3.33	.763
3. I feel in tune with the people around me.	1.3	8.3	47.0	43.5	3.32	.679
4. There are people whom I can turn to.	1.8	12.5	39.3	46.3	3.30	.757
5. There are people I feel close to	3.3	12.0	37.5	47.3	3.28	.800
6. I am an outgoing person	4.3	12.0	38.8	45.0	3.24	.825
7. I can find companionship when I want it	4.5	14.5	39.0	42.0	3.18	.844
8. There are people who really understand me	6.0	18.0	33.5	42.5	3.12	.911
9. I do not feel alone	16.3	19.8	29.8	34.3	2.82	1.077
10. I have a lot in common with the people around me.	5.5	26.0	50.5	18.0	2.81	.790
11. I am unhappy being so withdrawn	12.3	23.0	39.8	25.0	2.77	.960
12. People are around me but not with me.	24.8	39.0	30.5	5.8	2.17	.868
13. My interests and ideas are not shared by those around me	26.5	37.5	29.0	7.0	2.16	.899
14. No one really knows me well	31.3	33.5	25.3	10.0	2.14	.973
15. There is no one I can turn to	39.0	32.5	24.8	3.8	1.93	.885
16. I lack of companionship	40.8	34.5	19.3	5.5	1.89	.900
17. I feel left out	40.0	36.5	20.0	3.5	1.87	.851
19. I feel isolated from others	48.3	33.3	16.0	2.5	1.72	.818
20. I am no longer close to anyone	59.8	26.5	11.5	2.3	1.56	.782
Overall					2.04	.305

Note: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often

SD = Standard Deviation

### Shyness towards Smartphone Addiction

The statements to measure respondents' shyness and smartphone addiction was developed based on past literature. Table 3 consist of 20 statements to discuss about shyness among youth who use smartphone.

The result in Table 3 revealed the percentage, mean and standard deviation for "shyness and smartphone addiction" among youth. The finding in the tabe showed majority of the respondents (57.8%) had agreed that "they do not find it difficult to ask other people for information" (Mean = 3.57, SD = 1.128). This showed that youths were more confident to

refer others to get the information needed for them. Hence, it will help to increase their self-esteem. Moreover, most youths (32.5 %) had agreed that they were neutral in “I am confident about my social skills” (Mean = 3.47, SD = 1.049). It is demonstrated that the respondents unprejudiced on their competence to facilitate interaction communication with others.

On the other hand, the least contributing item to measure shyness among youth is “Sometimes being introduced to new people makes me feel physically upset (for example, having an upset stomach, pounding heart, sweaty palms, or heat rash)” (Mean = 2.55, SD = 1.217). Based on Table 4, most youths (25.8%) generally agreed that some were neutral to the above statement. This shows that they are still hesitant to get to know with new people. They are not interested in getting to know or communicating with new people because of low self-esteem which indicate to higher stress. Therefore, stress will stimulate on smartphone addition where they will find this way to communicate with others that they familiar with.

In addition, the results in Table 3, indicated the youths’ shyness and smartphone addiction at higher level with overall mean value of 3.13 (SD = .507). It’s revealed almost all the youths’ have shown their higher shyness which triggers to the smartphone addiction.

Table 3

*Distribution of Youths in Public Universities by Shyness (n=400)*

Items	Percentage (%)					Mean	SD
	1	2	3	4	5		
1. I do not find it difficult to ask other people for information.	5.8	11.5	25.0	35.3	22.5	3.57	1.128
2. I am confident about my social skills.	3.3	14.5	32.5	31.5	18.3	3.47	1.049
3. It does not take me long to overcome my shyness in a new situation.	5.5	12.3	32.5	33.8	16.0	3.42	1.068
4. I feel nervous when speaking to someone in authority.	7.8	12.5	26.5	35.8	17.5	3.42	1.145
5. I often have doubts about whether other people like to be with me or not.	6.8	12.8	32.8	33.8	14.0	3.35	1.082
6. During conversations with new acquaintances, I worry about saying something dumb.	6.3	18.0	28.2	29.8	17.8	3.34	1.148
7. I do not find it hard to talk to strangers.	7.2	14.0	34.8	26.5	17.5	3.33	1.135
8. I feel tense when I am with people I don't know well.	6.3	13.5	38.8	27.3	14.2	3.29	1.068
9. I am usually a person who initiates conversation.	10.5	15.5	32.5	23.8	17.8	3.25	1.160
10. I am shy when meeting someone of the opposite gender.	5.5	26.0	50.5	18.0		3.22	1.214
11. I feel relaxed even in unfamiliar social situations.	7.2	18.5	38.3	22.5	13.5	3.16	1.102
12. It is hard for me to act natural when I am meeting new people.	12.5	17.0	34.5	23.8	12.3	3.06	1.181

13. I worry about how well I will get along with new acquaintances.	10.5	20.3	34.0	24.8	10.5	3.04	1.136
14. I feel painfully self-conscious when I am around strangers.	12.5	20.3	32.3	23.5	11.5	3.01	1.183
15. I am often uncomfortable at parties and other social gatherings.	10.3	23.0	34.8	21.3	10.8	2.99	1.133
16. I have trouble looking someone right in the eyes.	13.5	21.8	30.3	21.5	13.0	2.98	1.223
17. When I am in a group of people, I have trouble thinking of the right things to talk about.	14.5	22.8	33.5	19.8	9.5	2.87	1.171
18. I am socially somewhat awkward.	16.5	22.5	34.0	18.0	9.0	2.80	1.179
19. I feel inhibited in social situation.	21.0	27.5	31.0	15.5	5.0	2.56	1.131
20. Sometimes being introduced to new people make me feel physically upset (for example, having an upset stomach, pounding heart, sweaty palms, or heat rash).	25.0	25.3	25.8	17.8	6.3	2.55	1.217
Overall						3.13	.507

*Note.* 1 = Very uncharacteristic or untrue, 2 = Uncharacteristic, 3 = Neutral, 4 = Characteristic, 5 = Very characteristic or true.

SD = Standard Deviation.

### Smartphone Usage Pattern towards Smartphone Addiction

Table 4 illustrated the distribution of youths on smartphone usage. There are total of 11 items were used to measure the smartphone usage among the youth. Each of the items was measured in the form of Likert Scale of 1 (very rarely), 2 (rarely), 3 (sometimes), 4 (often) and 5 (very often). The results in the table below revealed majority of the respondents (93.1 %) used smartphone for “chatting” such as WhatsApp (Mean = 4.71, SD = .760). The features in WhatsApp such as text messages, audio messages, sending picture, video and files gets the positive acceptance from the users. It’s shows the respondents prefer to use smartphone to access application such as WhatApps to engage with others. One the other hand with the internet support in the smartphone most of the respondents (95 %) was use smartphone for browsing and find the information (Mean = 4.71, SD = .703). The findings indicated youths are prefer to use smartphone to find the information from wherever they are. Moreover, convenient size of the smartphone is easier for them to bring wherever they want to go.

Apart from this, there is least contributed item on smartphone usage among youth is on multimedia messaging service (MMS) which is only 10.8 % used this service on smartphone (Mean = 1.76, SD = 1.198). Since, smartphones having more advance apps the youths showing less interest on using MMS.

Table 4

*Distribution of Youths in Public Universities by Smartphone Usage (n=400)*

Items	Percentage (%)					Mean	SD
	1	2	3	4	5		
1. Chat (e.g. WhatsApp)	1.5	2.0	3.5	10.3	82.8	4.71	.760
2. Browsing the internet	1.8	0.3	3.0	15.8	79.3	4.71	.703
3. Social networking sites	1.5	0.8	6.0	15.0	76.8	4.65	.758
4. Taking pictures	2.8	4.5	18.3	32.8	41.8	4.06	1.013
5. Calls	6.5	11.0	25.5	27.8	29.3	3.62	1.197
6. Selfie	6.8	15.5	31.0	22.3	24.5	3.42	1.205
7. Games	14.2	16.0	21.8	21.5	26.5	3.30	1.386
8. Waze	13.5	21.5	30.3	23.5	11.3	2.98	1.201
9. Health records	20.3	25.3	32.5	15.0	7.0	2.63	1.167
10. SMS	32.3	29.3	23.3	9.0	6.3	2.28	1.184
11. MMS	62.0	17.3	10.0	4.0	6.8	1.76	1.198
Overall						3.46	.228

*Note.* 1 = Very rarely, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often  
SD = Standard Deviation.

**Perceived Stress towards Smartphone Addiction**

Result in Table 5 illustrates the percentages, means and standard deviations for all 10 measurements items of perceived stress and mobile phone addiction among youth. Based on the table, more than half of the youth (68.3%) had agreed that "How you able to regulate irritation in your life." (Mean = 2.88, SD = .849). This demonstrated that they are able to manage their stress levels in their daily lives. Furthermore, almost half of the youths (43.5%) mentioned they sometimes had the ability to solve problems with the statement "How often you felt confident in your capacity to deal with personal issues?" (Mean = 2.83, SD = .830). This significantly demonstrated that youth have the capability to manage their personal problems solely without relying on anyone. That is to say, youth understand that they cannot prolonged with problem and find ways to solve problems with the use of smartphones.

The lowest contributing item for measuring perceived stress and smartphone addiction among youths in public universities is "How many times have you felt as if your problems were stacking up so high that you couldn't handle them?" (Mean = 2.33, SD = .886). This shows that the majority of the youth (42.8%) agree that they very oftenly felt hard to curb the issues that faced. The results identified youth require some medium to rely on to reduce their stress such as smartphones attachment. More uses of smartphones would help to reduce stress among them. This shows that youth have the capability to reduce the stress by using the smartphones by contacting their peers whenever they need to. This is in line with Kong et al (2020) statements that social networks will reduce stress through anonymity, desynchronization and textual communication.

Table 5

*Distribution of Youths in Public Universities by Perceived Stress (n=400)*

Items	Percentage (%)				Mean	SD
	1	2	3	4		
1. How you able to regulate irritation in your life.	5.3	26.5	42.5	25.8	2.88	.849
2. How often you felt confident in your capacity to deal with personal issues?	4.8	29.5	43.5	22.3	2.83	.830
3. How many times have you had the impression that things were going your way?	5.5	30.0	49.0	15.5	2.74	.781
4. How often have you found that you couldn't keep up with everything you needed to do?	6.3	34.0	47.3	12.5	2.66	.775
5. When was the last time you felt apprehensive and "stressed"?	8.0	37.0	36.8	18.3	2.65	.873
6. How many times have you been disappointed because something strange happened?	9.0	39.3	37.3	14.5	2.57	.852
7. How many times have you found it very difficult over the crucial aspects of your life?	11.8	38.0	36.8	13.6	2.52	.875
8. How frequently have you felt in control of your life?	13.0	37.8	40.8	8.5	2.44	.823
9. How many times have you been enraged by circumstances beyond your power?	15.3	36.5	38.3	10.0	2.43	.867
10. How many times have you felt as if your problems were stacking up so high that you couldn't handle them?	18.5	38.8	33.3	9.5	2.33	.886
Overall					2.60	.456

Note. 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often.

SD = Standard Deviation.

### Relationship between behavior factors and smartphone addiction among youths

In this research the association between loneliness, shyness, usage, stress, and smartphone addiction among university students was investigated using Pearson product moment correlation. Based on previous studies, we come out four hypotheses. Table 6 indicated the finding of the correlation analysis.

According to the table there were found statistically significant between loneliness and smartphone ( $r= 0.20, p < 0.05$ ). Thus, fail to reject research hypothesis ( $H_1$ ). Loneliness and smartphone addiction have a positive and low correlation among young people. Followed with the second hypothesis, the finding in Table 5 shown, shyness among youths and smartphone addiction having very week associton. There was statistically significant



correlation ( $r = 0.19, p < 0.05$ ). Hence, this research hypothesis was accepted. Followed with smartphone usage and addiction among youths. Finding in Table 5 indicates usage pattern and smartphone addiction was statistically significant ( $r = 0.12, p < 0.05$ ). Therefore, the research hypothesis  $H_3$ , are accepted. The significant correlation was weak and positive. Perceived stress was identified as one of the indicator for smartphone addiction. It is proven with the finding of the study in the table below. There is a significance between stress and youth's smartphone addiction ( $r = 0.11, p < 0.05$ ). Research hypothesis ( $H_4$ ) of this study fail to reject. There was a weak and significant correlation between stress and smartphone addiction.

Table 6

*Relationship between behavior factors and smartphone addiction (n = 400)*

Behavior Factors	Smartphone Addiction	
	r	P
Loneliness	0.20	0.00
Shyness	0.19	0.00
Usage	0.12	0.00
Stress	0.11	0.00

## Discussion

Castellacci and Tveito (2018) asserted information and communication technology provides possibilities to enhance living standard from improvement in leisure use, availability of information searching and communication tool. However, most of studies finding have been indicated positive effects of the Internet on happiness are highly depends on social qualities and psychological functioning of a person. Hence, as Internet become more accessible, it is necessary to look into the serious hazard that these particular qualities may cause from problematic smartphone usage.

According to the correlation analysis it is identified all of the variables used in this study were correlated together in line with the study's hypothesis. The result revealed, smartphone have managed reduce the loneliness of youths in Klang Valley. This is in line with prior findings (Bian & Leung, 2015; Darcin *et al.*, 2015) that identified loneliness associated with problematic smartphone usage among students. Despite the fact that other studies have been identified no association between smartphone addiction and loneliness among university students (Akturk *et al.*, 2018) the finding of this study hypothesized that there is a correlation among loneliness and smartphone addiction., in the same direction as some previous research (Bian & Leung, 2015; Darcin *et al.*, 2015). Moreover, Bian and Leung (2015) indicate that lonely people use smartphones to battle with their melancholy, its prompting lonely people to use their smartphone excessively. Finding of their studies supports the results of this study.

In identifying behavior factors towards smartphone addiction, shyness was found fail to manage cravings, reduced performance and perceived stress. This shows shy type of individuals are more likely having those symptoms. This statement also supported by Kim and Koh (2018), who mentioned shyness is a significant predictor of smartphone addiction. The result construed the understanding the inconsistent relationship between shyness and smartphone addiction. Apparently, shyness has been linked to an increased level of

smartphone addiction. As we know the results show the main indicator of smartphone addiction is shyness. The results of this research demonstrated there have a substantial impact on both direct and indirect on smartphone addiction. Based on the past studies shyness correlated with mobile phones (Cha & Seo, 2018). Furthermore, these finding are consistent with previous finding where lower self-esteem such as shyness is linked to attachment instability (Kim & Koh, 2018). On the other hand, the higher degree of avoidance attachment would lead to the shy to meet people and anxiety which indicates a greater smartphone addiction. Youths with lower self-esteem specifically shyness would create more anxiety feeling and anxious increase one's fascination on smartphone addiction.

Based on this study, found that loneliness had a major impact on the negative consequences. It could indicate that lonely individuals who are more attached to smartphone, they might unconcerned on the negative impacts mainly for students on their academic performance and fail to be punctual for meetings and classes (Bian & Leung, 2015; Busch & McCarthy, 2021). Correspondingly, shy people are more likely unable to minimize their smartphone usage eventhough there have impact on the performance of the users and shy people become extremely worried and feels lost if unabling use their smartphones for an extended period of time.

Apart from psychological factors such as loneliness, shyness and stress on smartphone addiction, use of smartphone also a most influential factor towards smartphone addiction. Mainly, frequent use of smartphones for search information, video calls or messaging and entertainment seemed associated to problems including obsession and inability to regulate desires. Based o past studies it was proven, there have a correlation between the amount of time you spend on your phone and your addiction to it. (Kim et al., 2016; Lautence et al., 2020). Hence, it's implies that frequent usage might distract the users and would have feeling that they don't have time on smartphone usage. Thus, it's indicating smartphone using for entertainment function was correlated and link to stress and loneliness. This can be described by highlighting that using smartphone for enjoyment might divert people to engaged for fun seeking behaviors such as accessing social medias, online games can assist university students alleviate stress or loneliness (Bian & Leung, 2015). Consequently, smartphone use for entertainment purposes linked to a disregard for negative repercussions in a large way. This is because, with large scale of entertainment applications and functionalities available on smartphones, it is unavoidable for university students to be addicted regardless of negative consequences.

### **Conclusion**

The finding of the study indicated an association between loneliness, shyness, usage, perceived stress and smartphone addiction. Results indicated smartphones have managed to reduce the loneliness of youths and replacing family and social relationships face-to-face. Smartphone and Internet usage gives a comfortable, private and remote environment for shy people. People in depressive mood are more likely to use smartphone which lead to the smartphone addiction and social isolation. The greather addiction on the smartphone has a huge impact on users especially among the youths.

It is hope that this study will be valuable to educators and specifically youngsters who should be informed of the factors that contribute to smartphone addiction. Youths are expected to

be able to evaluate the implications obtained from overuse smartphone regularly. Thus, behaviour factors such as loneliness, shyness, usage, perceived stress and smartphone addiction, could give the guidance for the policy makers in constructing concrete strategies to minimize further buttress the smartphone usage among youth. This paper will give an information and guidance to help the youths set limitations on their smartphone attachment and other accessibility should be part of government preventative measures concentrating on attitudes. Attitudes are probably an important factor to impose usage and connectivity restrictions on smartphones among youths.

Apart from that, there had few limitations in this study which would be guidance for the future studies. In the future research can compare towards different group of respondents and widen range of geographical scope in identifying smartphone users behaviors and mental health issues. Also, can set the limitation on grade distribution among respondents to avoid biased result on smartphone addiction. This is because in the senior's, master's or PhD level student's smartphone usage pattern and addiction might be lesser compared to junior or undergraduate students.

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