RELATIONSHIP BETWEEN PROBLEMATIC SMARTPHONE USE AND PSYCHOLOGICAL DISTRESS AMONG UNIVERSITY STUDENTS: A CASE STUDY OF MOUNT KENYA UNIVERSITY, KIAMBU COUNTY.

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DECLARATION

This is my original work and has not been submitted to any other institution or University for academic credit.

Signature Hilder Date 9th November 2021

Jared Kemuma Hilder

C50/22713/2019

Supervisor's Approval

This project report has been presented for examination with my approval as the appointed supervisor.

Signature Date 9-11-2021

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DEDICATION

I dedicate this study to the University students who are caught up in using their phones excessively unaware of the problematic side of it. I hope this study will shed some light on that.

ACKNOWLEDGEMENT

I give gratitude to God for having blessed me with the capacity and the resilience to finish this project despite the challenges faced during the COVID-19 pandemic.

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ABBREVIATIONS

APA	American Psychological Association
DASS-21	Depression, Anxiety and Stress Scale-21 Items
GSMA	Global System for Mobile Communication Association
MKU	Mount Kenya University
PSU	Problematic Smartphone Use
PC	Personal Computer
SAS-SV	Smartphone Addiction Scale-Short Version
TAM	Technology Acceptance Model
WHO	World Health Organization

ABSTRACT

The purpose of this study was to establish the relationship between problematic smartphone use and psychological distress. The objectives of the study were to establish if there is a relationship between problematic smartphone use and psychological distress; to determine whether there are gender differences in relation to problematic phone usage; and to determine whether the socio- economic status of Mount Kenya University students is a factor as far as problematic smartphone use and psychological distress are concerned. This study had a total of 81 respondents. Convenience sampling was used to select the participants with descriptive correlational methodology adopted. On the level of problematic smartphone use 70.4% of the respondents had mild levels of problematic smartphone use and 17.3% had severe levels with a mean of 26.07 (SD = 5.54). In relation to gender, results indicated that there was no gender difference $t\ (79) = 0.510, p = 0.611$ in relation to problematic smartphone use. For relationship between problematic smartphone use and socio-economic, results showed no association between problematic smartphone use and socio-economic status, $X^2 = (80, 78) = 67.109$, $p = 0.85$. On the relationship between problematic relationship and psychological distress, statistical Pearson correlation coefficient indicated that there was positive correlation between problematic smartphone use and depression ($r = 0.57$, $p = 0.00$), a significant positive correlation between problematic smartphone use and anxiety ($r = 0.56$, $p = 0.00$), and a significant positive correlation between problematic smartphone use and stress ($r = 0.52$, $p = 0.00$). This study recommended that from time to time the universities should carry out workshops and training and sensitization to create awareness on the impact of problematic smartphone use and the association to psychological distress.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The universe has become a global village where people can easily reach each other very fast through the help of the internet connection. Access to internet via mobile phone has increased this connectivity and changed the means of social interaction. Previous studies have indicated that availability of internet devices such as smartphones has greatly transformed human thinking habits and also influenced individual's behavioral and psychosocial adaptation (Barr, Pennycook, Stolz, & Fugelsang, 2015; Yang, Zhou, Liu, & Fan, 2019).

The ease of access of the functionality of mobile phones has provided several conveniences and benefits to teenagers' daily lives. It has inspired not just social contact, but also operations such as cashless transactions, online financing, and online shopping and purchases. Despite the fact that smartphones have greatly eased transactions in life, its usage has also resulted to dependency on mobile phones.

Problematic smartphone usage (PSU) is described as excessive smartphone use that causes social, occupational or functional impairment, as well as dependency and symptoms of addictive disorders as withdrawal and tolerance (Billieux, Clayton et al., 2015). Previous research has found a link between problematic smartphone use and psychological distress. Among Malaysian medical students, Lei, Ismail, Mohammad, and Yusoff (2020) discovered a link between problematic social media use and psychological distress. In a similar study, Chen et al. (2020) discovered a link between a problematic smartphone use and psychological

distress among 400 Chinese students. Other challenges connected to problematic smartphone use include: poor interpersonal relationship with family and friends, and fatal injuries from accidents (Hawi & Samaha, 2017; Kim, & Min, 2017; Upperman et al., 2014; Wang et al., 2017). Psychological distress is described as emotional problems or difficulties that affect a person's mental health and ability to operate normally (Chu & Lee, 2019; Kessler et al., 2002). A study led by Beaulieu-Prevost (2012) argued that psychological distress comprises of symptoms ranging from depression and general anxiety symptoms to personality traits, functional disabilities and behavioral problems.

According to Pew Research Center (2015) 46% of US citizens accepted that they could not spend their lives comfortably without their phones. In Britain, a report indicated that about a quarter of youths have developed dependencies on their phones, when the phone is taken away they develop anxiety or get upset (Coughlan, 2019).

China had almost 912 million smartphone users in 2021, which is higher than any other country on the planet. With around 440 million mobile users, India is the second, followed by the United States with 270 million users (O'Dea, 2021). In the United States, 81% of the Americans own a smartphone and 96% them are individuals between 18 and 29 years old (Taylor & Silver, 2019). The same age group is found in most of the countries around the world to own smartphone.

In Africa, smartphone penetration is estimated to be around 456 million users (Global Systems for Mobile Communications Association, 2019). South Africa is considered to be the leading country in smartphone use with about 91% ownership, followed by Ghana with 80% and

Senegal closing in third position. Within the East African countries, Tanzania has mobile ownership of about 75%.

In Kenya about 49.5 million adults by 2018 were subscribed to mobile network (Statista, 2020) with 41% of adults reported having owned a smartphone while 45% own other cellphones (Taylor & Silver, 2019). Additionally, the Kenyan government under the Ministry of Health (2018) showed that about 25% to 40% of individuals seeking mental health services in health facilities have symptoms of mental illness mostly depression and anxiety, whilst the prevalence of common mental illness stands at 10.3% nationwide.

1.2 Statement of the problem

Previous studies have indicated a significant positive relationship between problematic smartphone use and psychological distress (Chen et al., 2020; Lei, et al., 2020). However, most of these empirical literatures are from Western countries. It is clear that majority of individuals owning smartphones are young people between 18-35 years old. In higher learning institutions, cases of students using their smartphones in classes have been observed and in Mount Kenya University there have been high levels of social withdrawal as smartphone users want time to use their phones and would rather connect through social media than socially interacting in physical settings. Also it has been noted that students even use their phones during exams which affects their examination results as they depend on Google for the answers. This has in turn led to students getting suspended or expelled from the University for cheating in exams. A school in Nakuru, Kenya, students are allegedly claimed to have attacked a teacher for confiscating a phone from them. This led to an outcry as many pointed at how smartphone overuse has broken social order. Young adults are accustomed to continually checking their

phones and even a single day without access to them can trigger anxiety. Problematic smartphone use can also be associated with cyberbullying, sexting and other forms of maladaptive behavior. However little is known about the connection between smartphone overuse and the psychological conditions of the students. Previous research has found that some people who are experiencing psychological distress seek strategies to cope with their negative feelings by exploring ways to self-soothe, such as interacting on mobile phones as a temporary solution (Park et al., 2014). The continuous interaction results to problematic smartphone use and eventually issues of psychological distress such as depression, anxiety, and stress severity which positively predict mobile phone addiction.

1.3 Purpose of the study

The purpose of this study was to establish whether there is a relationship between problematic smartphone use and psychological distress among university students.

1.4 Objectives of the study

The objectives of the study were to;

- Establish whether there is a relationship between problematic smartphone use and psychological distress among Mount Kenya University students.
- Determine whether there are gender differences in relation to problematic phone usage among Mount Kenya University students.
- Determine whether the socio- economic status of Mount Kenya University students is a factor in relation to problematic smartphone use and psychological distress.

1.5 Research questions

The research questions included;

- Is there a relationship between problematic smartphone use and psychological distress among Mount Kenya University students?
- Are there gender differences in relation to problematic phone use among Mount Kenya University students?
- Is there a relationship between problematic smartphone use and the socio-economic status of Mount Kenya university students?

1.6 Research Hypotheses

The study was conducted test the following hypothesis;

- **Ho**: There is no relationship between problematic smartphone use and psychological distresses among Mount Kenya University students.

1.7 Justification of the study

Despite the influence and wide use of smartphones by students in higher learning institutions, problematic smartphone usage and its relationship to psychological distress is still understudied in Kenya. Such studies have been majorly done in Western Countries. It is in this light that this study was undertaken to establish if there is a relationship between problematic smartphone use and psychological distress.

1.8 Significance of the study

The primary beneficiaries of the findings of this study will be the Mount Kenya University students. Students in other higher institutions of learning, university administrations and

practicing counselors will also benefit from the findings of the study. The study findings will create awareness on problematic smartphone use and its impact on the psychological, physical, and academic life of students. Through creating awareness, universities through various departments will be able to adopt some of the findings and assist students overcome psychological distress that might be related to problematic smartphone use. Additionally, the study will help academicians in learning institutions in developing curriculum for studies in psychology and other related fields of study that will incorporate responsible smartphone use.

Other individuals such as the mental health practitioners, social workers, advocacy individuals and helpers could use the findings of this study to carry out their work. This study can be considered as a reference material for future scholars working in the same field of study. Moreover, the work adds up to the stock of knowledge in the academia.

1.9 Limitations and delimitations of the study

The major limitation to this study that was foreseen and experienced during the study period is the impact of Covid-19 restrictions such as limited physical contact in reaching the targeted participants. Hence the researcher opted to administer questionnaires online.

1.10 Scope of the study

This study was descriptive in nature, it targeted young students ranging from 18 to 24 years old within the Mt. Kenya University main campus in Thika town, Kiambu County. The study considered both gender as one of the inclusion criteria. Moreover, within the university, the study in particular targeted students from Faculty of Arts and Social Sciences. Using questionnaires, the research assessed the relationship between problematic smartphone use and

psychological distress. The constructs of psychological distress that were measured include depression, anxiety and stress. The questionnaire also had self-administered items developed by the researcher to collect demographic information which covered gender differences, socio-economic status and age which were the intervening variables of the study.

1.11 Assumptions of the study

The student would have been in possession of a smartphone for at least six months. In addition, the study assumed that the respondents were willing to participate in the study and that during data collection, they provided truthful information.

1.12 Definition of terms

In this study, the following terms were defined as follows;

Addiction: An addiction is defined as a dependency or continuous use of something to derive some sort of relief, comfort, or stimulation (Ghosh, Sarkar & Dalai (2021).

Anxiety: The response to situations perceived as stressful or threatening, triggering increased alertness, anxiety, and physical signs, such as rapid heart rate (Dekker, 2002).

Depression: Is a psychological disorder that adversely affects the feelings of an individual, their thought process, and their behavior which can lead to loss of interest in participating in activities they once took pleasure in and even unhappiness (Agbohoui, 1994).

Problematic Smartphone use: Is the excessive smartphone usage that causes social, occupational or impairment, as well as dependence and symptoms of addictive disorders

including withdrawal and tolerance (Billieux, Maurage, Lopez-Fernandez, Kuss and Griffiths, 2015; Clayton et al., 2015).

Psychological distress: Psychological distress refers to the emotional and psychological difficulties that affect an individual's mental health and functioning; (Chu & Lee, 2019; Kessler, 2002). In this study, the term referred to emotional and psychological difficulties such as depression and anxiety.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the review of literature on the problematic smartphone use and psychological distress in relation to the objectives of the study. This was derived from scholarly journals, articles and books. Other materials were derived from government reports, multi-national organizations and international agencies such as World Health Organization and American Psychological Association. The chapter also covered the theoretical framework and conceptual framework in relation to the objectives of the study.

2.2 Relationship between Problematic smartphone use and Psychological Distress

Smartphones are equipped with traditional features such as Short Messaging technology, mobile applications, and calls. Other internet-enabled mobile applications help in facilitating interactions such as gaming, attending meetings online, shopping; things that make a Smartphone a substantial tool because it helps people to perform their daily life practices efficiently and effectively. Also, Smartphone technology is more widespread because people can enjoy their real-life experiences in the virtual space (Kaya & Kaya, 2020).

Deloitte and Global Mobile Consumer Service (2019) in a survey focusing on smartphone consumer trends and behaviors with data from 1000 respondents from Kenya indicated that young adults accustomed to continually checking their phones would be anxious if they spent even a single day without access. Smartphone addiction and obsession is a topical issue and

this study suggested that older smartphone users be aware and guide the younger one out of the obsession however much it seems to be on an unstoppable rise.

A study done by Ongek and Veronicah (2020) indicated that smartphone use among students in Kenyan universities was associated with mental health risks and that unless university students are disciplined there is a high likelihood of suffering addiction. This study indicated signs like restlessness and anxiety, waking up abruptly at odd hours in the night to check for updates, delay in professional performance and constantly checking their phones for no apparent reason. All these signs and behaviors if not brought under check would affect students in work efficacy, being a social nuisance, psychological addiction, cognitive malfunctions and even induced phone dependency.

According to Ghosh, Sarkar, Dalai & Ghosal (2021), an addiction is defined as a dependency or continuous use of something to derive some sort of relief, comfort, or stimulation. Addiction is categorized into drug and substance addiction and behavioral addiction. In respect to the subject of this study, the latter category describes behavioral patterns in learning institutions in as far as smartphone use is concerned.

According to Ghosh et al. (2021), students are more susceptible to the adverse effects of smartphone addiction. In a study conducted concerning smartphone addiction and its effect, uncontrolled and rampant late-night smartphone usage among the students has turned out to be a crisis with dire consequences. Also the study established that 80% of students with the majority being teenagers, use smartphones continuously to access social media as opposed to making calls alone. However, 73% of the users agree that over usage can result in some

conditions such as anxiety. Additionally, 70% of the students continuously cycle or go through 3 to 5 applications they have installed on their phones.

A cross-sectional study by Matar Boumosleh and Jaalouk (2017) concerning depression, anxiety, and smartphone addiction among university students established that university students of the mean age of 26 years revealed six addictive symptoms including withdrawal, positive anticipation, daily life disturbances, smartphone overuse, cyberspace oriented relationships and tolerance.

A study by Kaya and Kaya (2020) established that 94% of students in the West and specifically the developed economies and 83% of adults in developing countries possess mobile phones. Additionally, the study established that in 2019, 98.7% of households in Turkey used smartphones daily. However, the intensive use of the gadget has its side effects including affecting interpersonal communication, general human happiness, and human health. Overuse or addiction or problematic use of smartphones implies danger in traffic, attention diversion, and withdrawal among others. In other words, Kaya and Kaya (2020), Ghosh et al. (2021), Matar Boumosleh & Jaalouk (2017) in their studies agree that components of smartphone addiction include tolerance and withdrawal. Kaya and Kaya (2020) established that different variables determine the addiction levels. For example, the students in the faculty of theology exhibited low addiction levels compared to those in other faculties. Theology students have lower risks associated with addiction, however, the students with gaming skills and with the ability to use the social sites are at higher risk of suffering the effects of problematic smartphone use. Moreover, the fear of not having a functional mobile phone(nomophobia) was found to be moderate among the theology students. The study further established that

nomophobia shared similar characteristics with other psychosocial abnormalities such as behavioral disorders, anxiety, and mood alterations.

According to a study by Mohamed and Moustafa (2021), the increasing range of activities that can be carried out with smartphones suggests higher possibilities of addiction. In their study, the duo established that a great number of medical students at Suez Canal University were addicted to their mobile phones in fact, 75% of them admitted addiction to smartphones and only 25% were not addicted. Comparatively, a study by Sahin, Ozdemir, Unsal & Temiz (2013) suggested that mobile phone usage by female students is heavily tied to communication compared to the male students who use mobile phones for entertainment such as for watching movies and gaming.

According to Lei, Ismail, Mohammad, and Yusoff (2020), there is a link between problematic smartphone use and psychological distress. Problematic smartphone usage was shown to be significantly associated to depression (r =0.277), anxiety (r = 0.312), and stress (r =0.33) on the psychological subscales, with a p value of 0.01. The study included 547 graduate practitioners from a Malaysian public medical school. Chen et al. (2020) found that the rise of generalized troublesome usage was substantially linked with the growth of depressive symptoms (0.51; P 0.01) in an online survey of 400 Chinese undergraduates.

Alhassan et al., (2018) found a positive link between problematic smartphone use and depression among 935 people in a cross-sectional research in Saudi Arabia using Beck's depression assessment and SAS-SV. Furthermore, the findings of a research of 319 university students to determine the association between smartphone usage severity and sleep quality,

sadness, and anxiety revealed that there was a gender difference in smartphone addiction, with females substantially higher than men (Demirci, Akgonul, & Akpinar, 2015). The study also discovered a link between social media addiction and despair, anxiety, and sleep quality. In a research of 755 students, Lee et al. (2014) discovered a link involving Facebook addiction and high level of stress, such as perfectionism behavior and aggressiveness.

Psychological distress can be defined in terms of psychological or mental disorders which include anxiety, functional disabilities, depression, and stress, among others (Drapeau, Marchand, & Beaulieu-Prevost, 2012). According to a recent research, around 50%, 40%, and 50% of students of the university in Italy, the United Kingdom, and Spain, accordingly, experience emotional distress (Arias-de la Torre et al (2019). In Irish Deasy et al. (2014) indicated that about 41.9% of university students suffered from psychological distress. This study was carried among 1557 university students in Ireland. Academic achievement issues, financial troubles, concerns about general health, and abuse or maltreatment have all been identified as risk factors for psychological distress among students in previous research (Borst, Frings-Dresen, & Sluiter, 2016; Cook et al., 2014).

In relation to the mental health issues, WHO (2020) indicated that about 4.4% of the global population have depression. Depression is described as a mental condition marked by feelings of melancholy, emptiness or irritation, as well as physical and cognitive changes that have a major impact on an individual's ability to function. The following are the criteria for depression, according to the American Psychological Association (APA) (2013).

- Depressed state or decreased interest in the reported period, followed by considerable diet and physical activity, difficulty sleeping as in almost every day, extreme fatigue, hopelessness or due to uncontrolled guilt, depleted ability to think but rather focus solely, or repetitive intrusive thoughts.
- Clinical suffering, social or vocational impairment are present.
- The incident isn't linked to a particular chemical physiological functions or even another serious illness. Multiple studies have found that disturbed neuroplasticity, function of the central axis aberrations, emotional upset, infection, impaired adaptability, reduced levels of neurochemicals, and reuptake inhibition toxicity can all worsen the symptoms.

On the anxiety, about 35.8% of 928 students from Turkey were found to have mild and moderate levels of anxiety (Ediz et al., 2017). Among 676 students from Kosovo the prevalence rate was 33.6% and among 1940 Serbian university students in Romania (Kamberi et al., 2019; Simić-Vukomanović et al., 2016) similar results were obtained. A study carried out in Ethiopia showed that students who had mild anxiety were 6.3%, 19.1% moderate, and 15.1% severe and 8% very severe levels respectively (Damota et al., 2019).

A study by Folusho and Olatunde (2020) in Nigeria to study access and phone usage among varsity young persons showed that smartphone addiction and use among young people is similar to substance addiction and that continuous use led to neglecting important activities, continued use and physical and psychological consequences. This study also pointed out that problematic smartphone use should be taken seriously as multiple pathologies may unnoticeably occur concurrently as it can also affect learning and social interactions. Also

problematic smartphone use affected hours of sleep and few hours without their smartphone led to increased levels of anxiety, frustration and other problems including stress.

2.3 Gender differences in relation to problematic phone usage

In terms of gender differences, female students registered higher addictions than their male counterparts and others claiming that males were highly addicted than females. In other words, no significant gender difference was established. Higher addiction levels for the males according to Kaya and Kaya (2020) is because male students spend more of their time using smartphones than female students and they have various intentions for the usage.

Also Kaya and Kaya (2020) established that accessing the internet for research purposes as a variable does not alter addiction levels. However, communication and sharing posts have a significant change in behavioral addiction. In other words, students whether male or female, sharing posts such as memes, or those communicating via the internet have higher addiction levels than those using smartphones to carry out academic research.

Kaya and Kaya (2020) also argued that consumers of social media (specifically the students) via smartphones are the potential victims of addiction. In terms of smartphone ownership in relation to gender across the globe indicate that in Japan 69% men and 63% women have smartphones, 63% of men against 57% women in Brazil, while India had 15% men and 34% women. India had shown a huge difference in smartphone ownership among gender with women being higher than male (Taylor & Silver, 2019). In Africa, gender differences have been witnessed in many countries however, the differences in ownership might not be that huge. For example, South Africa had 61% males against 59% females, Nigeria had 47% males

against 31% females and in Kenya and 47% of males had smartphone against 36% females (Taylor & Silver, 2019).

Most of the empirical studies have shown different results in relation to smartphone addiction. In a cross sectional study carried out in University of Cape town South Africa, North established that smartphone addiction was more on female students than male students (North, Johnston, & Ophoff, 2014). The study involved a total of 362 students from the university. Using population survey to collect data on 7694 high school student age 16-17 years old, the study showed that there was gender difference in smartphone addiction where female students had higher levels of addiction than males (Tangmunkongvorakul et al., 2020). The study used the Young Diagnostic Questionnaire for internet addiction.

Demirci, Akgonul, & Akpinar, (2015) carried out a study that showed significant gender differences among 100 engineering students from India using a self-developed questionnaire. The study established that there was gender difference in smartphone addiction with male students between the ages of 18-22years old showing higher addiction than female students. Also, in a study among 319 university students to establish relationship of smartphone use severity with sleep quality, depression, and anxiety, the results showed that there was gender difference in smartphone addiction with females being significantly affected in higher levels than males. The study also showed that there was significant positive correlation between smartphone addiction and depression, anxiety and sleep quality.

In terms of usability of smartphones, studies have indicated that there were gender differences in relation how males and females use their phones. A study established that female students

used their smartphone to make calls and texting at night in order to establish and maintain relationships (Taiwan, Chiu, Hong, & Chiu, 2013). On the contrary male students had interest in applications that were concerned with sports, games, weather, and gambling. Another study showed a different result indicating that males were more inclined to communicating with their phones through texting and calling while females were more inclined to social networking applications such as Facebook and Instagram to upload pictures or share their lives online and engage in emotional conversations via the apps. In addition, North *et al*. (2014) noted that despite males showing less mobile phone addiction, they exhibited dangerous behaviors like using mobile phones such as talking on a phone while driving.

In Nigeria a study conducted by Folusho et al., (2020) showed that the males used their phones more than the females because of the extra time at their disposal unlike their female counterparts who culturally had to attend to house chores aside from the demands of their academics and social relationships.

2.4 Problematic Smartphone Use and Socio-economic Status

In every society, there are different individuals where some are better off and others are worse off. This is in relation to people's economic capabilities. Those people considered to be economically endowed or better off are more likely to have more material resources as well as non-material assets, such as education, job status, and neighborhood quality. It's the reverse for people who are not economically endowed. One is categorized as an economically endowed person in situations when one has a decent education, a greater income, nicer surroundings, and more prominent occupations.

According to Lawson et al. (2017) socioeconomic status can considered as the measure of a person, household or region's economic and social position in relation to others. It could be considered as being from high, middle or low class status of the society. Previous studies have defined socioeconomic status as the social standing or class of an individual or group which is often measured as a combination of education, income and occupation (Baker, 2014; Manstead, 2018). In the United Kingdom, O'Dea (2021) argued that the increase of smartphone usage across socioeconomic status has gone up considerably form 2012. He reported that individuals from second class income households had experienced growth from 55% smartphone usage in 2012 to 90% in 2020 however; the first class income individuals had the highest growth of up to 96% of usage.

Thomas, Heinrich, Kuhnlein and Randon (2010) in their study with 1481 children and 1505 adolescents in Germany, established that teens from low socioeconomic status were more likely to own a mobile phone and use for longer hours per day than teens or adolescents from higher socio-economic status. The study further showed that there was no association between socio-economic status and the mobile phone use. Rahmati et al. (2012) in their quasi-experimental study to understand to the influence of socioeconomic differences on smartphone adaption, usage and usability in US, they established that socioeconomic status had an impact on the smartphone usage. Individuals from low socioeconomic status spent more time on phone and more money in application. However, using a one-way ANOVA, results indicated that there was no significant difference in the smartphone usage with between the low ($M = 80.76$, $SD = 10.97$ and high ($M = 80.01$, $SD = 11.98$) socio-economic status.

In Kenya, according to an extensive study done by InfoDeV (2015) 60% of the population in Kenya living on less than $2.50 a day own a smartphone and people even in extreme poverty skip a meal in order to have credit on their phones. The Communications Authority of Kenya, (2014) established that mobile phone penetration in Kenya was 79.2% and almost 50% of Kenyan population use internet. From this study therefore it really doesn't matter where a person comes from because evidently both rich and poor alike go extra miles to use internet through their smartphones.

Deloitte and Global Mobile Consumer Service (2019) in a survey focusing on smartphone consumer trends and behaviors with data from 1000 respondents from Kenya indicated that people aged between 16-30 years old would for-go other needs in order for them to have internet connection. They felt the need to be subscribed to online services and this didn't change even for the poor people. In fact, one would even go an extra mile of getting subscription on credit terms. This study indicated that as of May 2019 credit holders had gone up by 33000 users from 2018 as most Kenyan youth would rather have subscription to internet on credit.

2.5 Theoretical framework

The researcher used the Technology Acceptance Model. The researcher relates the principle of the model that was used to the current study to formulate the framework of the study.

2.5.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was proposed by Davis (1989). Davis postulated that an individual's attitude towards certain technological devices, information system in this case and its usage is influenced by two aspects which are; the perceived utility and the perceived ease of usage. The degree to which a person feels that utilizing the system will involve minimum effort is referred to as perceived ease of use. Perceived utility, on the other hand, is the degree to which the information system improves work performance. The individual's attitude toward using the system, as well as the behavioral intention or likelihood of using the technology, are additional components in this model.

Therefore, it could be argued that perceived ease of use and the perceived usefulness could lead towards a person's attitude towards adapting certain technology. In relation to problematic smartphone use, an individual can constantly use or over-use a new technology such as an application, social media site in a smartphone when they perceive it to be easy to use. This would be increased when the user perceives the technology system to be free of effort (Nair & Das, 2011). The ease of job performance such quick connectivity, ease of sending and receiving information at any location via smartphone enhances the aspect of perceived usefulness. When the technology or smartphone is used in moderation it is very profitable to a person. However constant use or over reliance on the phone results to dependency where one

cannot function properly without having that type of technology or the phone. Over-use of technology out of its ease of use and job performance result to psychological distress especially when the technology breaks down or is out of reach. An individual can become depressed or stressed when his/her phone is not working or out of reach. The depression, stress or anxiety may increase when the ease of use and ease of performance of the technology is not available. Finally, an individual develops a positive attitude towards the technology and such positive attitude may lead to constant usage of the technology which may result to problematic usage.

2.6 Conceptual Framework

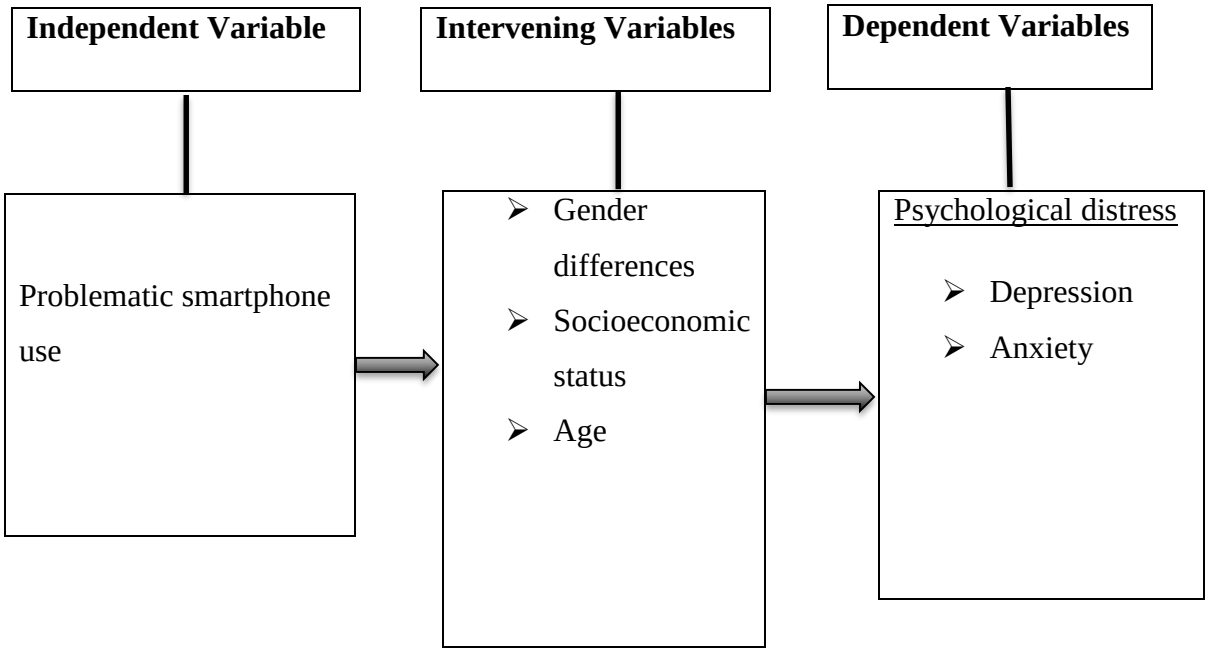

Figure 2.1 Conceptual Framework

The conceptual framework of the study considered the relevant variables within the study and it was presented as shown above. The study was aimed at determining the relationship between Problematic smartphone use, the independent variable of the study and the psychological distress, the dependent variable of the study as shown above. Special focus should be put on problematic smartphone use as one of the aspects influencing psychological distress because its apparent that problematic smartphone use greatly contributes to psychological distress These variables are intertwined by intervening variables which are; gender differences, age, socio-economic status.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights data collection, processing and analyzing methods that were employed in carrying out this study. These procedures are detailed under the subheadings; research design, population and sampling design, data collection, data analysis, validity and reliability and ethical issues.

3.2 Research design

This study considered the use of correlational design as a research method in order to comprehend the association between variables and to estimate the extent to which problematic smartphone use influences psychological distress.

3.3 Location of the Study

This research was conducted within the Main campus of Mount Kenya University. In particular, this study focused on students within the school of Social Sciences.

Mount Kenya University is a private university located at Thika town in Kiambu County Kenya.

3.4 Target Population

According to the Mount Kenya University Department of the Registry, the designated segment is expected to include roughly 400 students. The study targeted around 100 participants who were students aged between 18 and 24 years old. Similarly, previous studies have indicated that high usage of smartphones is prevalent in such a bracket (Statista, 2020; Taylor & Silver,

2019). It was therefore important to target students both male and female from the Faculty of Arts and Social Sciences from the university.

3.5 Sampling Procedure

The study used a convenience sampling technique to sample its participants. Convenience sampling is a nonprobability sampling technique that greatly depends on the data drawn from a population that is easily accessible to the researcher (Gravetter & Forzaro, 2012). This implied that any student in the school of Social Sciences who had enrolled for studies in the second semester of 2021 was legible to participate in the study.

3.6 Sample size

The researcher targeted a sample of 100 participants. To obtain the sample size, this research used Cochran formula to calculate the sample size.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where:

e is the desired level of precision (i.e. the margin of error),

p is the (estimated) proportion of the population which has the attribute in question,

q is 1 – p.

z is the Z score value

So p = 10% Now let's say we want 95% confidence, and at least 5 percent—plus or minus precision. A 95% confidence level gives us Z values of 1.96.

So then we= $(1.96)^2$ (0.1) $(0.9)/0.05^2$ =138

However, because the population was small, we modified the Cochran formula to

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

n_o is Cochran's sample size recommendation,

N is the population size,

n is the new, adjusted sample size.

We get: (138)/ [(138-1)/400) +1] = 102

Therefore, the sample size for this study was 102 participants.

3.7 Data Collection Instruments

To collect data on problematic smartphone usage, the Smartphone Addiction Scale – Short Version [SAS-SV] (Kwon, Lee, et al., 2013) was employed. The SAS-SV is a 10-item variant of the Smartphone Addiction Scale. The SAS-SV has ten items, each on a Likert scale of 1 (strongly disagree) to 4 (strongly agree). The total SAS-SV score (range: 10–40) is derived from the scoring of these items, with a higher score suggesting PSU. A score less than 10 shows no problem with PSU, a score between 11-20 indicate low levels of PSU, between 21-30 score indicate moderate levels and a score between 31-40 shows high levels of PSU.

The Depression, Anxiety and Stress Scale - 21 Items [DASS-21] by Lovibond and Lovibond (1995) was developed for psychological distress. The study instrument consists of 21 items separated into 7 subscales that measure depression, anxiety, and stress separately. The instrument is assessed on a Likert scale of 0 to 3, with 0 meaning "did not apply to me at all,"

1 meaning "applied to me to some extent," 2 meaning "applied to me to a significant extent," and 3 meaning "applied to me very lot." The DASS-21 is multiplied by 2 to get the final score, and the interpretation of the result is presented in table 3.1.

Table 3.1 Depression, Anxiety and Stress Scale-21

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Self-administered items were developed by the researcher to collect demographic information. In this study there was gender, age and socio-economic status and level of education.

3.7.1 Validity of the Instruments

The questionnaire items were piloted at Mount Kenya University among 20 students from the School of Medicine to determine relevant and irrelevant items, ensuring that the results from the pilot were also found in the main research and that the items were from previously used instruments with recognized validity.

3.7.2 Reliability of the Instruments

Previous studies have indicated that smartphone addiction scale has a good reliability with a Cronbach's alpha of 0.844 (Hawi and Samaha, 2017; Lopez-Fernandez, 2017) determined a Cronbach's alpha of 0.92 for the DASS-21 Portuguese version and 0.89 for the Spanish version for the DASS-21. A study done in Nigeria by Folusho et al., (2020) established a Cronbach's alpha of 0.88. After the pre-testing of the instrument, the study established a Cronbach of 0.89 for the SAS-SV and 0.90 for the DASS-21 questionnaires.

3.8 Pilot Study

In order to gather data for the study, the researcher conducted a pre-testing of the research instrument to ensure its validity and reliability. The pre-testing took place in Mount Kenya University School of Medicine. The pre-testing targeted a total of 20 participants who were not part of the actual study. A pre-test is done, according to Cooper and Schindler (2011), to discover weaknesses in the architecture, instrumentation, and replacement data for likelihood sample collecting.

3.9 Administration of the Instrument

The researcher received a preliminary letter from the Department of Psychology at the University of Nairobi. Authorization to conduct the research was sought from the National Commission for Science, Technology, and Innovation (NACOSTI). In consideration of the pandemic restrictions, the researcher opted for online administration of the research instrument. Therefore, the research questionnaires were uploaded on Google forms and authorization was sought from course instructors to share the questionnaire link to students via

the Mount Kenya student's class online groups and social media accounts. The links were also privately shared to individual students via their social media handles such as Facebook, WhatsApp, Twitter, and emails. The participants filled in the questionnaires and submitted them online.

3.10 Data analysis

The raw data was double-checked for quality and completeness. Errors and omissions were checked during the editing process. The data collected from the questionnaire was entered into SPSS version 25 for data cleaning and analysis.

For the first objective, to determine the correlation between problematic smartphone use and psychological distress, Pearson's correlation coefficient was used. The following Pearson formula was used to determine the correlation (r).

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[\, n\Sigma x^2 - (\Sigma x)^2 \,][\, n\Sigma y^2 - (\Sigma y)^2 \,]}}$$

To explain the levels of psychological distress descriptive statistics was employed whereby measures of central tendencies such as mean and measures of dispersion such as standard deviation was developed. For the second objective, statistical T-test was used to determine the gender differences in relation to problematic smartphone use. For the third objective which is to determine if socioeconomic status is a factor in the relationship between problematic smartphone use and psychological distress, a chi-square was used.

3.11 Ethical Consideration

Authorization to collect data was issued by National Commission for Science, Technology and Innovation [NACOSTI] after passing all the relevant University of Nairobi research requirements. The researcher considered that each questionnaire was filled in anonymously to increase participants' confidentiality and privacy. Each respondent was asked to ascertain their acknowledgement to participate in the study by filling consent forms. All the data collected was at the disposal of the researcher and was kept safely. The other unnecessary information was destroyed and only information necessary for report writing were not destroyed. The relevant information relating to data collected was only shared with the University for Purposes of academic qualification.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter includes a description of data analysis, a presentation of the findings, and a discussion of the findings using data collected from Mount Kenya University students.

4.2 Demographic Information

The results of the study's demographic factors, such as age, gender, and socioeconomic status, are reported in this section. Table 4.1 depicts the distribution of the findings in accordance with the demographic data.

Table 4.1 Demographic Information

		Frequency	Percent
Level of education	Undergraduate	72	88.9
	Postgraduate	9	11.1
Gender	male	44	54.3
	Female	37	45.7
Age	18-19	8	9.9
	20-21	29	35.8
	22-23	22	27.2
	24+	22	27.2

According to table 4.1, 88.9% of the respondents were undergraduate students and 11.1% were postgraduate. On the gender, 54.3% were male and 45.7 were female. On the age of the

respondents, 35.8% were between 20-21 years old, 27.2% were between 22-23 years and above 24 years old respectively.

4.2.1 Levels of Problematic Smartphone usage

To measure problematic smartphone usage Smartphone Addiction Scale – Short Version [SAS-SV] was used. Table 4.2 shows the different levels of problematic smartphone usage.

Table 4.2 Levels of Problematic Smartphone use

	Frequency	Percent
Low	10	12.3
Mild	57	70.4
Severe	14	17.3
Total	81	100.0

Table 4.2 indicated that 70.4% of the respondents had mild levels of problematic smartphone use and only 17.3% had severe levels. On average the sample size had a mean of 26.07 (SD = 5.54).

4.2.2 Gender differences in relation to Problematic Smartphone Use

On the gender differences, Table 4.3 shows the statistical mean differences for both males and females in relation problematic smartphone usage.

Table 4.3 PSU Mean difference for genders

	N	44
Male	Mean	26.3636
	Std Deviation	5.90266
	N	37
Female	Mean	25.7297
	Std. Deviation	5.14592

The results showed that in relation to problematic smartphone use, males had a mean 26.36 (SD = 5.90) and females had a mean of 25.73 (SD = 5.145).

Table 4.4 provides the different levels of PSU in relation to each gender.

Table 4.4 Levels of PSU in relation to Gender

Gender		Frequency	Percent
Male	Low	5	11.4
	Moderate	29	65.9
	Severe	10	22.7
Female	Low	5	13.5
	Moderate	28	75.7
	Severe	4	10.8

According to Table 4.4, 65.9% of males had moderate level of problematic smartphone usage and 22.7% had severe level. For females, 75.7% had moderate level and 10.8% had severe levels of PSU. In establishing if there was gender difference in relation to PSU, an independent t-test was carried out and the showed that there was no gender difference $t(79) = 0.510$, $p = 0.611$. The result of the study is similar to a previous study carried out by Chen et al. (2017) which showed that there were no significant gender differences in the prevalence of problematic smartphone use (30.3% in males, 29.3% in females, $p > 0.05$).

The result implied that there were no gender differences in the manner both gender use smartphones.

4.2.3 PSU and socio-economic status

On the relationship between problematic smartphone use and socio-economic status table 4.5 provides the results of the study.

Table 4.5 Problematic Smartphone use and Socio-economic Status

	Frequency	Percent
Less than 20,000	26	32.1
21,000-50,000	24	29.6
511,000-100,000	15	18.5
101,000-150,000	5	6.2
More than 151,000	8	9.9
Not specified	3	3.7

Table 4.5 results indicated that 32.1% of the respondents came from households earning less than 20,000, about 29.6% from households with an economic earning of between 21,000-50,000, and about 18.5% form households with earnings of about 101,000 -150,000 shillings. In determination of the relationship between the problematic smartphone use and socio-economic status, Pearson Chi-square was undertaken and the results are shown in Table 4.6.

Table 4.6 PSU and socio-economic status

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	67.109[a]	80	.848
Likelihood Ratio	79.172	80	.505
Linear-by-Linear Association	.179	1	.672
N of Valid Cases	78		

The result of the study as shown in Table 4.6 indicated that there was no relationship between problematic smartphone use and socio-economic status $X^2 = (80, 78) = 67.109$, $p = 0.85$. The findings therefore showed that irrespective of socio-economic status, there was no association with problematic smartphone use.

4.3 Relationship between Problematic Smartphone usage and Psychological distress

In the determination of the relationship between problematic smartphone usage and psychological distress, the researcher established the different levels of psychological distress as shown in table 4.7.

Table 4.7 Level of Psychological Distress

		Frequency	Percent	Mean	SD
Depression	mild	8	9.9	6.9877	6.18768
	Moderate	14	17.3		
	Normal	57	70.4		
	Severe	2	2.5		
Anxiety	Mild	3	3.7	7.3457	5.64394
	moderate	20	24.7		
	Normal	49	60.5		
	Severe	9	11.1		
Stress	mild	7	8.6	7.3333	5.01248
	moderate	18	22.2		
	Normal	49	60.5		
	Severe	7	8.6		
		36			

According to Table 4.7, the mean for subscale of psychological distress indicated that anxiety was had the highest mean 7.35 (SD = 5.64) followed by stress 7.33 (SD = 5.01) and depression 6.98 (SD= 6.19). On the different levels of the psychological distress, 17.4% of the respondents had moderate level of depression while 70.4% had normal level of depression. On the anxiety, 24.7% had moderate levels and 11.1% had severe level while 22.2% had moderate levels of stress and 8.6% had severe levels of stress. To understand the relationship between the two variables, Pearson correlation was undertaken and the statistical results are shown in table 4.8.

Table 4.8 Problematic Smartphone use and Psychological Distress

		PSU
Depression	Pearson Correlation	.570**
	Sig. (2-tailed)	.000
	N	81
Anxiety	Pearson Correlation	.561**
	Sig. (2-tailed)	.000
	N	81
Stress	Pearson Correlation	.517**
	Sig. (2-tailed)	.000
	N	81

As indicated in Table 4.8, there was a significant association between problematic smartphone use and the psychological distress. Statistically Pearson correlation coefficient indicated that there was positive correlation between problematic smartphone use and depression (r =0.57, p = 0.00), a significant positive correlation between problematic smartphone use and anxiety (r = 0.56, p = 0.00), and a significant positive correlation between problematic smartphone use and stress (r = 0.52, 0.00). This result eluded that when

there is an increase in the problematic smartphone use, there also be an increase in the levels of psychological distress.

Based on the results of the study, the null hypothesis is rejected and alternative hypothesis is adopted that states that there is a relationship between problematic smartphone use and psychological distress among university students from Mount Kenya University.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This study had a total of 81 respondents which gave a response rate of 79%. Of the total sampled population 54.3% were male and 45.7% were female.

On the educational level 88.9% undergraduate students and 11.1% were postgraduate students.

On the age of the respondents, 35.8% were between 20-21 years old, 27.2% were between 22-23 years and above 24 years old respectively.

On relation to gender, males had a mean 26.36 (SD = 5.90) and females had a mean of 25.73 (SD = 5.145). The results implied that both gender were equally affected as far as problematic smartphone use is concerned. According to independent t-test results, it was seen that there was no significant gender difference t (79) = 0.510, p = 0.611 in relation to problematic smartphone use.

On the relationship between problematic smartphone use and socio-economic, the Pearson Chi-square results showed that there was no relationship between problematic smartphone use and socio-economic status X^2 = (80, 78) = 67.109, p = 0.85. On the descriptive statistic on the socio-economic status 32.1% of the respondents earned less than 20,000, about 29.6% had an economic earning of between 21,000- 50,000, and about 18.5% earn about 101,000 -150,000 shillings.

The third objective, which was to establish the relationship between problematic smartphone used and psychological distress, the results revealed a positive correlation between problematic smartphone use and depression ($r = 0.57$, $p = 0.00$), a significant positive correlation between problematic smartphone use and anxiety ($r = 0.56$, $p = 0.00$), and a significant positive correlation between problematic smartphone use and stress ($r = 0.56$, $p = 0.00$). This finding revealed that as problematic smartphone usage increases, so does the amount of psychological distress. Therefore, the null hypothesis was rejected and alternative hypothesis adopted which states that there is a relationship between problematic smartphone use and psychological distress among university students, in this case Mount Kenya University Students.

5.2 Conclusion

The purpose of this study was to establish whether there is a relationship between problematic smartphone use and psychological distress. The other objectives of the study were; to determine whether there are gender differences in relation to problematic phone usage; and to evaluate the association between problematic smartphone use and Mount Kenya University students' socioeconomic level. According to the study's findings, smartphone addiction has a substantial positive link with sadness, anxiety, and stress. This study suggested that an increase in Problematic Smartphone Use is accompanied with an increase in psychological distress. The study's findings revealed that there was no correlation between internet addiction and income level, meaning that there is no link between the two factors. The findings on levels of social media addiction revealed that there were no demographic varying levels of addiction, implying that all genders are susceptible to compulsive mobile phones use. The usage of smartphones has helped university students in good ways but it’s important to note that the unpleasant

repercussions associated with smartphone use could alter the functionality of a student's academic, social and career life. Proper discipline in terms of smartphone use can help manage most addiction symptoms as seen in this study and thus help to contain any psychological distress associated with problematic smartphone use.

5.3 Recommendations

This study established important findings in connection to the objectives of the study. However, the results of the study could have been influenced by various extraneous variables. As nothing more than a response, future research should explore employing a bigger sample size than this one. Furthermore, because this study was conducted during the Covid19 pandemic, the pandemic may have had a psychological influence on the respondents, altering their psychological state, particularly while turning out even the assessments. The pandemic to some extent influenced the selection of the participants and the data collection by restricting physical interactions. Hence, future studies could undertake the study in an environment free of restrictions like physical contact if possible to get a larger audience and also consider using probability sample selecting method for the participants.

For further consideration of the Mount Kenya University and other universities administrations as well, the following recommendations are suggested;

- The university should carry out periodic training and sensitization on the impact of problematic smartphone use or smartphone addiction and psychological distress among the students and that Mount Kenya University administration should conduct

screening and free psychological first aid to students focusing on PSU or smartphone addictions.

- Because most of the individuals with PSU issues or smartphone addiction are young people, the university should incorporate within its orientation manual and presentations, the impact of PSU and/or smartphone addiction and psychological distress to new students joining the university.
- The university should try and come up with ways to determine specific spaces where mobile phone usage should be banned.
- The students could also embrace the use of monitoring apps to control the time one spends on a mobile phone. This calls for personal discipline however in order to be conscious of things that trigger phone usage and therefore reduce total time spent on the phone.
- In conjunction with local leaders and opinion shapers, the university should undertake community sensitization and awareness on the impact of problematic smartphone use and psychological distress among young people.

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APPENDICES

APPENDIX I: INFORMED CONSENT

Dear Respondent

My name is Hilder Jared, a Masters student at the University of Nairobi. As part of my academic requirement for qualification with a Master of Arts Degree in Counseling Psychology, I am required to undertake this study. This study tries to examine **if there is a relationship between problematic smartphone use and psychological distress among university students**. Your participation in this study will be of great importance. Any piece of information you will provide by completing the questionnaire will be handled with utmost confidentiality and will only be used for academic purposes.

We do appreciate your participation and your honest response.

Kindly indicate your acceptance by ticking Yes in the box below.

□ Yes

Thank you.

Yours sincerely,

Hilder Jared.

APPENDIX II: RESEARCH INSTRUMENT

A. Demographic Information

1. Educational Level
    - Undergraduate
    - Postgraduate
2. Gender
    - Male
    - Female
3. Age
    - 18-19
    - 20-21
    - 22-23
    - 24+
4. Socio-economic status (Income per month in Kenya Shillings)
    - Less than 20,000
    - 21,000-50,000
    - 51,000-100000
    - 101,000-150,000
    - More than 150,000
5. For how long have you had your smartphone(months)? _____

B. Problematic Smartphone Use (Kwon, Lee *et al*., 2013)

Kindly rate the following statements as honestly as possible as you find it applicable to you. **(Tick)**

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	Missing planned work due to smartphone use				
2	Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use				
3	Feeling pain in the wrists or at the back of the neck while using a smartphone				
4	Won't be able to stand not having a smartphone				
5	Feeling eager and restless when I am not holding my smartphone				
6	Having my smartphone in my mind even when I am not using it				
7	I will never give up using my smartphone even when my daily				

	life is already greatly affected by it				
8	Constantly checking my smartphone so as not to miss conversations between other people on WhatsApp , Facebook , Instagram or Twitter				
9	Using my smartphone longer than I had intended				
10	The people around me tell me that I use my smartphone too much				

C. Psychological Distress (Lovibond and Lovibond 1995)

Kindly rate the following statement as it applies to you considering the rating shown below.

0 = did not apply to me at all, 1 = applied to me to some degree, 2 = applied to me to a considerable degree, to 3 = applied to me very much".

		0	1	2	3
1	I found it hard to wind down				
2	I tended to over-react to situations				
3	I felt that I was using a lot of nervous energy				
4	I found myself getting agitated				
5	I found it difficult to relax				

6	I was intolerant of anything that kept me from getting on with what I was doing				
7	I felt that I was rather touchy				
8	I was aware of dryness of my mouth				
9	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)				
10	I experienced trembling (e.g. in the hands)				
11	I was worried about situations in which I might panic and make a fool of myself				
12	I felt I was close to panic				
13	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)				
14	I felt scared without any good reason				
15	I couldn't seem to experience any positive feeling at all				
16	I found it difficult to work up the initiative to do things				
17	I felt that I had nothing to look forward				

18	I felt down-hearted and blue				
19	I was unable to become enthusiastic about anything				
20	I felt I wasn't worth much as a person				
21	I felt that life was meaningless				

APPENDIX III: UON INTRODUCTORY LETTER

UNIVERSITY OF NAIROBI
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
FACULTY OF ARTS
DEPARTMENT OF PSYCHOLOGY

Telegrams: Varsity Nairobi
Telephone: 318262
Fax: 3245566
Telex 22095 varsity Ke Nairobi, Kenya

P.O. BOX 30197, 00100
NAIROBI
KENYA

16/9/2021

The Chief Executive Officer
National Council for Science Technology and Innovation.
P.O. Box 30623-00100
Nairobi – Kenya

REF: HILDER KEMUMA JARED-C50/22713/2019

The above named is a student in the Department of Psychology, undertaking a Masters Degree in Counseling Psychology at the University of Nairobi. She is doing a project on **"Relationship between Problematic Smartphone Use and Psychological Distress among University Students: A Case of Mount Kenya University Thika."** The requirement of this course is that the student must conduct research project in the field and write a project.

In order to fulfill this requirement, I am introducing to you the above named student to kindly grant her permission to collect data for her Master's Degree Project.

Sincerely,

Dr . Charles O. Kimamo
Chairman,
Department of Psychology

APPENDIX IV: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **501695**

Date of Issue: **04/October/2021**

RESEARCH LICENSE

This is to Certify that Ms.. Hilder Kemuma Jared of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: Relationship between Problematic Smartphone Use and Psychological Distress Among University Students A Case of Mount Kenya University Thika for the period ending : 04/October/2022.

License No: **NACOSTI/P/21/13193**

501695

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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