ROLE OF PROBLEMATIC INTERNET USAGE IN THE RISK OF SELECTED ADDICTIONS AMONG UNDERGRADUATE STUDENTS IN UNIVERSITIES IN KENYA

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A Thesis Report Presented to the Institute of Postgraduate Studies of Kabarak University in Partial Fulfillment of the Requirements for the Award of Doctor of Philosophy in Counselling Psychology

KABARAK UNIVERSITY

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DEDICATION

This thesis is dedicated to my grandson Cayden Maleek outrival any bounds, to my late father Stephen Marete for imparting in me the value of education early in life and to my children Derrick Munene and Ivy Nkatha for their prayers and encouragement.

ABSTRACT

Internet connectivity and usage have increased tremendously over the last few years. Although the connectivity in institutions of learning is meant for accessing important information and academic purposes, university students use internet for other purposes such as social interactions, shopping, entertainment and gaming. The growth of internet could have adverse negative influence on the users. It is a matter of concern because it has the potential to lead to addiction risks and to change the behaviour of people. The focus of this study was to investigate the role of problematic internet usage on the risk of selected addictions among undergraduate students in universities in Kenya. The objectives of the study were: to investigate the role of problematic internet usage on the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse among undergraduate students in universities in Kenya. The study utilized Behaviourist Theory and Social Learning Theory. *Ex-post fact* research design was used for this study. The target population for the study was 97284 comprising all the undergraduate students in four universities and the accessible population was 2nd and 3rd year students comprising of 18911. The sample size comprised of 391 undergraduate students, 16 student peer counsellors and four (4) student counsellors making 411 participants. Data was collected by use of a questionnaire, an in-depth interview schedule and focus group discussion. The questionnaire was administered to undergraduate students, in-depth interview schedule was used on the student counsellors and focus group discussion was conducted among student peer counsellors. Each focus group discussion comprised of four participants. Purposive sampling was used to select the universities of study. Purposive and simple random sampling were used to select the respondents. One university from the County of Tharaka Nithi with similar characteristics with the sampled universities was purposively selected for piloting to ensure reliability of the research instruments. The pre-test was administered to and the instruments were modified accordingly. Content validity was determined through the opinion of the supervisors. Descriptive statistics of frequencies, percentages and means were used to analyse data. Chi square was used to test the null hypotheses while t-test was used to compare the study variables. Quantitative data was analysed using Statistical Package for Social Sciences (SPSS) Version 23. Qualitative data was coded and thematically analysed. According to the study findings, problematic internet usage was a significant factor to the risk of selected addictions. The reliability coefficient of problematic internet usage was 0.829, online gambling was 0.875, online pornography was 0.715, online sexual violence was 0.759 and online drug and substance abuse was 0.750. From the study findings, it was established that undergraduate students who engaged in problematic internet usage were predisposed to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. The research recommends that the government and university management prevent development of problematic internet usage by undergraduate students in order to minimize the risk of addictions by controlling internet content and educating students on responsible internet usage. Student peer counsellors can create awareness among their peers while undergraduate students can employ disciplinary measures in using the internet to prevent the risk of addictions. The study has added new knowledge and formed a framework for future research.

Key Words: *Addiction risks, undergraduate students, problematic internet usage, online gambling, online pornography, online sexual violence and online drug and substance abuse.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

APA	American Psychological Association
CAK	Communications Authority of Kenya
CCK	Communication Commission of Kenya
CIU	Compulsive Internet Use
CUE	Commission for University Education
DSM - 5	Diagnostic and Statistical Manual of Mental Disorder V
FGD	Focus Group Discussion
IRC	Internet Relay Chat
KUCCPS	Kenya Universities and Colleges Central Placement Service
NACADA	National Agency for Campaign against Drug Abuse
NACOSTI	National Commission for Science, Technology and Innovation
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
WWW	World Wide Web

OPERATIONAL DEFINITION OF TERMS

Counsellor: Studying at the university and has undergone basic counselling training to give psychosocial support to other students.

Internet Connectivity: In this study, internet connectivity will refer to the interconnectivity of the computers, mobile devices or any other technological device that enables the users to be connected to the internet.

Internet Usage: one uses the internet, which includes preoccupation and urges in the behaviour and could lead to the risk of addictions.

Internet: In this study, internet will refer to connectivity of technologies, which allow sharing of resources, which are available on these technologies.

Online Drug and Substance Abuse: in this study, online drug and substance abuse refers to consumption of drugs and other substances triggered by problematic internet usage; a behaviour that may be learned from the peers and friends through online and anonymity involved in getting the drugs and substances.

Online Gambling: In this study online gambling will refer to the habit of betting money on a game with the anticipation of winning the game to earn more money.

Online Pornography: In this study, online pornography will refer to the act of using technology to generate, import or display sexually explicit materials due to problematic internet usage.

Online Sexual Violence: In this study sexual violence will refer to harmful sexual acts that may be physical or psychological, acquired due to problematic internet usage.

Problematic: Will refer to compulsive internet usage, or inability to control how

Risk of Addictions: Uncontrolled urge, often accompanied by loss of ability to regulate oneself and continuous usage of the internet to access the addictive material.

Risk: In this study, risk will refer to the habit of engaging in problematic internet usage, which can affect the undergraduate students negatively.

Student Counsellor: Will refer to a person professionally trained to give guidance and counselling to the university students.

Student Peer: In this study, student peer counsellor will refer to a person who is

Undergraduate Student: Will refer to a person who is studying at the university undertaking the first degree and uses technological devices to access internet.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Internet has become the most commonly used media in the past few years (Zaki, et al., 2018). Internet usage has grown from the research area to the user community and has seen an increase in commercial and social activities. Use of smartphones has also made access of information easy and deepened penetration of internet usage. The researchers further noted that, although internet is beneficial to the society and individuals, it could lead to unhealthy behavours and have a negative effect. Furthermore, increase in internet accessibility resulted in problematic internet usage. Engaging on the internet for long periods per day increases the likelihood of developing problematic internet usage (Ogachi, 2015). The research further indicated that the desire to continue using the internet even when it affects the user negatively was referred to as problematic internet usage. Moreover, problematic internet usage lead to pornography watching, internet gaming and online chatting, which affected the user psychologically, physically and socially.

Internet usage has risen globally; currently, it is used in numerous communications such as e-mails, WhatsApp, web browsing, movies and social media communications. Secondly, internet usage is being incorporated in learning organizations towards enhancement of research and educational work (Dervsen et al., 2015). Internet technology is greatly used in Africa and Kenya and is adopted by most universities as a means of enhancing learning (Waithaka, 2013).Like other countries, in Kenya, a great number of institutions of higher learning provide free and limitless internet to students and staff. A study done by Seboru (2015) to investigate the influence of internet technologies use on socialization among the youth at Nairobi University affirmed that

students in Kenyan universities used internet for research work and socialization. Although internet is very significant in the modern day, studies conducted indicate that problematic internet usage could lead to the risk of addictions such as online gambling, online pornography, online sexual violence and online drug and substance abuse (Nakaya, 2015).The provision of the unrestricted, limitless and unmonitored internet allows the students to stay online for long periods. Again, due to freedom and independence by university students, there is a likelihood of forming the compulsive behaviour of spending long periods online, which could predispose them to addiction risks of online gambling, online pornography, online sexual violence and online drug and substance abuse (Arjunan & Moncy, 2016). Risks of being addicted could begin when an internet user starts to be pre-occupied with online browsing of the addictive material and spends a great amount of time on the internet technology.

Bahadir (2017) describes an addiction as an overpowering impulse, which frequently go together with lack of ability to regulate, a pre-occupation with usage in addition to continuous usage notwithstanding the difficulties caused by the habit. According to Griffiths (2015), problematic internet usage could be a medium to accelerate an addictive behaviour such as engaging in online pornography. A great number of studies on problematic internet usage and the risk of developing addictions have been done in the western countries. However, studies focusing on the role of problematic internet usage and the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse among undergraduate students in Kenyan universities are scarce hence, the importance of carrying out this study.

The students who are more susceptible to the risk of addictions caused by problematic internet usage are within the age bracket of 19 to 24 years. (Ambad et. al., 2017). The

researchers maintained that due to provision of internet connectivity and internet technologies, young people spent many hours online, which predisposed them to the risk of addictions. The researchers continued to argue that lack of satisfactory transition into adulthood might lead to low self-esteem and result into one lacking confidence engaging in interpersonal relationship and confident in interacting through the internet. A study done by Arjunan and Moncy (2016) in Malaysia to investigate internet dependency among university entrants revealed that university students had a likelihood of risk of addictions because, apart from accessing the free and limitless internet, they also experienced freedom away from the control of parents where, they remain unrestricted on the online activities. Furthermore, they are at a developmental stage where they are developing relationships and could result to searching for the information on the internet, which could lead to the risk of addictions as they try to gather more information. This is in agreement with Ambad et al. (2017) who indicated that continuous use of internet could lead to the risk of addictions and could influence negatively on the user's life. Some of the negative effects identified were anxiety, maladaptive behaviour and strained interpersonal relationships with other people.

Explaining how spending long periods on the internet could predispose undergraduate students to psychological problems. Bahadir (2017) acknowledged that problematic internet usage might trigger anxiety and discomfort in daily life. The researcher argued that spending many hours online could result to the risk of being addicted to gambling as a way of overcoming anxiety and discomfort. Internet gambling consists of activities such as online sports betting, horse/dog race and games. The researcher further maintained that gambling activities had increased over the years and included betting with peers on video games for money and sports betting depending on the availability of gambling outlets. According to Abdi et al. (2015), people visited gambling sites for

excitement and entertainment, to earn money, to relieve boredom and be busy, to escape from loneliness, to feel powerful after winning, to make friends and fit in social situations. The researchers carried out a study to establish personal, social and environmental risk factors of problematic gambling among high school adolescents in Addis Ababa, the researchers acknowledged that the financial implication of online gambling could include criminal activities, bankruptcy and job loss. This could result into one getting into financial distress, debts and borrowing or stealing money from friends and family to facilitate the gaming activities. The researchers further maintained that individuals steal money from friends and families to be able to engage in gambling activities.

In Abdi et al. (2015), Gambling could also influence negatively on the university students as they spent more time online at the expense of studies, which could lead to poor performance in academics. There is also a likelihood of developing poor study habits and hence, poor grades and failure. Gambling may create emotions and excitement for the participants during competition with friends and strangers and therefore, may lead to psychological problems. For instance, the Daily Nation Newspaper of 7thJuly 2016 reported that a Kenyan university student had committed suicide after losing a bet he had placed on a match. This is an indication that gambling may result in serious psychological problems. The aim of this research therefore, was to establish the problematic internet usage influence on the risk of selected addictions among undergraduate students in universities in Kenya. Indicating how internet usage could lead to the development of compulsive and predatory behaviour in young people, Wohab and Mubarak (2015) affirmed that such behaviours could affect negatively both psychologically and socially. The content displayed on the internet could influence negatively on the users, as some information could be posted on the internet by groups

seeking to recruit members. The university students seeking the in-group to identify with and lacking social skills could be recruited and exposed to explicit sexual materials on the internet. The researchers continued to affirm that exposure to pornographic materials could increase the likelihood to engage in aggressive and risky sexual behaviours. Exposure could also lead to addiction to pornography stirring lack of cognitive control in suppressing sexual desires, thoughts and behaviours. Andrew and Nash (2018) reported that there was prevalence of adolescents' exposure to online sex. The adolescents consumed and exchanged sexual materials through the smartphones and other technological devices. Through internet connectivity and use of these technologies, the adolescents also engaged in sexting. The researchers further acknowledged that some of the challenges of consuming sexually explicit materials were the formation of antisocial behaviour, loss of reality in sexual behaviour and distorted view of acceptable and unacceptable sexuality.

Furthermore, sexually explicit materials were in circulation and at a high prevalence rate depicting violet pornography. In a study to investigate correlates of problematic internet pornography use among university students. Harper and Hodgins (2016) highlighted that exposure to online materials depicting sexually explicit activities could encourage individuals to engage in overt sensual behaviours. The study reported that individuals had a strong feeling to engage in internet sex even when at the places of work. This study therefore, sought to investigate the problematic internet usage influence on the risk of selected addictions among undergraduate students in universities in Kenya. The findings of a study done by Kohut (2014) to investigate the concept of pornography among students of Western University, Ontario found out that people who were exposed to sexually explicit materials were affected either positively or negatively. The participants of the study were asked to judge and rate sexual and pornographic stimulations. The

researcher concluded that pornographic materials triggered high stimulation and unpleasantness. This was an indication that the undergraduate students who could engage in online pornography could be predisposed to negative psychological problems due to the exposure. Therefore, this study sought to interrogate the researchers' assertions further, though in a Kenyan setting. Online platforms and technologies facilitate sexual identity and encounter among the young people (Henry & Powell, 2015). The researchers made these assertions in a study to ascertain technology facilitated sexual violence and harassment against adult women. The researchers termed distribution of sexual images among the youth as sexual violence because at times, it was sent without the consent of the receiver.

Further, sexting could be termed as a behaviour that was abusive, exploiting and coerced the receiver to comply with the demands of the perpetrator. The findings of a study by Holladay (2016) showed that the rise in online activities in addition to social mass media caused a high increase in sexual violence. The availability and accessibility of internet and technologies facilitated further stalking, harassment and terrorism among the victims. The researcher further affirmed that majority of the victims of online sexual violence were females. The violence involved sharing of nude photos, sexually explicit materials, unwanted sexual advances and sexting. Problematic internet usage could predispose undergraduate students to online sexual violence. The students could be more vulnerable to cyber criminals in search of finances for sustenance and seeking to develop relationships. The prepositions of the researchers indicated that young people preferred to interact on the internet and mass media in place of interpersonal interactions. This is an indication that problematic internet usage could lead to spending more time on the internet and cause online sexual violence.

Mountaney et al. (2016) posited that advancement in technological development allows easy access to online drugs and other substances through the internet, unlike in the past when illicit drug markets operated physically. The supply and provision of such drugs and other substances on the internet are made easy for the university students to buy from any location ensuring anonymity and physical safety. The researchers continued to explain that drugs and other substances can be accessed through dark net markets or crypto markets – a software enabling anonymity for buyers and sellers, delivered through the post and avoiding direct contact between the parties involved. The findings of a research to investigate internet addiction in patients with substance use disorder by Pass et al. (2017) indicated how problematic internet usage could predispose individuals to the risk of addiction to drug and substance abuse. Problematic internet usage by undergraduate university students could predispose them to abuse of drugs and other substances as they discover sites that market drugs and substances and connect with friends and peers who are already addicted. John and Bryan (2014) posited that the curiosity to know about the activities and experiences of peers and friends could lead drug and substance abuse as a discovery.

The current study sought to re-affirm the authors' argument based on undergraduate students in universities in Kenya. Risk of addictions could be manifested by behaviour responses (Harper & Hodgins, 2016).The researchers affirmed that individuals who engaged in online pornography also abused drugs and other substances. A research study done in Kenya by Sounter and Keretts (2012), found out that young people engaged in online activities for academic purposes socializing. According to the researchers, it was difficult to distinguish the behavioural changes that resulted from problematic internet usage or other influences such as peer pressure. Furthermore, individuals could become addicted to specific online behaviours, which included online gambling, online

pornography and online sex, online sexual violence and online drug and substance abuse. Moreover, the researchers concluded that, internet provided an environment for such activities, which may influence the behaviour of users negatively and lead to risk of addictions. The conflicting information required affirmation through research, hence the importance of the current study to ascertain whether problematic internet usage led to the risk of addictions among undergraduate students in Kenyan universities.

A research study on uses and gratifications of the internet done by Kariuki (2010) in Mt. Kenya University and Gretsa University pointed out those university students in Kenya had free and limitless internet access, which could predispose them to risk of addictive activities. Waithaka (2013) did a study on internet use among university students in Kenya and found out that, apart from the university students in Kenya using the internet for academic purposes and for accessing important information, they used it for interactions and entertainment. The findings of a study by Ogachi (2015) to establish the relationship between depression and pathological internet use among university students in Kenya identified the youth as the group that was prone to problematic internet usage and more likely to be addicted to online activities, which could affect behaviour negatively. This is because adolescents and youth are the groups that use the internet more often and are more conversant to technology. The undergraduate university students fall into the category of youth and rely on the internet during their university life. Furthermore, their activities online are not monitored. At this stage, the young people are seeking relationships to identify with and are at an exploration stage.

A study by Wamathai et al. (2014) on prevalence and factors contributing to pornography viewing among male students in selected universities in Kenya highlighted that, there was an increase in the number of university students engaging in online

pornography. The reasons for engagement included: entertainment, curiosity, safe outlet for sex, peer influence and learning about sex and sexuality. There was a link between internet addiction and other addictive behaviours (Odhiamboet at al., 2020). The researchers did a study on prevalence of internet addiction and socio-demographics correlates among undergraduate students of private University of Eastern Africa. The students were found to be at a risk of developing addictive behaviours after spending many hours on the internet. The current study investigated the role of problematic internet usage on the risk of selected addictions among undergraduate students in universities in Kenya.

1.2 Statement of the Problem

Internet connectivity and technology have increased tremendously throughout the world in the recent past. Advancement in technology has aided problematic internet usage among the university undergraduate students and predisposed them to the addiction risks. Although, internet connectivity is a vital aspect of a university student's life, provision of free and limitless internet to students in institutions of higher learning globally, including Kenya increases the likelihood to use it for other purposes than for the intended purpose of accessing information for academic use and research work. The availability of smart phones has deepened penetration and access of internet services at all time and everywhere. Increase in technological use, marketing and advertisement of online activities have led to a rise in internet usage among the young people. Internet usage among undergraduate students in the universities in Kenya has increased in the recent past due to the demand to use it for academic work, research, communication and connectedness. The demand to use internet by undergraduate students in Kenyan universities introduces them to several websites, some of which predisposes them to the risk of developing addictions. Research on problematic internet usage influence on the

risk of selected addictions among undergraduate students in the Kenyan context is scarce, hence, the importance of carrying out this study. Problematic internet usage predisposes university undergraduate students to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. A great number of studies by other researchers in Kenya have focused on the psychological and social effects of problematic internet usage. A number of studies on problematic internet usage and the risk of addictions have been carried out in developed countries. Some researchers have indicated the effect of problematic internet usage on the risk of addictions, while others have indicated that there is no relationship between problematic internet usage and the risk of addictions. This inconsistent needed to be ascertained through a study therefore, this study attempted to cover the gap by researching on the role of problematic internet usage in the risk of selected addictions among undergraduate students in universities in Kenya.

1.3 Purpose of the Study

The purpose of this study was to investigate the role of problematic internet usage on the risk of selected addictions among undergraduate students in universities in Kenya.

1.4 Objectives of the Study

The study sought to address the following objectives:

i. To examine the role of problematic internet usage in the risk of addiction to online gambling among undergraduate students in universities in Kenya.
ii. To explore the role of problematic internet usage in the risk of addiction to online pornography among undergraduate students in universities in Kenya.
iii. To determine the role of problematic internet usage in the risk of addiction to online sexual violence among undergraduate students in universities in Kenya.

iv. To investigate the role of problematic internet usage in the risk of addiction to online drug and substance abuse among undergraduate students in universities in Kenya.

1.5 Research Hypotheses

The study tested the following hypotheses at 0.05 level of significance:

H_o1: Problematic internet usage is not statistically significant in risk of addiction to online gambling among undergraduate students in universities in Kenya.

H_o2: Problematic internet usage is not statistically significant in risk of addiction to online pornography among undergraduate students in universities in Kenya.

H_o3: Problematic internet usage is not statistically significant in risk of addiction to online sexual violence among undergraduate students in universities in Kenya.

H_o4: Problematic internet usage is not statistically significant in risk of addiction to online drug and substance abuse among undergraduate students in universities in Kenya.

1.6 The Significanceof the Study

The results of the current research could be valuable to the government, university management, student counsellors, peer counsellors and undergraduate students. The government through Communication Commission of Kenya (CCK)can streamline content that can be accessed through the internet and regulate the media to protect university students from being exposed to the addiction risks. This may include a shutdown of programmes that display harmful content and burn in sale of pornographic materials. The university management could be informed about addiction risks caused by using the internet in unhealthy ways among undergraduate students in the universities and the content they are predisposed to. It can also help in training students on time

management and life skills to help make informed choices concerning the use of internet. Student counsellors could develop preventative and intervention programmes to counter the addiction risks caused by problematic internet usage and to help those who could be experiencing addiction problems. The study also informed the peer counsellors on the support systems that could be developed to help their peers prevent development of addictions caused by problematic internet usage. The study findings could help undergraduate students in knowing the risk of addictions caused by problematic internet usage in order to avoid the habits that could lead to the risk of addictions. The findings extends existing research knowledge on problematic internet usage and the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. The study therefore, sought to provide information on problematic internet usage on the risk of selected addictions among undergraduate students in universities in Kenya.

1.7 Scope of the Study

Four universities were selected to study purposes, two in the County of Meru and two in the County of Nairobi. Two public and two private universities were purposively selected for the study. Categorization of universities into public and private was important in generalization of the study findings across the universities in Kenya. The study targeted the entire undergraduate population in the selected universities and the accessible population was third and second year undergraduate students. Third and second year undergraduate students were considered as appropriate study participants due to the experienced freedom and independence after joining the university and because they had already undergone orientation and adopted to the university systems, unlike the 4^{th} year students who could be out of the university on attachments. Student counsellors were also covered in the study. Student counsellors are involved in providing

essential psychotherapy support to undergraduate students. This study also covered student peer counsellors because they offer support systems to their peers.

1.8 Limitations of the Study

Problematic internet usage and the risk of selected addictions cut across all the universities in Kenya. The study did not cover all the universities due to limited finances and duration of the study. In order to overcome this limitation, the study focused on four universities; two public and two private. The sample selected was adequate and representative to make rational inferences from the study findings.

1.9 Assumption of the Study

The assumptions of the study were:

i. Opinions of the participants would be dependable in determining the role of problematic internet usage on the risk of selected addictions.
ii. The study findings would create an awareness that engagement in problematic internet usage among university undergraduate students can lead to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse.
iii. New understanding of problematic internet usage and the risk of selected addictions would bring about discipline on how undergraduate students use the internet.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature on the role of problematic internet usage onthe risk of selected addictions. The literature on the risk of selected addictions mainly: online gambling, online pornography, online sexual violence and online drug and substance abuse among undergraduate students in universities was reviewed. The chapter also covered the theoretical framework and conceptual framework of the study.

2.2 Overview of Problematic Internet Usage

The internet came up as a great ability to inform the humanity by transmitting material and creating accessibility of information required for the welfare, development and success of human beings. According to Kapahi et. al. (2013) internet growth caused some problems-one of the key one being compulsive social media usage. In a study to investigate internet addiction causes and effects, the researchers found out that excessive internet usage affect as many as one in eight Americans and causes compulsive activity involving pre-occupation with online browsing and lack of control in internet usage. According to Dutta (2017), problematic internet usage could lead to negative and withdrawal effects including fatigue, low achievement lying and social isolation and could result to risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. The researcher carried out a study to explore internet usage and psychological welfare among foreign students in Singapore and concluded that there was a connection between problematic internet usage and the risk of addictions. Individuals who accessed internet connectivity and technologies easily were at a high risk of becoming addicted.

Due to technological advancement and internet connectivity, it is easy to access information on cyber-porn, gambling, online shopping and trading, computer games, information searches and online relationships. This assertion is supported by Che et al. (2014) study on positive and negative effects of internet addiction on young people done in Malaysia. The study further indicated that because it is compulsory for the students to utilize the internet especially for academic work, they feel comfortable carrying out other activities online other than academic. The researchers found out that the technological devices mostly used were smartphones, desktop computers, laptops and tablets. The study revealed that when a person is online, they start to feel excited and attracted to several sites and therefore, the thrill could lead to the formation of compulsive behaviour, which could be accompanied by some discomfort portrayed in form of maladaptive behaviour. The results of a study by Kayastha et al. (2018) to evaluate the extent of internet addiction among young adults in Mangalore highlighted that excessive internet usage involved maladaptive behaviour. The adolescents who participated in the study showed that excessive internet usage affected their wellbeing negatively. The adolescents had problem focusing on the crucial activities, they were anxious and could not respond to important information in the required time. The researchers however, indicated that it was possible to utilize the internet in a healthy way. The healthy way involved utilizing the internet for an intended purpose in a sensible duration of time without experiencing any discomfort. This study therefore, sought to understand whether the same happens to students in Kenyan universities considering the difference in economic and social background.

As stated byKapahi et al. (2013),escalation of problematic internet usage among the young people in Malaysia was attributed to the growth in internet connectivity and technologies. The findings of the research indicated that the youth are indeed susceptible

to risk of addictions due to problematic internet usage. The research reported that youths in the age bracket of 18 - 25 years were found to be susceptible to addiction risks due to problematic internet usage, especially those enrolling in colleges and universities. The researchers concluded that usage activities might not be destructive but depended on person's intents, activities and self-control, which regulate the actual damage to the person and the community. The study was limited to a very narrow segment of the society and was conducted among young people in Malaysia. This assertion was supported by Kayastha et al. (2018) who reported that, development of problematic internet usage depended on the individual's choice because it was possible to use it positively and in a healthy way by controlling online activities and the amount of time spent online. Young people in Kenya might be predisposed to the risk of addictions due to problematic internet usage like those indicated in the reviewed research studies. However, this assertion ought to be ascertained by a systematic study to identify the risk of addictions due to problematic internet usage.

According to a study done by Akar (2015) on purpose, causes and effects of extreme internet usage among Turkish young adults, there was a dramatic increase in usage, which predisposed the adolescents to addiction risks. The researcher indicated that excessive internet usage might impair psychological well-being, academic performance and interaction with family members and peers. The study further discovered that the internet addiction test and the pathological internet usage scale could help in reducing the level of addiction risks and the number of problems the users face because of usage. The research findings revealed that the 8-10% of adolescents were internet users in Turkey. A similar conclusion was made by Deursen et al. (2015) in an online research on modelling addictive and habitual Smartphone behaviour that excessive internet usage could affect individuals negatively both psychologically and physically. The psychological problems

that could occur ranged from maladaptive behavioural responses to impact on social interactions while physical problems could be manifested by headache attacks and disruption in sleep patterns. It is, however, unclear whether such figures are true for students in Kenyan universities given the differences in the socio-economic status of Kenya and other countries where studies were carried out. Thus, this called for a study on the responsibility ofproblematic internet usage on the risk of selected addictions among undergraduate students in universities in Kenya.

Problematic usage of technology could have negative influences on lives of people; it could lead to maladaptive behaviour(Islam & Hossin, 2016).The researchers carried out a study in Bangladesh to investigate the risk factors and prevalence of problematic internet use and related psychological problems among undergraduate students. The study suggested that student affairs administrators should play a crucial role in informing other campus professionals of the risks of addictions due to problematic internet usage. According to Murugan and Claire (2002), an individual's level of internet usage such as time and frequency is determined by experience and knowledge in internet usage. The researchers further highlighted that personal factors for example experience in internet usage, relevance in the task, self-effectiveness, exploratory and situation factors such as the environment and peer influence determine the development of problematic internet usage. The findings of a research by Daramola (2016) to investigate perceptions and use of electrical resources by graduate students in Akure indicated that, students used internet frequently to access academic information, catch up on news and connect with peers and friends. Although the study pointed out the likelihood of students using the internet compulsively and the possible effects on behaviour and academic performance, it failed to provide specific prevalence of the problems brought about by problematic internet usage. The current study consequently, intended to cover this gap by specifically

examining whether the risk of selected addictions were caused by problematic internet usage.

Akar (2015) affirmed that internet offers possible benefits for users regarding freedom of expression, sharing feelings and ideas, and academic support. Similarly, there were unfavourable outcomes such as time wastage, exhibition of antisocial behaviours, and causing relationship problems. The study concluded that academic failure, absenteeism, and issues in mutual relationships could reveal excessive usage of the internet with other students. The adolescents studied had problems in education, entertainment, psychological needs, general and learning culture, and socialization, hence, negative impact on the mental, psychological, physical health and social well-being. Indicating the effects of internet addiction on adolescents, Che et al. (2014) did a study on the impact of the internet on day to day lives of children; physical health, social and psychological welfare in Malaysia and revealed that online connections could give rise to decreased social relationships and social ties. This was attributed to the difficulties experienced in engaging in online friendships with strangers, which led to stress and depression. The study investigated issues other than the risk of selected addictions caused by problematic internet usage. This research sought to examine the risk of addictions caused by problematic usage of internet.

A study done by Romano et al. (2013) to establish the direct effects of internet exposure on emotions and moods of internet users and found out that problematic internet usage was related to unhappiness, thoughtlessness unconventionality, and autism personalities and reduced attitude subsequent to internet usage in comparison to the low internet users. The study concluded that the immediate adverse effect of internet exposure on the emotional aspect of problematic internet users could increase the likelihood of having

addiction risks. Studies done show that the relationship between psychosocial well-being and motivations for usage were fundamental explanative factors for problematic results in excessive internet usage (Winther, 2014). The researcher maintained that respondents with high stress or low self-esteem underwent increased problematic consequences when gambling or gaming to escape negative emotions. At the same time, the use of escapism was less problematic for participants with low stress or high self-esteem. The involvement of the society in responding to instances of problematic internet usage, in as much as such conduct could be both harmful and helpful may be a study area, which may require assertion in order to move beyond addictions and consider it as an adaptive behaviour that has both negative and positive effects. It is on this note that the current research sought to look into the addiction risks caused by problematic internet usage prior to looking at its negative outcomes.

An exploration done by Zaremohzzabieh et al. (2014) on excessive use of Facebook among undergraduate students, pointed out that Facebook had become an important element of almost all students 'day-to-day lives. While most of the students seemed to benefit through exchanging information for academic purposes, making friends, and other actions, the social networking sites could be used excessively by some university students. The study depended on interviews from the participants and the findings that revealed that the users considered their Facebook dependence, as conflict, tolerance, and salience and concluded that like nearly all actions, controlled usage and moderation were solutions. For this reason, the best approach to getting students ready for life in a research-based society is to assist them in achieving a level of balance and exercising self-control and when making use of Facebook. The findings of a study done byKuss and Griffiths (2011) on online social networking and addiction indicated that internet users created profiles on communal online sites to allow interaction with friends and share

their interests. The study maintained that addiction risks could lead to health problems. According to the study findings, literature on addiction risks is scarce. Moreover, offline networks are enhanced by social networking sites, which are established for socializing purposes. However, the review did not highlight the specific additions related to the usage. Thus, this study sought to explore the risk of specific selected addictions of problematic internet usage among undergraduate students in universities in Kenya.

Bahadir (2017) explored cultural, social and psychological features of internet addiction and acknowledged that internet usage was characterized by imperfectly managed behaviours, urges or preoccupations concerning computer usage and internet accessibility that cause distress or impairment. The study indicated that, there was no recognized excessive internet usage within the range of addictive disturbances, hence, no relative identification. The researcher, nevertheless, argued that it had been proposed for inclusion in the Diagnostic and Statistical Manual of Mental Disorder (DSMV). The findings of the research also contended that Europe and the United States hadan incidence rate of between 1.5 and 8.2 percent, even though the evaluation questionnaires and diagnostic criteria used for examination varied among nations. The cross-sectional analysis on patients' samples reported high rates of co morbidities of internet usage with attention deficit hyperactivity disorder, anxiety disorders (health anxiety disorder, social anxiety disorder, generalized anxiety disorder), and psychological disorders, mostly emotional disorders (inclusive of depression).

In Kenya, internet started emerging in 1993 although, it was fully adopted in 1995 (Murugan & Claire, 2002). After the establishment in 1995, Kenya was ranked among the largest internet service providers in Africa. The establishment was made possible through collaborations with non-governmental organisations and the Kenyan

Government. Currently, Communication Commission of Kenya (CCK, 2013) controls internet connectivity in Kenya. The Commission lacks clear ways to curb internet usage especially for personal use because it is difficult to limit the content that can be accessed when using personal technological gadgets. Therefore, due to unlimited internet usage by students in Kenyan universities, there was need to undertake a research to determine whether problematic internet usage predisposed undergraduate students to the addiction risks.

A study done by Ojino and Mich (2018) on mobile applications in university education in Kenya indicated that university students frequently used mobile phones. The university students used mobile phones for social networking, contacting and connectedness. The results of the research also acknowledged that university students used mobile phones for accessing information, communication and managing personal information. Other researchers have found out that the people mostly predisposed to problematic internet usage was due to social anxiety, alcohol use, familial and parenting factors, personality traits, gambling, pornography watching and drugs and substances abuse (Abdi et. al., 2015; Charotta, 2015; Devrsen et al., 2015). However, research on the four selected addiction risks; online gambling, online pornography, online sexual violence and online drug and substance abuse caused by problematic internet usage are scarce. Hence, this study examined the role of problematic internet usage on the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse among the undergraduate students in universities in Kenya.

University students frequently visit a great number of websites, sometimes for academic purposes and other times for socializing. Websites are the networking sites that are used mostly for communication between friends or groups of people (Che et al., 2014). The

researchers did a study on negative and positive impact of internet addiction on young adults in Malaysia and posited that websites provide a means of interacting, accessing important information and allow activities and events between individuals. Factors that cause problematic internet usage are quick and easy to access and being competent in using the internet (Islam & Hossin, 2016).The researchers carried out a study on prevalent and risk factors of problematic internet use and the associated psychological distress among graduate students in Bangladesh and acknowledged that, more males used the internet than females, which was attributed to males being more competent and conversant in using internet and technology than females. The increase in internet usage in recent years among the young people predisposed them to addiction risks. The researchers indicated that young people attending universities used the internet for apart from other activities, academic work. The findings of a study done by Kuss (2012) on presenting problem, theory, risk and prevalence of internet addiction explained that compulsive internet usage could be manifested by lose of track of time spent online. The study further highlighted another indication of compulsive internet usage as being isolated from family and friends, which could lead to loss of social relationships. Moreover, individuals start to lie as a defence mechanism to hide the habit of spending a great number of hours online. Problematic internet usage could predispose users to addiction risks, which could have negative consequences and could result into serious social, behavioural and psychological problems.

Deursen et al. (2015) acknowledged that the addictions caused by problematic internet usage might influence addicts negatively. For instance, it could cause low self-esteem, low well-being, social isolation, lack of confidence, psychological problems such as depression, avoidance of face-to-face interactions, low emotional stability and academic failure. Research done showed that university students used the internet frequently as an

instructional tool to access important information, course-related reading and for research work (Chris, 2015). The findings of a study to investigate the effect of social media on study patterns among university students in Kenya noted that internet was an important tool for teaching, research and learning process. Daramola (2016) did a study to investigate the viewpoint and usage of digital resources by undergraduate students in Federal University of Technology Library, Akure. The study findings acknowledged that university students in Nigeria were provided with free internet connectivity and technologies to facilitate accessibility of learning resources. However, considering that internet has become a part of university students in Kenya, it was important to investigate whether the risk of addictions occurred due to problematic internet usage among university students in Kenya hence, the importance of the this study.

Apart from University students using internet for academic purposes, internet increasingly engages them outside classroom work (Chris, 2015) and allows them to set up profiles and post updates, links, photos and conversations. According to the researcher, the websites mostly visited by internet users are Facebook being the most used website, followed by Twitter and LinkedIn. Further, the technologies mostly used were the mobile devices followed by computers. The researcher further noted thatyoung people popularly used Twitter and Facebook. In the study, the young people also used the internet during leisure time for activities such as gaming, hacking, chatting, and video logging and photo sharing. The researcher concluded that there was an increase in access to social media among university students, which lead to an increase in negative effects. Those who spent more time online, spent less time studying hence, had dropped in academics and were addicted to online browsing. The addiction that were likely to occur due to problematic internet usage could not be because of choice but could be influenced by exposure to structures that attributed to the possibility of engaging in

certain behaviour (Wohab & Mubarak, 2015). The researchers further maintained that individuals who spent longer periods online accessed sites that predisposed them to addiction risks. The propositions of the researchers could be ascertained through an investigation in a Kenyan perspective, hence the importance of carrying out this study.

Problematic internet usage could result to risk of addiction to activities such as internet gambling, pornography and internet sex (Gikonyo, 2005). In a study to investigate drug abuse and parental awareness on circumstances leading to drugs and substance abuse among the youth in Nairobi Region, the researcher acknowledged that advertisements and online promotions could lead to creation of more interest on the accessed information and the curiosity to practice what was seen on the internet. Further, when one has more understanding on drugs and substance abuse, the person is more likely to abuse them. However, the connections through social media by friends and peers predisposed one to being involved in activities like gambling and drug and substance abuse. Research on the four selected addiction risks; online gambling, online pornography, online sexual violence and online drug and substance abuse caused by problematic internet usage are scarce. Therefore, the study study investigated the risk of the selected addictions to ascertain whether they are caused by problematic internet usage among university students in a Kenyan perspective.

2.3 Problematic Internet Usage and Risk of Addiction to Online Gambling

Gambling is a social activity, which involves placing a bet on a game in order to win money. Young people engaged in gambling to be entertained, for leisure and to win money (Gainsbury, 2017). The researcher did a study to investigate the association between compulsive gambling and online gambling in Australia and noted that, internet gambling comprised of getting into internet websites to bet on chance-based proceedings

aimed at earning money. Moreover, young people accessed internet gambling easily due to the reduction in prices. The researcher further affirmed that internet gambling could cause psychosocial problems if it was not controlled and when the gambler causes suffering to oneself or other people. Furthermore, the researcher affirmed that, young people who became internet gamblers could encounter psychosocial problems such as depression, high risk of suicide and suicide attempts as well as feelings of shame and trouble in social relationships. The researcher further argued that the young person could steal money to use in gambling or incur some debts, which could lead to financial distress. The options used for internet gambling are baccarat, roulette, blackjack, online porker, online casinos, online bingo, sports betting and online lotteries (Binde et al., 2017). The researchers did a study to establish gambling problems, gambling involvement and types of gambling: proof from a Swedish residents 'study. The findings indicated that individuals who engaged in online gambling had a greater risk of developing an addiction. Further, availability of gaming outlets and connections lead to a growth in the number of people engaging in gambling. The study failed to indicate whether the risk of addiction to online gambling occurred attributable to problematic internet usage. The current study covered the gap in analysing the role of problematic internet usage in the risk of addiction to online gambling among university students in Kenya.

According to Kuss (2013), problematic internet usage could cause addiction to gambling as it offers a way of coping with issues that could cause stress. The researcher posited that in order for an individual to be diagnosed with gambling problem, they could have indicators such as being preoccupied with gambling and planning where to get the money to use in gambling, as they used great amounts of money even if unsuccessful in winning and could gamble even after losing the money to gambling. The researcher

further highlighted that when one is involved in gambling; they could lie to people close to them to conceal the habit and could withdraw from the social cycles, which could influence negatively on one-on-one relationships. The findings of research by Fulton (2015) to investigate the effects of gambling on society and individuals in Ireland showed that young people became addicted to gambling as they tried to escape from stressful situations and everyday problems and due to their poor coping skills, they could result to gambling as a way of coping with difficulties. The researcher continued to argue that addiction to gambling was related to low levels of parental monitoring and insufficient disciplinary actions towards the young person. According to (Gainsbury, 2015), addiction to gambling occurred due to availability and accessibility of gambling opportunities such as free and limitless internet technology. There was need to investigated whether the assertions of the researcher that the presence of gambling opportunities, exposure and ease of access predisposed the university students to the risk of addiction to online gambling in a Kenyan perceptive.

Charlotta (2015) sought out to investigate adolescents gaming and gambling in relation to negative social consequences and health in Sweden and found out that there were several factors required to be considered before ascertaining that there was an addiction to gambling. The factors included; developmental behaviours of the gamblers, risk factors involved, availability of gambling resources, awareness and prevention programmes. The researcher further acknowledged that the young people who suffered addiction to gambling might also abuse drugs and other substances. The addicts were also likely to be depressed, attempt suicide and perform poorly in academics. This study, therefore, sought to investigate whether risk of addiction to gambling occurred because of problematic internet usage. Internet gambling disorder was included in the DSM-V in the year 2013 under the class of disorders requiring more research (Belanger, 2015). The

researcher argued that internet gaming disorder research was incompatible in the assessment and definition of the disorder. Nevertheless, it was compared to problem gambling as the only other behavioural addiction in the DSM V. The comorbid symptoms identified were, beliefs about illusion of control, temperament and personality attributes, and actions of welfare. Moreover, internet gaming disorder was distinct disorder from gaming although there was no clarification of psychological profile of internet gaming disorder individuals.

In accordance with the American Psychiatric Association, in DSM – V, gambling disorder has been classified under impulse-control disorders (APA, 2013). Impulse control disorders are explained as incapability to resist a drive. An individual feels a heightened pressure to engage in the act and then experiences relief in the course of the action and/or guilt afterwards. In DSM V, pathological gambling occurs when an individual becomes pre-occupied with gambling which continues despite frequent efforts to stop the behaviour. Individuals become pathological gamblers while seeking ways of excitement, to make money and to relieve stress. Further, pathological gambling could increase due to availability of gambling points and the duration one takes while gambling. Moreover, problem gambling starts in adolescents and may continue even in adulthood. The criteria used to diagnose problematic gambling is an indication that undergraduate students could be at a possibility of developing addiction to online gambling. Wohab and Mubarak (2015) categorises adolescents and college students at a greater risk of being addicted since they engage more in gambling activities than other groups of people. University students fall under the category of college students and therefore, it was important to investigate whether problematic internet usage brought about the risks of addiction to online gambling in a Kenyan perspective.

A study to give an apprehension of how problematic internet usage was similar to pathological gambling by Rash and Petry (2014) examined psychological treatment for gambling disorders and assumed that problem gambling and problematic internet usage could be positively associated with depression, amongst other factors, in a class of university students. The depression subscale of the Depression Anxiety Subscale was utilized to assess the degrees of depression of the students and reported that only problematic internet usage results were linked to depression, not gamble outcomes. This was not compatible with the later studies and therefore, a need to ascertain the situation from a Kenyan perspective by examining whether problematic internet usage caused risk of addiction to online gambling among undergraduate university students. In the course of an extensive research, Walther et al. (2012) carried out a research to investigate the particular designs of associated personality traits between gambling, substance utilization, and video and computer gaming in a large sample of undergraduate students. The researchers used a brief depression scale and questionnaires mood scale developed by Kandel and Davis(1982).The results showed that depression was not only associated to video and computer gaming, but also gambling. This could have been due to the use of samples in the study from students who did not show notable gambling conducts. Therefore, considering that gambling is common among the young people where the highest number of undergraduate students fall, the current study sought to ascertain the propositions among students in Kenyan universities.

Prior research have revealed the co-occurrence of symptoms of problematic gambling and depression in like student populations (Charotta, 2015), as well as depression symptoms and problematic internet usage. An examination on the effects of problematic internet usage on life engagement and life satisfaction in youth done by Shahnaz and Karim (2014), sampled 210 undergraduate students and found that internet usage was

associated with online discussion, adult chatting, online gaming, cyber affair and watching pornography. Correlations of different aspects of excessive internet usage with major variables indicated significant and positive correlations. Moreover, the students were not questioned about any clinical examination of depression. These conflicting findings called for a study in a Kenyan context. The current study, therefore, sought to determine whether the researchers' assertions were comparable in a Kenyan perceptive by examining the role of problematic internet usage in the risk of addiction to online gambling among university students.

Seeking to establish the relationship between disordered gambling and internet gambling Gainsbury (2015) carried out a study on internet gambling addiction and established that among the major changes in the gambling environment previously was the expanded availability of online gambling technology, as well as mobile phones. The researcher further acknowledged that online gambling was the most rapidly developing way of gambling and was altering the manner in which gamblers take part in gambling activity. The study concluded that the ease at which cash could be spent and earned through internet gambling, immersive interface and high accessibility level, could result in elevated rates of disordered gambling. The study findings showed that online gambling did not bring about gambling problems as such but was more frequent among greatly involved gamblers, which contributed significantly to problem gambling. Further, online gamblers varied from a range of individual, social and environmental variables moderated the effect of the manner of access to gambling problems (Binde et al., 2017). The study further pointed out that as internet gambling continued to change and involvement increased, mainly amongst young persons who were greatly acquainted to online commerce and internet technology, it was possible that associated difficulties would occur. Thus, considering that university students are familiar with internet

technology as they are expected to use it on a regularly, there was need to examine whether problematic internet usage lead to the risk of addiction to online gambling among undergraduate students in universities in Kenya.

Individuals with pathological gambling had extensively shown to exhibit similar forms of cortical stimulation as substance addicts. Gmel et al. (2017)compared addiction to gambling like that of substance abuse and affirmed that presently, gambling condition is the only acknowledged behavioural addiction in the Diagnostic and Statistical Manual of Mental Disorders 5(DSM5). Medicating by means of opiate opponent naltrexone had alleviated problematic gambling behaviour in some persons in addition to management by means of selective serotonin reuptake inhibitors ensured partly effective. Nevertheless, there was added likelihood that the material on the internet, such as interactive games, chatting or online gambling could stimulate the reward structures, relatively than just engagement on the internet activities. Thus, in order to ascertain the propositions of the researchers, there was a need for a study to be done.DSM-5 recognizes digital game addiction as diagnosis criteria with the characteristics mainly: preoccupation, tolerance, withdrawal symptoms, continuity, replacement, continuous excessive internet usage, deception, escape and conflict. This is an indication that problematic internet usage could result into the risk of being addicted to online gambling. The more university students stay online for longer hours, the more they start feeling comfortable with online browsing and the more engage in online activities such as online gambling. Further, they become more irritable when they withdraw from gaming and could try unsuccessfully to stop the behaviour, which they have already acquired. Moreover, online gambling could also be used as a way of escaping from negative emotions and could lead to psychological problems and academic drop.

The findings of a study done in Australia to investigate use of social media and latent messages conveyed by gambling operators maintained that, the social media platforms mostly used to advertise gambling activities were the Facebook and twitter. Betting had the highest number of participants followed by lottery (Gainsbury et. al., 2016). The messages portrayed on the social media displayed gambling as exciting and emphasized winning which encouraged people to participate more. Griffiths (2015) reported that the availability and accessibility of gambling facilities eased the engagement in gambling activities among the young people and could lead to the risk of an addiction. The researcher argued that continued advertisements and promotions of gambling lottery created more interest in accessing gambling activities. He further maintained that youth who are addicted to gambling due to problematic internet usage could be predisposed to emotional difficulties such as lack of self-confidence, suicidal ideations and low self-esteem. The researcher affirmed that psychological and social problems could occur among the gamblers and could result to serious consequences such as suicide when one fails to win a bet they placed on a game.

A study done by Mwadime (2017) to investigate the implications of sports betting in Kenya indicated that young people were predisposed to being addicted to online gambling due to easy access of online sports betting which could be done at all time and everywhere. The researcher continued to maintain that young people gamble to earn money. Furthermore, young people incurred debts because they sometimes borrowed money to bet. The researcher concluded that young people in Kenya are susceptive to addiction to online gambling due to availability of internet connectivity and technologies when used in a problematic way. The findings of a study by Korros (2016) to investigate how betting affects the behaviour of students in universities in Kenyan affirmed that although mass media helps in educating people positively, it could also predispose young

people to internet gambling. Highlighting and advertisement enables the gamblers to discover the available sites of internet gambling. Highlighting encourages people to gamble with a hope to earn money and when they lose could become hopeless and isolated which could influence negatively on the social relations. This study therefore intended to answer the question whether online gambling behaviour was attributed to problematic internet usage among students in Kenyan universities.

Macharia (2018) posited that university students accessed and used internet for social interaction and gambling activities. In a study to explore implications of hole-in-the wallet phenomenon and paratoxic behaviour among university students in Kenya, the researcher maintained that undergraduate students were motivated to gamble by the anticipation of earning more money, a belief that led to a financial hardship. In Ogachi (2015), a great number of university students engaged in gambling because they had developed gambling disorder. The researcher attributed the gambling disorder to availability of online sports betting. Furthermore, university students in Kenya had unlimited access to gambling opportunities which could lead to the risk of an addiction. Considering that many university students would like to have extra money through online betting, the probability of engaging in online gambling is high hence, the likelihood of the risk of addiction to online gambling. Therefore, this research sought to examine the role of problematic internet usage in the risk of addiction to online gambling among undergraduate students in universities in Kenya. It was also in the view of this study that due to the acquired freedom by undergraduate university students, where their activities online were not monitored, they could be predisposed to risk of being addicted to online gambling. Previously, the students' activities online were monitored and limited by parents and guardians which was not the case when they joined the universities.

2.4 Problematic Internet Usage and Risk of Addiction to Online Pornography

Internet pornography can be defined as downloading of videos and pictures depicting sexual activities for the purposes of viewing the material (Kyriaki et. al., 2018). The researchers did a study to determine how preference in internet pornography viewing was a risk factor for adolescents internet addiction and attributed increase in pornography watching to availability of internet connectivity and technologies. According to the researchers, young people belong to the group that mostly engage in viewing pornography. This has been attributed to their developmental stage of exploration. At this stage, young people are trying to develop romantic relationships and are looking for information which increases the risk of being addicted to pornography as they spend more time online. The researchers reported that internet offers easy access to any information for those seeking to know about sexual matters or any required services. This is in agreement with Harper and Hodgins (2016) that through the internet, it was possible to access and view pornography and sexually explicit materials. Furthermore, excessive internet usage could lead to addiction to online pornography when there was ease of access, affordability and anonymity. The materials could be accessed through technological devices such as smartphones, iPad, laptops, and desktop computers. This study concurs with the authors that internet is readily available to university students and can be accessed easily and freely. However, there was need to ascertain whether problematic internet usage leads to risk of addiction to online pornography which was covered in the study.

A research study by Densley (2016) to investigate young adults' perspectives on pornography found out that advancement in technology and technological devices encouraged excessive internet usage, which could lead to the risk of addiction to online pornography. The technological devices mostly used were smart phones and personal

computers. The researcher further indicated that young people consumed online pornography than other groups of people. This suggested that young people were at a developmental stage where they were searching for information and education on sexual matters. Further, young people who engaged in online pornography were affected negatively. They had a higher possibility of having multiple sexual partners and could abuse drugs and other substances when engaging in sexual activities. There was also a possibility of having permissive attitudes concerning sex and negative view of members of opposite sex. In this connection, Gusciora (2016) did a study among men with learning disabilities to establish attitudes and opinions concerning pornography use and found out those males who consumed online pornography perceived females as sexual objects. Furthermore, males viewed females as subordinates and were more aggressive when engaging in sex. Research reviewed indicated that online pornography was high among the young people. The undergraduate students are in the category of the young people and therefore, could be predisposed to online pornography due to problematic internet usage. To ascertain these propositions in a Kenyan perspective, this study sought to explore the role of problematic internet usage in the risk of addiction to online pornography.

Result findings of a study done by Johnson (2003) to examine the influence of internet pornography on college students revealed that pornography viewing had become much accessible and popular with young adults. The study pointed out that the internet had turned into pornography commonplace and mainstream that affects attitudes about relationships, sexuality and women. The study further noted that previous and present study showed a substantial variance amongst persons exposed frequently to pornography and persons who were not, in the parts of relationship satisfaction, attitudes toward women, sexual assault and number of sexual partners. The findings indicated that

frequent contact to pornography is harmless and that the social reception of pornography as plain entertainment is inaccurate. Johnson was in agreement with Duffy et al. (2016)that addiction to online pornography could occur to anyone accessing the internet. They indicated that personal professed addiction in pornography had progressively occurred as a notion in study and predominant culture, and analysts cautioned of the described adverse effect. The researchers acknowledged that, addiction to pornography was not an officially acknowledged disorder and thereby causing a discrepancy concerning its classification and the level of its presence. The study showed that self-perceived pornography addiction was utmost often referred to as problematic pornography watching which had harmful consequences. In this case, researchers directed the attention on the regularity of pornography watching and associated influence as factors. The studies established some methodological limits of the principal studies that limited the power of the inferences, which could have been drawn. The limitations included insufficient measurements, the absence of representative samples and impact of addiction to pornography. This study tried to overcome these limitations by using unbiased sampling techniques to assess whether problematic internet usage leads to the risk of addiction to online pornography.

In order to determine the influence of internet pornography watching by young people, Owens et al. (2012) carried out a research, which established that the current increase of internet-aided technology had meaningfully altered the approach adolescents absorb and encounter sexually overt content. The researchers further indicated that, once an individual was restrained to an individual processer attached to a handset, the internet is nowadays accessible on smartphones, laptops, audio-visual game consoles as well as other electrical appliances. Moreover, the researchers argued that per the advance of the internet, it had become easy and universal to access pornography. According to the study

concurred with Andrew and Nash (2018) that exposure to online pornography among the youth led to impractical views and values about sex. The young people displayed increased sexual arrogance, were pre-occupied with sex and engaged in early sex. These assertions needed to be proven in a Kenyan viewpoint, therefore, the significance of undertaking this study.

When examining how college students consume internet pornography at Evangelical Christian Colleges in Chicago, Chelsea (2011) concluded that the students received unsolicited sexual material through the internet. The students who were more prone to pornography were those who used the internet frequently and at the same time were capable of using the technology comfortably. The study findings maintained that students were motivated to watch pornography with curiosity in addition to the period spent on the internet. Those who became addicted to pornography watching had a negative effect on their attitudes and actions towards members of the opposite sex. This was in agreement with Wamaitha et al. (2014)that a great number of college students watched pornography because they were at a stage where they were supposed to make choices that could affect their sexuality. At this stage, there are great chances of exploring and therefore, a possibility of being addicted to pornography watching. The researchers further acknowledged that university students frequent sites that depict sexually explicit materials and watch pornography due to accessibility, affordability and anonymity involved. Moreover, university students watch pornography as a way of searching for information concerning sex. This was attributed to lack of sex education to the young people in recent times as the elders provided it in the past. It was clear that further study needed to be carried out, as well as creation of awareness about the impact of recurrent exposure to pornography.

Communications Commission of Kenya (CCK) (2018) reported that pornography watching was widespread in Kenya just like other parts of the world. This was attributed to the accessibility and availability of internet connectivity and technologies. The Commission further indicated that college students had higher levels of pornography access, which was attributed to the developmental stage where the students were transiting from adolescents to adulthood and were required to make choices concerning sexuality. The Commission acknowledged that students in universities accessed internet more than any other group because universities invest in technologies in order to enhance learning. Hence, university students can easily access pornographic materials due to media exposure where they could learn and imitate behaviours portrayed in media. The Social Learning Theory also supports this assertion that people learn and imitate the behaviours of models. The models in this case could be the pornographic materials viewed. Exposure to the pornographic materials could lead to attitudes that are more permissive; to insecure sex and high risk sexual behaviours such as having numerous partners; anal sex and consuming alcohol and drugs during sex (Griffiths, 2015). In line with this, exposure to violent pornographic materials could lead to sexually hostile behaviour. Further, the researcher posits that young men who engaged in online pornography were susceptible to developing negative attitudes towards women and affected their involvement in sexuality and healthy interpersonal relationships.

In Wamaitha et al. (2014)‘effect of mass media on young people’s manifestation of sexuality and sexual behaviour in Kenya,’ young people visited sexually explicit sites in pursuit of material concerning sexuality in addition to sexual health. The contact with sexually explicit content predisposed young person to being addicted to pornography. This study aimed at ascertaining whether the same happens to undergraduate university students from a Kenyan perspective as per the reviewed literature. Scott (2017)

conducted a research study on hostility and depression issues in pornography usage of college-aged persons. The study indicated that adolescents who engaged in online pornography had high levels of sexual aggression. Therefore, to cover the gap, this research wanted to find out the role of problematic internet usage in the risk of addiction to online pornography among youths.

It involves sexual encounters between two or more people through technological connections by either sexting or participating in sexual fantasies through chartrooms such as webcam, Internet Relay Chat (IRC) and talker (Dhuffor & Griffiths, 2015).The researchers argued that internet sex was the most addictive online behaviour, which was attributed to availability of internet connectivity and technologies. The researchers acknowledged that cyberspace provided role-play chat rooms, which allowed individuals to explore sexual feelings and engage in private fantasies unique to the online environment. Furthermore, the fantasies progressed and lead to an addiction. These assertions were made in a study to investigate internet sex addiction among adult population. The web was the most preferred application for engaging in online pornography (CCK, 2018). Engagement in online pornography impairs an individual's life mainly: social, academic, professional and interpersonal relationships. Again, cybersex users were predisposed to being distressed because of the engagement in online sexual activities, which could lead to cybersex addiction.

According to Devrsen et al. (2015), when an individual develops addictions because of internet usage, there was a negative effect on psychological and social well-being. The researchers indicated that availability and flexibility in use of internet technologies promoted internet usage. In Dhuffa and Griffiths (2015), affordability, access and anonymity were some of the factors attributing to the acquisition and interaction of

sexual activities in cybersex chat rooms. The researchers maintained that engagement in online pornography could lead to an addiction. Online sexual addiction occurred when there was repeated sexual fantasies and urges, which were repeated, in sexual behaviour as a way of coping irrespective of the negative effect on the addict. Some of the activities of online sex according to the researchers include sexual fantasies. Engaging in online sex predisposed the consumer to harassment and cyber stalking which could lead to maladaptive online sexual behaviours. The conclusions of the researchers were that online sex was not real and had a negative effect on interpersonal relations because it substituted the normal sexual behaviour. Further, ease of accessibility, affordability and anonymity attributed to engagement in online pornography. This is in agreement with the Behaviourist Theories that a behaviour could be reinforced if it was maintained. In view of this, the pressure derived from watching pornographic material could reinforce the behaviour of engaging in online pornography.

According to Griffiths (2012), engagement in online pornography could lead to Compulsive Internet Use (CIU). The researcher posited that online sex addiction was the greatest form of problematic online behaviour. The researcher continued to argue that when online sex was used for a long time, development of compulsive internet usage could occur. He further highlighted that young people engaged in sexting. Sexting is the act of distribution of sexually overt materials or evocative imageries by cell phone. According to the researcher, cyberspace provides all kinds of sexually explicit adult chat rooms, which allow people to role-play and indulge in private fantasies. The role-play chat rooms are accessible on the internet and provide sexual desires of different kinds such as gay, straight or incest. In Dhuffa and Griffiths (2015), internet, sex addiction had been classified as any other behavioural addiction on which the addict attained pleasure and a behaviour that reinforces. The researchers acknowledged that young people

socialized on the internet on sexual matters. Furthermore, excessive engagement on online sexual content could lead to an addiction, which included sharing of sexual content, which could trigger arousal through cybersex. Individuals engaged in online sex in order to gain immediate gratification, which at long run could lead to an addiction. The researchers further acknowledged that individuals engaged in online sex due to safety and anonymity involved when accessing the material. There was also provision of an opportunity to explore and feel safe in engaging in online sex than physical activities.

According to Longo et. al. (2002), individuals become addicted to online sex when they start spending longer periods on the internet routinely with the intention of engaging in online sex. Due to anonymity in engaging in sexual fantasies, individuals become preoccupied with using internet to engage in online sex activities. The researchers further explained that affordability, anonymity and accessibility were some of the factors that attributed to online sex. Furthermore, those who become addicted to online sex kept their online interactions secret and could feel guilty or shame because of their online activities, which could lead to preference of online relationships over face-to-face relationships. The report by Communications Authority of Kenya (2015) highlighted that there had been a noticeable spread of internet usage in Kenya due to availability of low-cost technologies such as smartphones and tablets. The CA reports that the penetration of mobile phones in Kenya and the availability of mobile data services, the young people benefit and frequently use the technologies more than any other group. This was attributed to their curiosity and interest in using the technologies and because they were required to use these technologies in accessing important information for academic purposes, therefore, they took advantage to access sexual materials. The authority further noted that although internet was beneficial to the young people, it could enhance access

to online pornography. Andrew and Nash (2018) pointed out that the platforms provided by the internet allowed the young people to be connected to websites that allowed engagement in online sex. The materials could also be shared through sexting. Sexting involves generating, distributing and sharing of sexually evocative naked or barely naked pictures by use of internet technologies. The Commission concluded that online sex could lead to an addiction, which could affect negatively on the physical and emotional state of the user. The addiction to online sex could also lead to low self-esteem. In order to ascertain the propositions by other researchers, this study investigated the role of problematic internet usage in the risk of addiction to online pornography.

2.5 Problematic Internet Usage and Risk of Addiction to Online Sexual Violence

Sexual violence includes harmful acts that may be physical or psychological (Svensson et al., 2018).The findings of the study by the researchers to investigate the level of knowledge among adolescents and helpful attitudes towards sexual crime in the Swedish setting found out that the acts took place in secret amidst communities. The study continued to acknowledge that, apart from the internet facilitating other forms of violence such as hacking and theft it also facilitated sexual violence. The behaviour if not controlled could lead to an addiction risk and affect the individual negatively such as forming anti-social behaviours. Powell and Henry (2016) referred to online sexual violence as any unwanted sexual behaviour transmitted electronically through means such as video call, voice call, text message, email and picture messages which could be through virtual worlds, social media or online discussion forums. In a study to establish technology-facilitated sexual violence among an Australian adult community, the researchers ascertained that online sexual violence was facilitated by use of digital technologies, which took three forms namely: sexual coercion where an individual was put into pressure to cooperate sexually through bribery, threats or blackmail. In sexual

coercion, the victim could be required to release intimate pictures, be involved in virtual sexual acts or person-to-person sexual acts. The second sexual violence through digital technology according to the researchers was sexual offense where a meeting was organised with the victim, which led to sexual assault. The third sexual violence was taking pictures of sexual assault and distributing the pictures through technology. Researchers have investigated online sexual harassment mostly on adolescents and children. Therefore, there was a gap in the present study into university students' risk of addiction to online sexual violence because of problematic internet usage.

According to Holladay (2016), sexual violence involves rape, sexual harassment and sexual assault, which have negative effect on the psychological, physical, and social well-being of an individual. Further, technology facilitates sexual violence using social media and internet sites. The researcher further acknowledged that online sexual violence had increased due to availability of technology, which made it easy for the perpetrators to harass or assault their victims in privacy. Moreover, the harassment could be extended to face-to-face relationships. Majority of the victims of online sexual violence were females. The methods of violence used were sending of sexually explicit materials in form of photos or videos, advancement of unwanted of unwanted sex or pursuance of sexual relations. The findings of a study by Fansher (2017) to investigate risky dating behaviours in technological age among undergraduate students in Southern University concluded that sexting was popular with college-age students. Students engaged in sexting to entice their counterparts into participating in sexual activities or in forming sexual relationships. In Cripps and Stermac (2018), social media platforms mostly used were the Facebook and the twitter. Moreover, who were involved in problematic internet usage had a possibility of receiving sexual harassment in addition to assault from even strangers due to the anonymity involved. The harassment could

sometimes lead to even rape. This is an indication that online sexual violence occurs among university students; and it could cause serious physiological, social and emotional difficulties. A great number of researches done were in the western countries, which have a different cultural, social and economic background with Kenya. Therefore, to ascertain whether the same happens in a Kenyan perspective, there is need to investigate the role of problematic internet usage in the risk of addiction to online sexual violence.

Due to availability of internet technologies and ease of access of the internet, undergraduate students in the universities in Kenya could be able to access materials that could lead to the risk of addiction to online sexual violence (Svensson et al., 2018). The researchers further indicated that online sexual violence could be confined to the internet with networked technologies or through mobile phones. Moreover, the researchers acknowledged that some pornographic scenes contained aggressive acts, which were directed towards the women. This could be an indication that if the undergraduate students continuously became exposed to these scenes, they may develop violent attitudes towards members of the opposite sex. A study carried out to investigate bystander perception of sexual violence among adolescents in Canada by Zhang (2015) concluded that men became more aggressive and had diminished empathy after watching violent pornography. The study reported that after viewing violent pornographic scenes, men lost interest in normal sex and begun to engage in unwanted sexual acts by coercing partners. Further, smartphones were the most common technology used to access the violent content on the internet. Svensson et al. (2018) highlighted that one of the factors associated with sexual violence was advertisement on the internet. Advertisement facilitated access to the violence sexual materials. Furthermore, due to the anonymity involved when using the internet, there could be deception.

The potential victims could not be able to judge whether the messages on the internet were true and suitable due to omission of important information.

The findings of a study done by Cripps and Stermac (2018) to investigate cyber sexual violence and negative emotional states among women in a Canadian University, found out that women experienced cyber-sexual violence in form of non-consensual sexually explicit material, sexual exploitation and harassment, sexual assault and cyber stalking. The researchers highlighted that the women who were involved in cyber-sexual violence did not feel comfortable to disclose the incidents. Failure to disclose and to deal with the behaviour led to negative effects such as social anxiety, depression, distress, stress and negative emotions. The study showed that individuals engaged in cyber- sexual violence while using the internet, which called for an investigation whether undergraduate students in Kenyan universities engage in online sexual violence due to problematic internet usage. In agreement to Cripps and Stermack (2018), Holladay, (2016) also affirmed that more females than males became victims of online sexual violence. The researchers indicated that availability and accessibility of internet usage and growth of social media sites increased cases of online sexual violence.

Although online sexual violence has negative effects on an individual, some people become involved in it because they enjoy the behaviours portrayed on the internet (Klettke et al., 2018). The researchers did a study to investigate sexting and mental health among young adults in Indiana and Australia and found out that sexting exposes individuals to risky activities mainly; unsafe sex, usage of alcohol as well as other substances and negative mental and emotional feelings. According to Henry and Powell (2015), there was intertwine between online sexual violence and internet platforms and technologies. People especially the youth shared sexually explicit information through

sexting. Some of the shared information was non-consensual while on the other side, an individual had given consent for the information to be shared. This study argues that problematic internet usage could influence the user and could have a likelihood of leading to risk of addiction to online sexual violence. These assertions required an investigation, hence, the current research tried to establish the role of problematic internet usage in the risk of addiction to online sexual violence.

Zhang (2015) indicated that the physical acts of internet violence included suicide, murder and sexual assault while the psychological acts include anti-social behaviour, depression and anxiety. The researcher affirmed that engaging in online sexual violence could lead to aggressive and negative attitudes towards females by males. Further, there was an increase in acceptance of sexual violence by both genders. However, males believed that females enjoyed violent sex after watching the same behaviours being portrayed on the internet. The researcher continued to assert that long periods of exposure to online sexual violence increased the likelihood of supporting rape. This suggested that engagement in problematic internet usage could predispose an individual to the risk of addiction to online sexual violence. The current study tried to cover this gap in ascertaining whether problematic internet usage could lead to the risk of addiction to online sexual violence. The results of research to explore the effect of media among teen sexual behaviour and attitudes, Brown (2008), acknowledged that internet had an impact on sexual behaviour and aggression. The study findings concluded that as the youth engaged in online activities more, they started to engage in behaviours portrayed on the internet by the media personalities who became the role models on how they behave sexually. This was in agreement with Bandura social learning theory that individuals imitate behaviours that they see being rewarded. According to Zhang (2015), the groups that was at a greater risk of developing addiction to sexual violence are the youth and

adolescents because they used the internet more often than other groups of people.

The findings of a study done by Njuguna (2017) to investigate perceptions of violent behaviour on females on the social media platforms in Kenya established that internet provided anonymity which lead to aggression. The anonymity made it difficult to trace the offenders of social media crimes and hence, predisposed the users to harm. The researcher further observed that when individuals were exposed to aggressive sexual behaviours they could perceive rape as being right. Aggressive sexual behaviours depicted on the internet portrayed women enjoying humiliation even though itcould be violent and degrading (Wamaitha et al., 2014). The researcher continued to affirm that there could be a possibility of developing addiction to sexual violence as a way of practicing the behaviours learnt through the internet. The researchers' assertions could be affirmed by investigating the role of problematic internet in the risk of addiction to online sexual violence among undergraduate students in universities in Kenya.

2.6 Problematic Internet Usage and Risk of Addiction to Drug and Substance Abuse

Drug and substance abuse may be referred to as elements that are consumed for purposes other than for the medical use and affect the way one feels and thinks (Collins, 2014). Some of the drugs are legal and can be acquired from chemists, shops and online platforms while others are illegal and may be acquired through the same process or through the dark/crypto markets (Mountaney et al., 2016). According to the researchers, young people use drugs and other substances in order to conform to a group; or when they lack social skills to fit in a group. Due to the long hours spent on the internet, the young people could make friends online some of whom could introduce them to drug and substance abuse as they were availed and acquired by maintaining the anonymity of the individual. Moreover, ease of accessibility, availability, supply and anonymity

predisposes the young people to become addicted to drugs and other substances. A study done by Alsulimani (2018) to investigate social media and drug smuggling in Saudi Arabia showed that persons who engaged in social media for longer durations were at a greater risk of drug and substance abuse. Usage of social media also facilitated invitations to parties with friends and peers where the drugs were abused. Further, marketing and advertisement of drugs and other substances was done online which made it easy for the buyers to do transactions online and with anonymity. However, even legal drugs are acquired through the same process. Moreover, the young people were found to be the majority of the users of media platforms where drugs and other substances were acquired. Those who engaged in problematic internet usage had a likelihood of developing an addiction to drug and substance abuse. This indicated that problematic internet usage was a significant factor in the risk of addiction to online drug and substance abuse. It implied that problematic internet usage could lead to online drug and substance abuse. To ascertain whether the same applies in a Kenyan perspective, hence the importance of carrying out this study.

Although social media has several advantages, it could also have negative consequences for the users (Collins, 2014). According to the researcher, young people engaged in online activities to access important information, to connect with friends and share personal information about their activities, lifestyles and interests. Further, an individual's drug and substance abuse could be linked to friends' abuse. The current study was in the view that due to problematic internet usage, undergraduate university students could be able to connect with friends who used drugs and other substances and could be able to access all the information concerning these drugs online. Ease of accessibility, availability and anonymity involved online in the supply of such drugs and substances may interest the students who may want to discover and try the drugs and

substances of abuse, which may lead to risk of an addiction. Some illegal drugs such as psychoactive drugs are advertised and marketed through the internet as legal drugs and may bring confusion to an individual who lacks experience in them and may acquire them innocently (David et al., 2014). This research sought to ascertain the view of the researcher that university undergraduate students could be predisposed to addiction to drugs and substances of abuse because they have free and limitless internet and therefore could spend several hours online disposing them to the addiction. The university undergraduate students could fall victims of online sellers looking for people to buy their drugs or through their peers and friends who may encourage them to try the drugs.

The findings of a study done by Kurt (2015) to examine the effect of internet addiction and drug use found out that drug use and problematic internet usage were two increasing risk behaviours among youth. However, there was an indication that little information was available on the association between problematic internet usage and drug use. The research was conducted among university and high school students, which established that the prevalence rate of problematic internet usage and drug use was 5% and 4%, respectively. In a similar study, Whitman (2015) carried out a relative investigation among adolescents on substance abuse and problematic internet usage and found out that substance abuse was compulsive disorder which involved abusive internet behaviours with several aspects of an individuals' life.

The offensive behaviours included too much time spent playing online games, gambling, in chat rooms, engaging in cybersex or web surfing. The researcher concluded that current research was in adequate besides various prevailing descriptive indicators, valuation assessments, as well as treatment researches had weaknesses in studies, analysis, in addition to long-standing monitoring. The study, however, failed to indicate

whether problematic internet usage contributed to drug abuse. Hence, it was important to determine whether problematic internet usage lead to risk of addiction to online drug and substance abuse among undergraduate students in Kenyan universities.

Sajeev et. al. (2015) carried out a research on internet usage and substance abuse disorders in adolescent students and indicated that behavioural usage besides the usage of substances, other drugs of abuse were on a rise among adolescents throughout the world, and presiding psychological illnesses was a hindrance to diagnosis and looking for help. Further, the research established that 13.4% of the respondents used the internet excessively and reported a substantial link amongst substance usage ailments and problematic internet usage. A research finding by Griffiths and France (2019) to investigate the difference between men and women in drug use disorders indicated that both genders abused drugs. However, the researchers affirmed that there was a difference4 in drug and substance use disorders in the two genders. Although, men had an advanced level of drug and substance usage, women experienced enjoyable responses, which predisposed them to the addiction risks because of repeating episodes. Occurrence of substance and drug usage ailments and problematic internet usage was an emergent unit amongst youngsters besides having stern consequences happening to the evolving mind (Pass et al., 2017). The long lasting outcome for problematic internet usage on the mind remains a subject of study in other future researches.

The National Agency for Campaign against Drug and Abuse (NACADA) and other researchers consider drugs of abuse as psychoactive substances due to their psychological, social and physical effect on an individual (NACADA, 2009; Pass et al., 2017). Drug and substance abuse could lead to addiction, which could cause adverse psychological, social and physical effects. Jacobs (1986) when proposing his Theory of

General Addictions concluded that addiction to drug and substances of abuse could affect negatively on the psychological, social and physical welfare of the addict. The physical effect could be reflected by poor health while one being stressed, depressed, failure to use cognition properly, change in emotions and behaviour, could reveal the psychological effect. The theorist continued to acknowledge that after the addiction, an individual might become dependent on the drugs. The findings of a study to investigate incidence and extent of substance abuse among secondary school students in Kenya indicated how mass media helped in educating people positively, it was also used to highlight and glorify substance abuse (King'endo, 2010). Highlighting and glorification enables drug dealers and abusers to discover the available sources of the drug. For instance, Mombasa is highlighted as a major destination of drugs. The highlighting is done to discourage and indicate the situation at hand, however, because of the curiosity created, university students could fall victims, as they could want to discover more. Considering that university students spend great number of hours on the internet, they get a good opportunity for developing contacts, which could create an appropriate environment to share information online. The information shared could lead to more searches with a likelihood of disposing the students to addiction to drug and substance abuse. Therefore, the current study investigated whether problematic internet usage by undergraduate students in Kenyan universities leads to risk of addictions to online drug and substance abuse.

A number of organisations such as that deal with drug and substance abuse NACADA have social media platforms where they provide information to the youth concerning drugs and other substances of abuse (Mutai et al., 2020). The researchers carried out a study to investigate innovations and opportunities in social media for management of drug and substance abuse in selected informal settlements of Nairobi County, Kenya.

The researchers further affirmed that if the discussions on the social media were not controlled, there was a possibility of promoting drugs and other substances. Moreover, the online discussions concerning drug and substance abuse acted as a facilitator for the peer and other network members to learn about the dynamics of these drugs and substances. In the view that the study was carried out with different group of people from the study group of this research, this study sought to investigate problematic internet usage influence on the risk of addiction to online drug and substance abuse. According to Chege et. al. (2017), children and teenagers were lulled to using drugs and substances of abuse by the advertisements made online. The researchers further noted that young people received conflicting information online concerning drugs and substances of abuse. Furthermore, the information portrayed online contributed to the young people being predisposed to the risk of addiction to drug and substance abuse. Moreover, the young people learnt how to access the drugs and other substances of abuse by connecting with the sellers online.

Films and music broadcasted by Kenya's mass media promotes drug and substance abuse (Koech, 2021). The researcher further noted that Kenyan youth consume high amounts of online information including information on drug and substance abuse. The information relayed online also include information on sexuality, relationship, drugs and violence. Chege et. al. (2017) highlighted that advertisement of drugs and substances of abuse is intended to create the impression that consuming such substances is normal. Review of literature on problematic internet usage and the risk of addiction to online gambling is scarce, therefore, this research attempted to cover the gap by investigating the role of problematic internet usage in the risk of addiction to online drug and substance abuse among undergraduate students in Kenyan universities.

2.7 Theoretical Framework

This study utilized Behaviourist Theories and Social Learning Theory. The theories claim that behaviours are socially controlled. World Health Organization (2014) acknowledge that behaviours such as gambling, online sex, game playing, compulsive spending and overeating could lead to addictions if done in excess. Behaviourist and social learning theories consider addictions as a learning behaviour or a way of coping. The theories are discussed in detail in this section.

2.7.1 Behaviorist Theories

Behavioral theories explain the importance of connecting between experience and behavior. According to the theorists, there is a connection between the stimulant, which is the event, and the response, which attributes to behavior change. Behaviorists called the learning process, conditioning which happens by association (Santrock, 2004). Conditioning occurs in two ways: classical conditioning and operant conditioning. Classical conditioning is derived from the experiments conducted by Ivan Pavlov. The experiments involved harnessing the dogs and giving food and then measuring the amount of saliva produced by dogs. Classical Conditioning is important in explaining how behaviors are formed. Mainly, the theory explains what motivates people to start to be engaged in the addictive behaviors. B. F. Skinner devised operant conditioning by putting hungry rats in boxes called skinner boxes. Hunger could motivate the rats to move about in the box and when they accidentally pressed the bar, which operated the food magazine, the magazine would release some bits of food. Behaviorist theories emphasize that behavior is maintained by the outcome, which is the reinforce (Skinner, 2014). Operant conditioning explains how a behavior could be maintained after it has been acquired.

The theory affirms that a behavior recurs due to rewards that accompany the addictive behaviors reinforces it to recur, for instance, winning a bet could lead to making several trails and hence result to an addiction. The strengths of behaviorist theories are that they offer an explanation on how behaviors are learnt and provide information on when the behavior can change. The theories are also precise and can be understood easily. The weaknesses of the theories are that they do not provide an explanation on how people make practical choices in numerous kinds of probable goals and rewards. The theories attribute a person's behavioral mechanism and meanings as originating from the individual rather than the particular environmental drives.

Behaviorist theories are important in explaining the role of problematic internet usage in risk of addictions because the behaviors provide pleasure to the young people. The theorists posit that an individual's behavior can be learned and reinforced through rewards. In this case, rewards could be in terms of pleasure gained in using internet connectivity and technologies. In Operant Conditioning, engaging in activities on the internet that could cause an addiction involves reinforcement. Engaging in behaviors that could lead to risk of addictions on the internet results in gratification, which could function as a positive reinforce (Schultz, 2015). As the young people engage in these behaviors on the internet, they escape from any problems they could be experiencing and forget them during the time spent online. Therefore, reinforcement increases the possibility of the behaviors to be repeated. Classical Conditioning was also important in clarifying the role of problematic internet usage in the addiction risks. Pairing of online engagement and pleasure derived in accessing the addictive materials, conditioning takes place and elicits more engagement in the internet usage. Freed (2018) posited that problematic internet usage released dopamine involved in attention, reward and addiction, which causes a good feeling these feelings, increases the habits and behavior.

According to Freed (2018), problematic internet usage can be grouped as impulse control disorder because of its addiction-like symptoms. The Behaviorist theories therefore, are capable of explaining the rewards the undergraduate students get by engaging in problematic internet usage. The rewards can in be in terms of earning money after winning a bet, getting sexual satisfaction after watching pornography or getting high after acquiring and using drugs and other substances. If the rewards are sought to repeatedly, the behavior could lead to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. Any behavior done in excess qualifies to be an addiction (Griffiths, 2015). The researcher pointed out that behavioral addictions are highly rewarding and reinforcing. Therefore, behavioral theories were identified because they explain how undergraduate students could be predisposed to the risk of the selected addictions through the reward and reinforcement they get by engaging in problematic internet usage.

In Operant Conditioning, rein forcers increase the probability of a behavior (Shultz, 2015). Furthermore, some of the rein forcers identified included; alcohol, drugs, sex, money and food. This is an indication that problematic internet usage with the presence of several websites portraying the addictive materials predisposes the university students to the risk of addictions. In Akers et. al. (2012), a person may be reinforced through two different ways – nonsocial and social. Nonsocial reinforcement occurs directly from the effects of the addictive behavior which social reinforcement occurs through exposure to behavioral models. Therefore, Behaviorist theories are capable to explain how the university students maybe predisposed to the risk of addictions due to problematic internet usage. However, the theories consider how the behavior is reinforced but does not consider the environmental factors that predisposes individuals to problematic internet usage that could lead to the risk of addictions.

2.7.2 Social Learning Theory

Albert Bandura founded Social Learning Theory in 1977 (Bandura, 1977). Bandura emphasized that behavior is determined by the environmental factors and at the same time by how thoughts modify the effects of the environment on behavior. He maintained that imitation was one way in which individuals learn about the world. Bandura did an experiment with children by observing the way children became violent subsequent to viewing a hostile movie and concluded that children became more hostile after viewing a violent model being rewarded. Children learnt being aggressive by observing the model. Therefore, the conclusion was that individuals undergo four processes in observational learning mainly: Attention – one must be attentive to a model in order to learn, retention – whatever has been learned must be stored in the memory, reproduction – the learned responses have to be reproduced and finally, motivation to perform the learned behavior.

Social learning theory maintains that people acquire knowledge, belief, attitudes and values through observing others in the social world. Individuals are influenced socially through vicarious conditioning and modeling (Kalat, 2017). Vicarious conditioning occurs when an individual observes another's behavior and its consequences. Social learning theory has the strength in explaining human behavior: how the environment influences behavior and the indication that people have the freedom to choose to either perform the behaviors they learn or not. The theory explains how behavior occurs in a simple way and therefore can be easily understood. Another advantage of social learning model is that, it integrates cognitive and social theories. The weaknesses of the theory are that it does not explain all behaviors. The theory emphasizes on what happens when a behavior is observed and does not explain the physical and psychological changes on behavior.

However, the theory could be used to understand the addictive risks of problematic internet usage because it explains how the beginning of contact with people who are exposed to the risks of addictions could lead to the acquisition of the maladaptive behaviors. According to the theory, there was a likelihood to engage on the addictive behaviors if people in the same environment engage in the same behaviors. The contribution of the theory was that individuals learn some behavior through socialization. For instance, the addictive risks of problematic internet usage could be learnt through peers, friends or family interaction. Most of the addictive behaviors could be learnt due to use of internet connectivity and technologies (Mutahi et al., 2020).Individuals portray behaviors that are rewarded on the internet; they imitate and adopt those behaviors as their own. The researchers further affirmed that the environment in which one is in determines their behavior. Social learning theory agrees with the researchers that a person could acquire behaviors that are portrayed in the environment by models. Such behaviors could become habits and lead to the risk of addictions.

A person can be influenced by exposure to the group in which he interacts with (Akers et al., 2012). The group could be either peers or models. Furthermore, association with models or peers happen first, followed by exposure and lastly provision of the social environment for the addictive behavior to occur. The consequences of the addictive behavior determines the likelihood of continuity. In this case, the pleasure undergraduate students receive from problematic internet usage encourages them to continue with the engagement which could lead to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. Problematic internet usage exposes university undergraduate students to addictive content and sensitizes them to the behaviors. As the students engage on the internet, online personalities become their role models in functioning and behavior. More exposure to

problematic internet usage could lead to a higher frequency of the risk of addiction (Shultz, 2015).

Social learning theory is useful in understanding how the undergraduate students in Kenyan Universities could be predisposed to the risk of addictions because of problematic internet usage. The theory also offers understanding on how the university students can develop problematic internet usage because of the environment where they can learn the behaviors from their peers and online models. Hence, social learning theory is important in understanding the role of problematic internet usage in the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse.

2.8 Conceptual Framework

The relationship between independent and dependent variables is shown in Figure 1

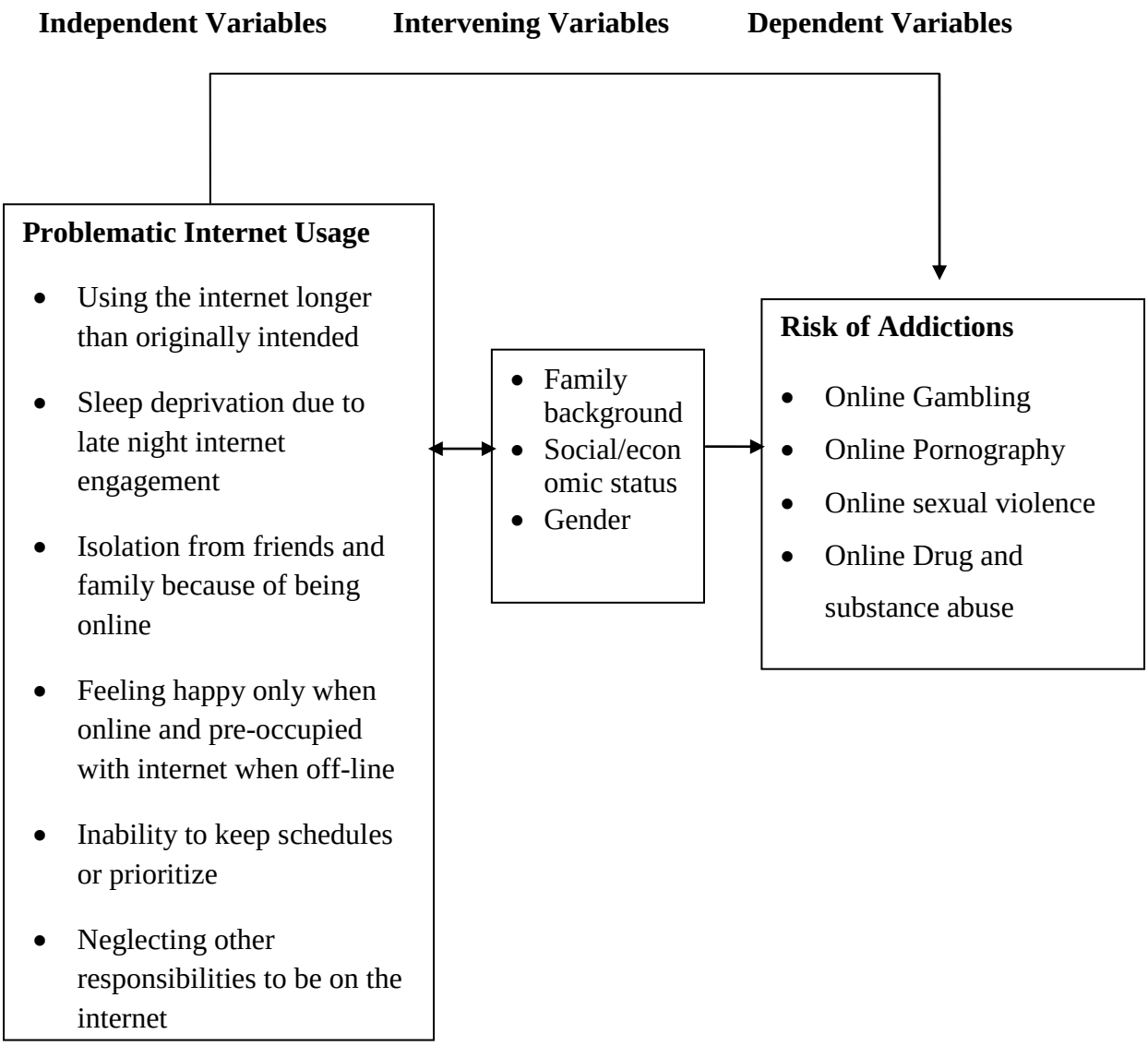

Figure 1: Relationship between the variables of study

Source: Researcher, (2021)

The conceptual framework shows the relationship between the independent variables and dependent variables. The independent variable is problematic internet usage. It was measured in terms of using the internet longer than originally intended, sleep deprivation due to late night internet engagement, isolation from friends and family because of being online, feeling happy only when online and pre-occupied with internet when off-line,

inability to keep schedules or prioritize due to internet engagement and neglecting other responsibilities to be on the internet. Problematic internet usage refers to inability to control how one uses the internet. Excessive use of the internet can lead to preoccupation and urges of online activities resulting to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse.

The dependent variable is the risk of addictions, which was measured in terms of online gambling, online pornography, online sexual violence and online drug and substance abuse. Risk means the habit of engaging in problematic internet usage, which predisposed the undergraduate students to the addictions. Hence, engagement in problematic internet usage had a likelihood of leading to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse.

The intervening variables are the family background, the social and economic status and gender. The upbringing and the family values of how one is socialized could influence how an individual uses the internet. For instance, visiting some sites could not be morally right to some individuals. The social and economic status could be influential in the way one interacts with the environment, which could change the behaviour. The gender either male of female could influence how one engages in problematic internet usage and the probability of being at a risk of addiction. This study focused on risk of addictions as negative effect attributed to problematic internet usage.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter covers the research methodology used in the study. The chapter presents information on research design, location of study, and population of study, sampling procedure and sample size, research instruments, piloting of research instruments, validity and reliability of instruments and data collections procedure. The chapter also covers data analysis methods and ethical considerations.

3.2 Research Design

A research design is the conceptualization of the study outline that the researcher intends to use in collecting, measuring and analysing the data (Kothari, 2014). The current study employed *ex-post facto* research design. Cohen et al., (2011) explain that *ex-post facto* research design which means "after the effect", investigates the possible cause and effect by observing the variables in their existing condition. The research variables were not controlled or manipulated and were understood in their own manifestation. Bryman (2012) indicates that in this research design, variables have already occurred and the researcher only examines them in their natural occurrence.

The research design was useful in investigating how the independent variable relate to the dependent variable. It was useful in exploring the causes and effect between the variables without controlling them. Therefore, this research design was appropriate for this study in the sense that it focused in accessing the problematic internet usage influence on the risk of selected addictions. Through this design, the characteristics of problematic internet usage were described and risk of addictions determined. Therefore, this study sought to understand the influence and relationship of the variables in their

natural existence. Hence, the role of problematic internet usage in the risk of selected addictions among undergraduate students in Kenyan universities was investigated.

3.3 Location of the Study

The study was carried out in four universities in Kenya. The universities were purposively selected from two counties, which included Meru and Nairobi to participate in this study. The universities have free internet enabled to students, which implies that undergraduate students are digitally connected. Nairobi covers an area of 696 square kilometres with a population of 3.1 million people. The County of Nairobi borders Kiambu to the Northern part, Kajiando to the Southern, Machakos to the Eastern and Muranga to the North East. It is the Capital City of Kenya and is composed of 18 constituencies. Meru County covers an area of 6936 Square kilometres with a population of 1.356 million people. The County borders Nyeri to the South West, Isiolo to the North, Tharaka Nithi to the East and Laikipia to the West. Meru County comprises of nine constituencies (Census, 2009).Nairobi County houses 13 universities while Meru County has two.The universities enrol students from different ethnic backgrounds in Kenya indicating that the undergraduate students' characteristics were similar.The universities in the two counties have similar characteristics, with universities in other counties therefore, the results could be generalized. The universities in Meru represented universities in rural areas while the universities located in Nairobi represented the universities in urban areas. Nairobi and Meru are among the 47 counties of Kenya (see appendix D).

3.4 Population of the Study

The study targeted four universities in Kenya, two public and two private. According to (Kothari, 2014), a target population is the entire group of individuals, events or entities

with common observable features and to which the investigator wishes to generalize. The target population was therefore, all the undergraduate students in the selected universities in the two counties constituting of about97,284students.The accessible population was third and second year undergraduate students in the four universities comprising of 18911 students.

The student peer counsellors were selected among the second and third year undergraduate students. The study also targeted students' counsellors in the selected universities. Table 1 shows the distribution of target population per university while table 2 shows the accessible population.

Table 1: Target Population of Undergraduate Students

University	Undergraduate students	Students' Counsellors
Private University A	7072	2
Public University B	4133	1
Public University C	81589	8
Private University D	4490	2
Total	97,284	13

Source: University Records (2018)

Table 2: Universities and Population of 2nd and 3rd Year Undergraduate Students

University	Undergraduate Students	Students' Counsellors
Private University A	2857	2
Public University B	2592	1
Public University C	11387	8
Private University D	2075	2
Total	18911	13

Source: University Records (2018)

According to Cohen et al., (2011), sampling refers to selecting of objects from the population whose characteristics are representative of the entire group. Therefore, the subjects of this study were drawn from undergraduate students, peer counsellors and student counsellors. The study used probability sampling which included simple random and proportionate sampling techniques and non-probability sampling procedures comprising of purposive sampling. Probability sampling method is a procedure of choosing subjects where every object has an equal chance of being chosen while non-probability sampling method is a procedure in which a particular group is chosen to participate in the study (Cohen et al., 2011).

3.5.1 Sample Size

The sample size was calculated using the formula indicated by (Zuluta et al., 2004) as follows:

$$n = \frac{N}{1+Ne^2}$$

Where:

n = Sample size

N = Population size

e = Margin error (0.05)

The population of undergraduate students in the four universities was 97,284. The accessible population of 2nd and 3rd year undergraduate students was 18911. According to the above calculation by Zuluta et al. (2004), the sample size for a population of 18911 was 391, which was sampled through simple random sampling technique. Simple random sampling technique is a procedure of choosing a sample in a way that identified clusters in the population be present in the sample in the same proportion that they exist

in the population (Gray, 2004). Four students' counsellors and 16 student peer counsellors from the selected universities were purposively sampled making 411 respondents. The sample size of the undergraduate students was distributed among the four universities using proportionate sampling as shown in Table 3.

Table 3: The Distribution of Sample Size

	Undergraduate Students	Student Peer Counsellors	Student Counsellors
University A	59	4	1
University B	54	4	1
University C	235	4	1
University D	43	4	1
Total	391	16	4

Source: University Records (2018)

3.5.2 Sampling Procedure

Sampling is a process of selecting a subset of cases in order to draw conclusions about the entire set while a sample is a small part of the entire population, which is a representative of large population (Cohen et al.,2011). Therefore, there is need to obtain small groups of the entire population while doing a study in consideration of time, expense and accessibility that could hinder attainment of information from the entire population. This study employed purposive sampling method to sample two universities in Nairobi County and two in Meru County. Purposive sampling entails selection of sample that is appropriate for the study (Creswell, 2014). In this case, the four selected universities were assumed to have free internet connectivity enabled to the students. Purposive sampling was used to select second and third year undergraduate students.

Simple random sampling was used to sample second and third year undergraduate students. According to Bryman (2012), Simple random sampling technique is a

procedure of choosing a sample in are cognized group in the population are represented in the sample in the same proportion that they exist in the population. Third and second year undergraduate students were the most appropriate because of the acquired freedom after joining the university. They are not monitored on what they do online unlike when they were in high school where, use of mobile phones was controlled and monitored by parents and teachers. Moreover, the students are trying to cope with the newly acquired freedom and independence after undergoing orientation and could have realized that they have a lot of free time, which could be used to access the internet. Therefore, simple random sampling was used to sample undergraduate students. The questionnaire was distributed in the lecture halls where third and second year students were attending classes through the guidance of academic registrars' offices in the selected universities. The students' counsellors and student peer counsellors from the universities of study were purposively sampled. The students' counsellors interact with students in the universities and offer-counselling services to them while, student peer counsellors offer support systems to their peers.

3.6 Instrumentation

The study used three types of instruments, which were developed by the researcher based on the research gap identified in the literature review to collect data. The research instruments were questionnaire, an in-depth interview schedule and focus group discussion guide. The methods increased the credibility and validity of the results and helped to overcome the weaknesses or biases and the problem that could have occurred when using a single method.

3.6.1 Questionnaire for the Students

A questionnaire was used to collect data on the role of problematic internet usage on selected addiction risks among undergraduate students in Kenyan universities. The questionnaire comprised of structured and unstructured questions. Questionnaires make it possible to measure a person's likes and dislikes, attitudes and beliefs (Leedy & Armrod, 2014). An advantage of the questionnaire is that it provides opportunity for respondents to give more information than it is anticipated. Questionnaires are similarly inexpensive in considering both money and time (Gay & Mills, 2011).

In the study, the questionnaire for the undergraduate students sought information on how problematic internet usage which was measured on the following aspects. Loss of track of time when on the internet, sleep deprivation, isolation from friends and family, feeling happy only when on the internet, inability to keep schedules or prioritize and neglecting other responsibilities to be on the internet predisposing undergraduate university students to risk of addiction online gambling, online pornography, online sexual violence and online drug and substance abuse. The questionnaire was divided into three sections mainly; A to D. Section A focused on the background information of the respondents. Section B sought information on the availability of internet connectivity and technologies in the universities. Section C sought information on problematic internet usage while section D elicited information on the risk of selected addictions. The questionnaire also contained open-ended questions as well as closed-ended questions. Closed-ended items were rated in a Likert scale from 1-5, 1 being the least and 5 being the highest, 5 indicated strongly agree, 4 agree, 3 somewhat agree, 2 neither agree nor disagree and 1 somewhat disagree. The questionnaire for undergraduate students in Kenyan universities is attached as appendix A.

3.6.2 In-depth Interview Schedule

In-depth interview schedule was used to collect qualitative data in form of opinions, perceptions and experiences of students' counsellors. An interview schedule comprising of unstructured questions was used. Creswel (2014) indicates that an interview schedule has an advantage of providing in-depth understanding of the phenomenon. Further, it allows the interviewer to carry out face-to-face or telephone discussions with the participants. Moreover, unstructured interviews have an advantage that they allow an understanding for the interviewee's viewpoint. They allow for data collection in content in addition to the emotional levels of the respondents. Face-to-face interviews were conducted with students' counsellors, which allowed an in-depth investigation. The interview schedule was administered to the students counsellors to get more information on the problematic internet usage influence on the risk of selected addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse among undergraduate students in Kenyan universities. The information from the interview schedule was used to enrich the information from the questionnaire. Unstructured questions were used to generate qualitative data on problematic internet usage and the risk of addictions. The in-depth interview schedule for students' counsellors is attached as appendix B.

3.6.3 Focus Group Discussions

Focus Group Discussions were conducted on the student peer counsellors in the universities of study. Four Focus Group Discussions, each comprising of four participants were conducted. Morgan (1997) posits that Focus Group Discussions involve the interaction of respondents and the researcher. Groups depend on the discussions of the topics provided by the researcher. Further, Focus Group Discussions generate information that is more likely to be revealed in social gathering and

interaction. Focus Group Discussion guide comprised of open-ended questions, which were based on the role of problematic internet usage in the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse. Specifically, the issues covered in Focus Group Discussion included consequences of problematic internet usage in risk of developing the selected addictions. The participants of focus group discussion choose the place where discussions took place. The researcher used probe questions in order to get detailed information and to ensure clarifications. The focus group discussion guide for student peer counsellors is attached as appendix C.

3.7 Validity of the Instruments

Validity refers to degree to which a test actually measures the variable it claims to measure (Gay& Mills, 2011).It is the degree to which results obtained from the analysis of the data represents the phenomenon under study. Instruments are said to be valid if they provide adequate coverage of the topic under study. Content and face validity of instruments was determined through the opinion of supervisors. Content validity indicated whether the instruments were comprehensive and whether there was a fair representation of the objectives. This helped enhance validity of the instruments before the research was done and to make any changes on the instruments. The study focused on establishing content validity for undergraduate university students on the role of problematic internet usage in the risk of selected addictions. Validity was also increased by piloting of the instruments in a university not included in the study.

3.8 Reliability of Instruments

Reliability measures whether research instruments give constant results after subsequent trials (Kothari, 2014). To identify any weaknesses of the instruments and to ensure that

they were appropriate, piloting was undertaken in one university in Tharaka Nithi County, which was not among those sampled. Piloting was conducted among 40 undergraduate students, two student counsellors and four student peer counsellors randomly selected. The questionnaire was piloted on third and second year undergraduate students and the in-depth interview schedule was piloted on two students' counsellors. Focus group discussion was conducted with four student peer counsellors. The sample for the pilot study was 10% of the entire sample size as supported by (Orodho, 2008). Piloting was done to enhance validity and reliability of the instruments. Piloting of the instruments established that some items required rephrasing. The items were rephrased correctly in order to address the research objectives. Test re-test technique was used to determine the reliability of the instruments, which was obtained during the piloting. Even and odd numbers were placed in the sub-sets and then the scores were computed. After computing the scores for the two sub-sets separately, the reliability coefficient for problematic internet usage was 0.829, online gambling was 0.875, online pornography was 0.715, online sexual violence was 0.759 and online drug and substance abuse was 0.750 respectively. In social sciences, the expected minimum reliability coefficient is 0.7; therefore, the range of between 0.715 and 0.875 was above the expected level. This signified that the instrument was reliable and capable of measuring the study variables.

Piloting of research instruments ensured reliability and validity of the instruments. Croswell (2014) posits that piloting of the research tools is important in giving the researcher feedback in order to make changes. According to Mugenda and Mugenda (2008), reliability focuses on the degree of consistency of empirical indicators across two or more attempts to measure concept. It ensures that research instruments replicate similar data or results when used by any independent researcher. Cohen et al. (2011)

maintain that context and wording of instruments may compromise the reliability. In this case, piloting of the questionnaire, interview schedule and focus group discussion guide was done which ensured comprehension of responses. External reliability was ensured by test re-test. Test re-test method assesses the consistency of research instruments over time (Cohen et al., 2011). The external reliability was assessed by use of test re-test method. During piloting of the research instruments, participants were tested twice to measure external reliability. The items that had inconsistencies were corrected. External reliability is concerned with whether an independent researcher would obtain similar results if the same or similar study was carried out (Creswell, 2014).

3.9 Data Collection Procedure

After proposal defence, an introduction letter was obtained from Kabarak University, School of Postgraduate Studies that was used to apply for permit from the National Commission of Science, Technology and Innovation (NACOSTI) to collect data for the study. Authority was also sought from the County Commissioners and County Education Directors of the two counties where data was to be collected. After getting authority from the counties, permission was sought from the management of universities of study. Then, questionnaires were distributed physically to the students of respective universities through the assistance of academic registrars' division. During delivery of the questionnaires, an introduction was done to the study participants and an explanation of the study objectives. The questionnaires were administered and participants were asked to complete them after which an agreement was made on when to collect back and the place of collection. One-on-one interviews were conducted with student counsellors, which covered one students' counsellor from each of the selected universities. Interviews were conducted at the convenience of the study participants. Focus group discussion was conducted with the peer counsellors. Each focus group discussion comprised of four

members making a total of sixteen (16) participants. The discussions lasted between 40 to 60 minutes.

3.10 Data analysis

Data was analysed by means of both qualitative and quantitative methods. After finishing data collection, the questionnaires that were returned were checked to ensure that they were completed and filled correctly. Bobbie (2011) indicated that, 50% response rate is acceptable to draw generalizations. In this case, the response rate was 81% which was above the expected rate. Qualitative data analysis is the technique of bringing to order and organisation to the bulk of collected data (Creswell, 2014). Qualitative data that was collected through an in-depth interview schedule and focus group discussion was coded, categorised and thematically analysed. Coding was done after data collection by taking notes. Results from interview schedule and FGDs was used to compare results from the questionnaire. According to Bryman (2012), qualitative data should be coded immediately after collection and the researcher should take notes of the important items. Results from qualitative data were presented through narration.

Statistical Package for Social Sciences (SPSS) Version 23 was used to analyse quantitative data obtained from the questionnaire. Data collected through the questionnaire was on a 5-point Likert scale. The upper two responses were taken to mean involvement at a higher level while the other three lower responses were taken to mean involvement in a lower level. Chi-Square was used to test the significance amongst the independent and dependent variables and t-test was used for comparison of the variables. Presentation of the analysed data was done in graphs, pie charts and frequency tables.

3.11 Ethical Considerations

The authorization to carry out research was sought from Kabarak University after which, permit was sought from National Commission for Science, Technology and Innovation (NACOSTI). Afterwards, permit was issued, the researcher sought permission from the County Commissioners and County Directors of Education of the counties research was to be done. Thereafter, permission was sought from management of the universities where research was to be conducted. According to Esternberg (2002), researchers should ensure that participants in the investigation freely agree to participate and that their privacy is protected. After obtaining authorization from relevant authorities, the researcher sought informed consent from the study participants by explaining the objectives of the study and inviting the willing participants to voluntarily be part of the research. Confidentiality was ensured through anonymity of respondents. The respondents were explained that they would be free to withdraw from the study at any level, make decisions, ask questions for any clarification and consult before and after giving an informed consent. The participants in the study were addressed as research participants and pseudonyms used when referring to them. Data collected was stored safely to maintain confidentiality and analysed correctly to avoid manipulation.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This section covers the findings of the research, interpretation and discussions. The research sought to investigate the role of problematic internet usage in the risk of selected addictions among undergraduate students in universities in Kenya. The results were analysed and the findings presented as per the objectives of the study. The purpose of this study was to examine the problematic internet usage influence on the risk of selected addictions among undergraduate students in universities in Kenya. The chapter also discusses the response rate and reliability of test results, outlines the demographic information of the respondents, outlines a descriptive analysis of study variables, and presents a comparison analysis between demographic data and study variables. Chi square statistics and T-test analysis are presented where hypotheses testing has been presented in respect to each of the four study objectives.

The study sought to address the following objectives:

i. To examine the role of problematic internet usage in the risk of addiction to online gambling among undergraduate students in universities in Kenya.
ii. To explore the role of problematic internet usage in the risk of addiction to online pornography among undergraduate students in universities in Kenya.
iii. To determine the role of problematic internet usage in the risk of addiction to online sexual violence among undergraduate students in universities in Kenya.
iv. To investigate the role of problematic internet usage in the risk of addiction to online drug and substance abuse among undergraduate students in universities in Kenya.

4.2 General and Demographic Information

4.2.1 General Information

A total of 391 questionnaires were circulated to the undergraduate students who were in second and third years of study at universities A, B, C and D. Universities A and B are located in Meru County and universities C and D are located in Nairobi County. To increase the response rate and minimize the questionnaires that were not returned, the researcher ensured that the research participants were notified about the study in advance. Also the researcher was available to answer any questions that arose from the questionnaire. Out of 391 questionnaires administered to students in the four universities, 317 questionnaires were returned, indicating a response rate by the students of 81%. Four students' counsellors were sampled using in-depth interview schedule, which was 83%. The overall response rate was 82%, which was acceptable according to Babbie (2002) who posited that any response of 50% and above was enough for data analysis.Mugenda and Mugenda (2003) also posit that 50% and above of return of the questionnaires is acceptable. Babbie (2004) likewise stated that a return rate of 50% is satisfactory to analyse and publish, 60% is good and 70% is very good. This indicated that 82% response rate was very good and was acceptable for data analysis and publication of the study findings. The findings of the study from the data collected through the questionnaire was analysed using statistical package for social sciences (SPSS Version 23), organized and presented in tables, graphs and pie charts. Data collected from the in-depth interview schedule and focus group discussion was coded, categorised and presented in narration.

4.2.2 Demographic Information

Demographic data was important in giving information on the features of the participants, which included the students' year of study, age and gender. Questionnaires

were administered to undergraduate students who were in the third and second year of study. To establish the year of study, students were requested to indicate on the space provided. They were asked to provide information on age by choosing from the age bracket provided on the list through putting a tick and also to tick on gender whether male or female. To assess the availability of internet connectivity and technologies used in the universities, undergraduate students were asked to tick on the list provided. Problematic internet usage comprised six aspects namely, loss of track of time when on the internet, sleep deprivation, isolation from friends and family, feeling happy only when on the internet, inability to prioritize, and neglecting other responsibilities to be on the internet. Each of the six aspects of problematic internet usage was compared against gender, year of study and age category to examine whether there were significant differences in the sub-variable scores between the demographic components.

4.2.2.1 Year of Study of the Respondents

The undergraduate students were required to show by ticking on space provided the year of study. The students sampled were in second and third years respectively.

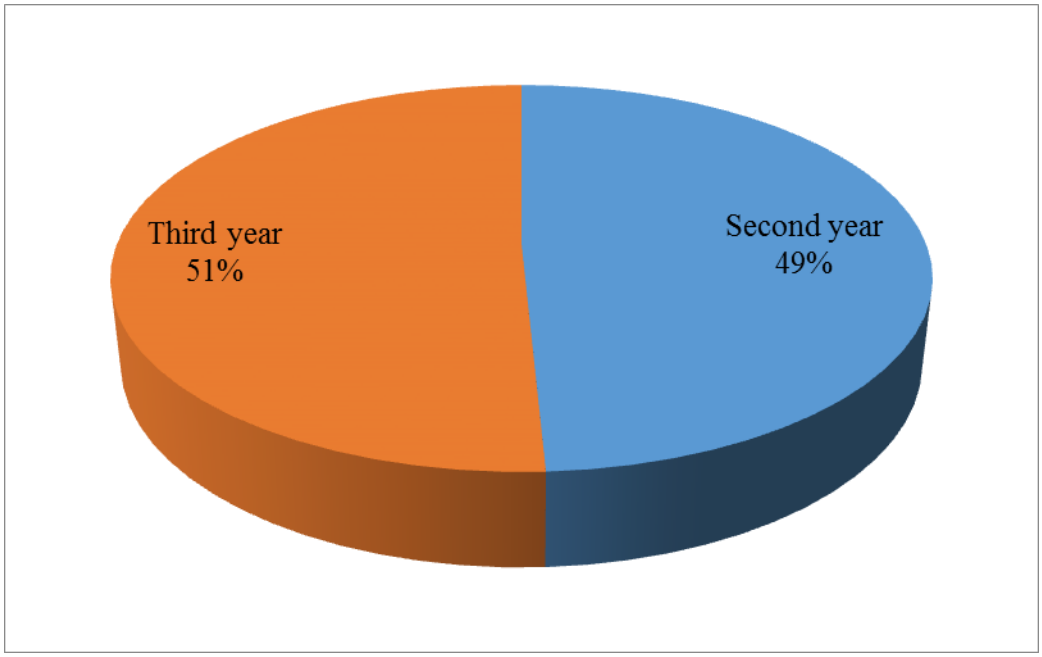

Figure 2: Distribution of Respondents by Year of Study

Source: Researcher, (2021)

Results shown in Figure 2 indicated that slightly more than half of the respondents (51%) were in their third year of study while 49% were in their second year of study. Hence, the respondents were distributed among the two years of study in a ratio close to 50:50; hence, each study year among the targeted group was adequately represented in the study. This was good for the study since it could allow for comparison of the variable scores among the two set of respondents. The indication was that a bigger number of third year students participated in the study than second year students. The big number of participates supported a study by Arjunan and Moncy (2016), that university students at this level engage in internet activities to search for information related to academics and for socializing purposes. University students experience freedom in engaging in online activities because their activities online were not monitored. The students experienced freedom when they joined the university unlike when they were in high school when parents, teachers and guardians monitored their online activities. Third year students could have mustard the art of browsing due to the experience earned over time which

could also explain why more 3rd year students than 2nd years participated in the study. The students are at a developmental stage where they search for relevant information concerning sexuality and relationships, which could lead to accessing disastrous information.

Table 4: Year of Study and Problematic Internet usage Cross tabulation

		Study Year		
		Second year	Third year	Total
Negligible using the internet longer than originally intended	F	64	88	152
	%	41.0%	54.7%	47.9%
High using the internet longer than originally intended	F	92	73	165
	%	59.0%	45.3%	52.1%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Sleep Deprivation	F	78	83	161
	%	50.0%	51.6%	50.8%
High Sleep Deprivation	F	78	78	156
	%	50.0%	48.4%	49.2%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Isolation from friends and family	F	98	110	208
	%	62.8%	68.3%	65.6%
High Isolation from friends and family	F	58	51	109
	%	37.2%	31.7%	34.4%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Sometimes feeling happy only when on the internet	F	80	90	170
	%	51.3%	55.9%	53.6%
Mostly feeling happy only when on the internet	F	76	71	147
	%	48.7%	44.1%	46.4%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Inability to prioritize to a low extent	F	80	101	181
	%	51.3%	62.7%	57.1%
Inability to prioritize to a large extent	F	76	60	136
	%	48.7%	37.3%	42.9%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Neglecting other responsibilities to a low extent	F	104	118	222
	%	66.7%	73.3%	70.0%
Neglecting other responsibilities to a large extent	F	52	43	95
	%	33.3%	26.7%	30.0%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%

Results presented in Table 4 illustrate that 59.0% of the second year students interviewed testified high loss of track of time when using the internet while 45.3% of third year respondents indicated high loss of tack of time when using the internet. The results showed that the proportion of second year respondents who attested loss of track of time while using the internet was much higher than the proportion of their third year counterparts who indicated loss of track of time while using the internet. A possible explanation of this variable could be the fact that third year students were more likely to be engaged in academic related activities than their second year counterparts were. Subsequently, third year students would be more time conscious than their second year colleagues would and as such they would be less likely to experience high loss of track of time when on the internet. Another explanation could be the fact that third year students had a longer stay at the university and thus they could have identified other avenues for social engagement hence reduction in the much excitement that they may have been deriving from accessing the internet. As the student approaches graduation, it is likely that the mind would be engaged on serious life matters like employment and productive relationships.

The results are supported by Ambad et at. (2017) who indicated that although university students use internet for academic purposes, problematic internet usage depended on the age, academic level and the area of specialization of the student. The older students, who were at a higher level believed that internet usage was for academic purposes and for accessing important information while students in lower level used internet for socializing, entertainment and to escape from boredom which predisposed them to the addiction risks. On the other hand, a second year student, having spent only less than half of his total stay at the university, would easily be distracted when on the internet and lose track of time since it would appear to him that he has a lot of time at the university. The

results agree with Chris (2015) who maintained that staying on the internet for longer periods could affect a student negatively. The students who stayed online for great amounts of time dropped in academics and became addicted to online browsing. This could be an explanation why second year students lost track of time when online as an indication that they were not busy with academic work as the third year students.

Concerning sleep deprivation because of problematic internet usage, half of the second year respondents (50.0%) attested high sleep deprivation while 48.4% of the third year respondents admitted experiencing high sleep deprivation because of internet usage. The results signified that the proportion of second year students who experienced high sleep deprivation was higher than the proportion of their third year counterparts who suffered high sleep deprivation because of internet use. The findings also affirmed that, second year students experienced high loss of track of time on a much greater level more than the third year students. The results concur with Arjunan and Moncy (2016) that the newly acquired freedom and independence could lead to problematic internet usage and predispose an individual to the addiction risks because of engaging in online activities and avoiding face-to-face interactions. In agreement to the current research findings, Wohab and Mubarak (2015) reported that university students who lacked social skills and a group to identify with could engage in problematic internet usage leading to a likelihood of developing addiction risks. The current study indicated that the number of second year students who were isolated from friends was greater than that of third year students. Che et al. (2014) also supports the results of this research that much engagement on online activities could reduce social relationships.

The findings further revealed that 37.2% of the second year respondents reported high isolation from friends and family because of problematic internet usage while 31.7% of

third year students specified high isolation from friends and family. The results acknowledged that the proportion of second year students who experienced high isolation from friends and family was much higher than the proportion of their third year colleagues who indicated high isolation from friends and family. A possible explanation of this variable could be the fact that the second year students were struggling with the cultural shock of a new environment, new friends, and to some, new found freedom. This could have happened to the students who might have joined university straight from high school. In such scenario, a student whose phone and internet usage was regulated by parents and high school teachers could find university life as the high moment to exercise the newfound freedom. Since at the university there could be minimal restrictions on phone and internet use, such a student could be tempted to overindulge in problematic internet usage and because be left with less time for academics, friends and family. On the other hand, a third year student could have had enough time to enjoy the freedom that comes with university life and as such valued time with academics, friends and family.

Nearly half (48.7%) of the second year participants stated that they mostly felt happy only when on the internet while 44.1% of the third year respondents admitted that they mostly felt happy only when on the internet. The findings signified that the proportion of second year participants who indicated that they mostly felt happy only when on the internet was higher than that of the third year students who attested that they mostly felt happy only when on the internet. The results indicated that the proportion of second year students who experienced high loss of track of time when on the internet was much higher than the proportion of the third year colleagues who admitted experiencing high loss of track of time when on the internet.

The study findings established that 48.7% of the second year respondents attested inability to prioritize because of problematic internet usage while 37.3% of the third year counterparts admitted inability to prioritize due to internet usage. Hence, the second year students were more affected by inability to prioritize because of problematic internet usage than the third year counterparts were. The results of this research suggested that the proportion of second year students who could not control their internet usage was higher than the proportion of their third year colleagues who were unable to regulate how they used the internet. The explanation of the findings could be the fact that persons with more tasks are likely to be better at prioritizing than people with less tasks to accomplish. Consequently, third year students were had a higher likelihood have more tasks to accomplish as compared to their second year counterparts and as such, they were less likely to be affected by inability to prioritize due to internet usage. This could be because third year students have covered a larger proportion of academic work and are also likely to be in leadership position at the university and could be involved in other activities in the university. The findings agree with Kapahi et al. (2013) who suggested that the level at which a college student was in determined the development of problematic internet usage. The students who were newly enrolled to the college were more predisposed to the addiction risks because they stayed online for longer periods than those who had stayed long in the college. In agreement with the results, Damora (2016) acknowledged that compulsive internet usage could affect academic performance and lead to maladaptive behaviour.

The study findings further revealed that precisely a third of the second year participants (33.3%) indicated neglecting other responsibilities because of internet usage while 26.7% of the third year counterparts admitted neglecting other responsibilities due to problematic internet usage. Hence, the second year students were more disposed to

neglect other responsibilities because of internet use than the third year counterparts. This results support an earlier finding that established that second year students were more affected by inability to prioritize because of internet usage than the third year counterparts.

Table 5: Year of Study and Problematic Internet usage Chi Square Tests

		Value	Df	P-Value
using the internet longer than originally intended	Pearson Chi-Square	5.900	1	.015
	Likelihood Ratio	5.919	1	.015
	Linear-by-Linear Association	5.881	1	.015
	N of Valid Cases	317		
Sleep Deprivation	Pearson Chi-Square	.076[a]	1	.782
	Likelihood Ratio	.076	1	.782
	Linear-by-Linear Association	.076	1	.783
	N of Valid Cases	317		
Isolation from friends and family	Pearson Chi-Square	1.063[a]	1	.302
	Likelihood Ratio	1.064	1	.302
	Linear-by-Linear Association	1.060	1	.303
	N of Valid Cases	317		
Feeling happy only when on the internet	Pearson Chi-Square	.680[a]	1	.410
	Likelihood Ratio	.680	1	.410
	Linear-by-Linear Association	.677	1	.410
	N of Valid Cases	317		
Inability to prioritize	Pearson Chi-Square	4.241[a]	1	.039
	Likelihood Ratio	4.250	1	.039
	Linear-by-Linear Association	4.228	1	.040
	N of Valid Cases	317		
Neglecting other responsibilities	Pearson Chi-Square	1.657[a]	1	.198
	Likelihood Ratio	1.659	1	.198
	Linear-by-Linear Association	1.652	1	.199
	N of Valid Cases	317		

In order to examine the relationship amongst aspects of problematic internet usage, a chi square test was performed to examine the relationship between aspects of and year of study. The findings presented in Table 5 indicated that two of the six aspects of problematic internet had significant relationship with students' year of study; loss of time when on the internet and inability to prioritize because of internet usage. Specifically, the relationship between loss of time when on the internet and year of study was significant, χ^2 (1, N = 317) = 5.900, p = .015. Thus, loss of time when on the internet varied significantly between a student's study year. Moreover, the relationship between inability to prioritize because of internet usage and year of study was significant, χ^2 (1, N = 317) = 4.241, p = .039. Subsequently, inability to prioritize because of internet usage varied significantly between a student's study year. However, the relationship between the other four aspects of problematic internet usage and study year was not significant since the p – value was more than .05.

Table 6: Year of Study and Variables Cross Tabulation

		Study Year		
		Second year	Third year	Total
Non Problematic Internet Usage	F	64	73	137
	%	41.0%	45.3%	43.2%
Problematic Internet Usage	F	92	88	180
	%	59.0%	54.7%	56.8%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online gambling	F	71	70	141
	%	45.5%	43.5%	44.5%
High Risk of addiction to online gambling	F	85	91	176
	%	54.5%	56.5%	55.5%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online pornography	F	91	82	173
	%	58.3%	50.9%	54.6%
High Risk of addiction to online pornography	F	65	79	144
	%	41.7%	49.1%	45.4%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online sexual violence	F	109	105	214
	%	69.9%	65.2%	67.5%
High Risk of addiction to online sexual violence	F	47	56	103
	%	30.1%	34.8%	32.5%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to drug and substance abuse	F	96	93	189
	%	61.5%	57.8%	59.6%
High Risk of addiction to drug and substance abuse	F	60	68	128
	%	38.5%	42.2%	40.4%
Total	F	156	161	317
	%	100.0%	100.0%	100.0%

Results displayed in Table 6 revealed that 59.0% of the respondents in second year experienced problematic internet usage while 54.7% of the third year students had problematic internet usage. Hence, the proportion of second year respondents who experienced problematic internet usage was higher than the proportion of their third year counterparts who experienced problematic internet usage. The results indicated that,

second year students were more prone to losing track of time when on the internet, encountered high sleep deprivation because of internet usage and experienced high isolation from friends and family due to continued internet usage than the third year counterparts. Besides, the second year students mostly felt happy only on the internet, encountered challenges in prioritizing issues due to internet usage, and neglected other responsibilities to be on the internet at a higher rate than the third year counterparts. An explanation to these findings could be the fact that second year students could have less engagements, academically or otherwise, than the third year counterparts and hence could have more free time and subsequently be vulnerable to problematic internet usage.

The study findings agrees with propositions made by Kapahi et al. (2013) that young people between the age of 18 – 25 years are susceptible to the risk of addiction due to problematic internet usage. The results showed that a high number of those who participated in the study were between the ages of 18 – 25 years. This was an indication that second year students had a likelihood of developing problematic internet usage which could lead to the addiction risks. At this stage, the students are beginning to settle down after joining the university and could have more free time to engage on the internet unlike the third year students who could be busier on academics. Arjunan and Moncy (2016) also supports the findings of this study that when undergraduate students join the university, they start to experience freedom and independence unlike when they were monitored by parents and teachers. This could be an explanation why more second years students engaged in problematic internet usage, which predisposed them to the addiction risks than third year students.

Concerning risk of addiction to online gambling, the findings established that 56.5% of the third year students exhibited high risk of addiction to online gambling while 54.5% of second year students displayed high risk of addiction to online gambling. Hence, the proportion of the third year students exhibiting high risk of addiction to online gambling was higher than the proportion of second year respondents displaying high risk of addiction to online gambling. Nearly half of the respondents in third year (49.1%) exhibited high risk of addiction to online pornography while 41.7% of the respondents in second year displayed high risk of addiction to online pornography. Hence, the proportion of the third year students exhibiting high risk of addiction to online pornography was higher than the proportion of second year respondents displaying high risk of addiction to online pornography. This result was consistent with an earlier finding that established that the proportion of the third year students exhibiting high risk of addiction to online gambling was higher than the proportion of second year respondents displaying high risk of addiction to online gambling.

The research further established that 34.8% of the respondents in third year exhibited high risk of addiction to online sexual violence while 30.1% of the respondents in second year displayed high risk of addiction to online sexual violence. Hence, the proportion of third year students exhibiting high risk of addiction to online sexual violence was higher than the proportion of second year students displaying high risk of addiction to of online sexual violence. Similar findings had been established earlier in this study where the proportion of third year students exhibiting high risk of addiction to online gambling and high risk of addiction to online pornography was higher than that of their second year counterparts. Equally, the study established that 42.2% of third year respondents had high risk of addiction to drug and substance abuse while 38.5% of the second year respondents exhibited high risk of addiction to drug and substance abuse. This means

that the prevalent for the risk of addiction captured in each of the four dependent variables was higher for third year students than it was for their second year counterparts.

The results of the study indicated that third year students were more likely to develop addiction risks caused by problematic internet usage than the second years. This meant that third year students could have been more experienced and knowledgeable about internet usage than second year students. This was supported by Murugan and Claire (2002) who posited that experience and self-effectiveness determined the time and frequency one uses the internet. Third year students could also have become competent in using the internet considering that they have stayed in the university longer than the second years. Islam and Hossin (2006) who affirmed that ease supported this argument and competency in using the internet determines the frequency in usage.

Table 7: Year of Study and Variables Chi-Square Test

		Value	df	P-Value
Problematic Internet Use	Pearson Chi-Square	.601[a]	1	.438
	Likelihood Ratio	.602	1	.438
	Linear-by-Linear Association	.600	1	.439
	N of Valid Cases	317		
Risk of Addiction to online Gambling	Pearson Chi-Square	.133[a]	1	.716
	Likelihood Ratio	.133	1	.716
	Linear-by-Linear Association	.132	1	.716
	N of Valid Cases	317		
Risk of Addiction to online Pornography	Pearson Chi-Square	1.751[a]	1	.186
	Likelihood Ratio	1.753	1	.186
	Linear-by-Linear Association	1.745	1	.186
	N of Valid Cases	317		
Risk of Addiction to online Sexual Violence	Pearson Chi-Square	.783[a]	1	.376
	Likelihood Ratio	.783	1	.376
	Linear-by-Linear Association	.780	1	.377
	N of Valid Cases	317		
Risk of Addiction to Drug and Substance abuse	Pearson Chi-Square	.469[a]	1	.494
	Likelihood Ratio	.469	1	.493
	Linear-by-Linear Association	.467	1	.494
	N of Valid Cases	317		

Results in table 7 shows a chi square test which was performed to examine the relationship between the scores in the study variables and year of study. The relationship between scores in the study variables and year of study was not significant for each of the five variables since the p – value was more than .05. Hence, scores in the study variables did not vary significantly between study years.

4.2.2.2 Age of the Respondents

Students were requested to tick against the age bracket mainly; below 18years, 18-24 years, 25-30 years, 31-40 years and above 41 years in order to establish the age of

participants. In respect to the distribution of the respondents among age categories, it was established that 3.8% of the participants were aged below 18 years.52.7% of the participants were between ages 18 to 24 years, 21.1% were aged between 25 to 30 years, 18.6% were aged between 31 to 40 years and 3.8% were aged above 40 years same as those who were aged below 18 years The findings are indicated on Figure 3.

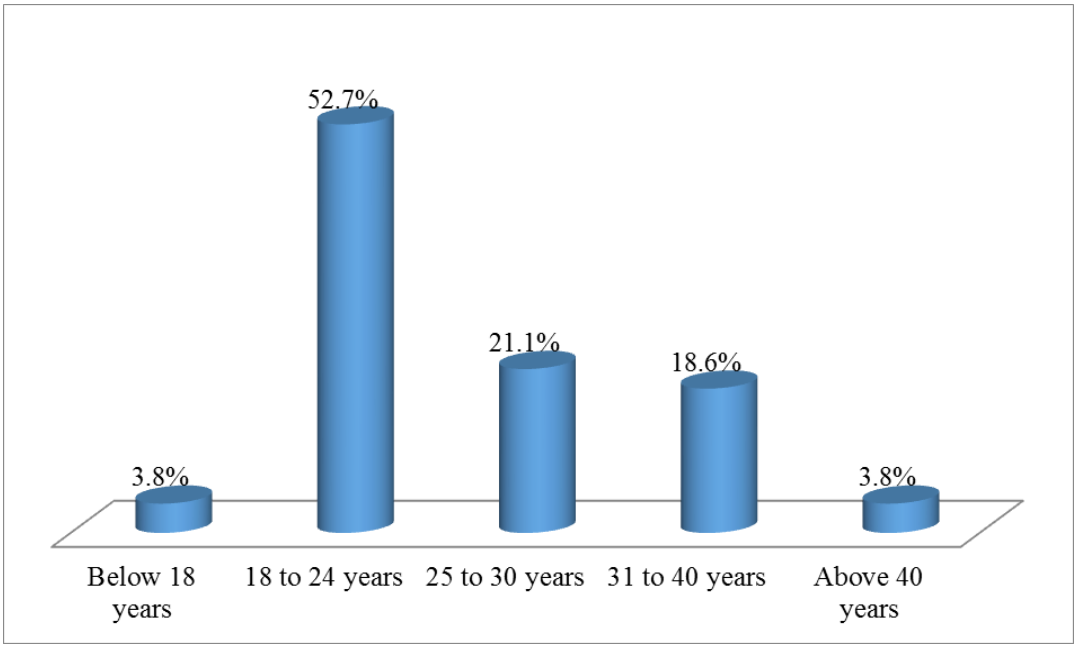

Figure 3: Distribution of Respondents by Age Category

Source: Researcher (2021)

The study findings implied that the highest number of the respondents were in the middle age brackets with only less than a tenth of the respondents in the upper most and lower most age brackets. A number of students in Kenya complete their form four course between the ages 17 to 19 years; hence explaining the high proportion of the respondents in the 18 to 24 years age bracket. There is a considerable proportion of students, who join the university much later after completion of their form four course. This is either because of personal engagements that occupy them or cases of students who first purse a diploma course before joining the university. This accounts for most of the respondents recorded in 25 to 30 years, 31 to 40 years and above 40 years' age brackets. In some

isolated cases, there are students who complete their form four course below the age of eighteen, and this would account for the respondents recorded below 18 years' age bracket. Hence, all the possible age bracket categories were signified in the study and consequently association of the variable scores amongst the various age bracket categories would be realized.

Table 8: Age and Problematic Internet usage Cross tabulation

		Distribution of the respondents by age category					
		Below 18 years	18 to 24 years	25 to 30 years	31 to 40 years	Above 40 years	Total
Negligible using the internet longer than originally intended	F	4	81	31	30	6	152
	%	33.3%	48.5%	46.3%	50.8%	50.0%	47.9%
High using the internet longer than originally intended	F	8	86	36	29	6	165
	%	66.7%	51.5%	53.7%	49.2%	50.0%	52.1%
Low Sleep Deprivation	F	2	84	33	33	9	161
	%	16.7%	50.3%	49.3%	55.9%	75.0%	50.8%
High Sleep Deprivation	F	10	83	34	26	3	156
	%	83.3%	49.7%	50.7%	44.1%	25.0%	49.2%
Low Isolation from friends and family	F	5	114	39	42	8	208
	%	41.7%	68.3%	58.2%	71.2%	66.7%	65.6%
High Isolation from friends and family	F	7	53	28	17	4	109
	%	58.3%	31.7%	41.8%	28.8%	33.3%	34.4%
Sometimes feeling happy only when on the internet	F	5	92	34	31	8	170
	%	41.7%	55.1%	50.7%	52.5%	66.7%	53.6%
Mostly feeling happy only when on the internet	F	7	75	33	28	4	147
	%	58.3%	44.9%	49.3%	47.5%	33.3%	46.4%
Inability to prioritize to a low extent	F	3	94	38	37	9	181
	%	25.0%	56.3%	56.7%	62.7%	75.0%	57.1%
Inability to prioritize to a large extent	F	9	73	29	22	3	136
	%	75.0%	43.7%	43.3%	37.3%	25.0%	42.9%
Neglecting other responsibilities to a low extent	F	5	130	36	40	11	222
	%	41.7%	77.8%	53.7%	67.8%	91.7%	70.0%
Neglecting other responsibilities to a large extent	F	7	37	31	19	1	95
	%	58.3%	22.2%	46.3%	32.2%	8.3%	30.0%

Results displayed in Table 8 illustrate that two thirds of the respondents below the age of 18 years (66.7%) experienced high loss of track of time when on the internet while only half of the respondents above 40 years (50.0%) reported high loss of track of time when on the internet. Besides, for all the respondents below 31 years, the proportion of high loss of track of time as a result of internet usage was more than 50.0% (53.7% for 25 to 30 years age category and 51.5% for 18 to 24 years age category). The results suggested that, the incidents of high loss of track of time when on the internet for respondents in lower age group categories was higher than the rate of high loss of track of time when on the internet for their counterparts in the high age group categories. The probable justification of this outcome might be the fact that students in the higher age group categories could be bestowed with more responsibilities than their counterparts in the lower age group categories. This means that the older students' usage of internet could be faced with constraints such as time and hence, could have been more time conscious when using the internet since they could have other tasks awaiting their attention. On the contrary, the younger students were likely to have less responsibilities and hence could easily lose track of time when on the internet as they could have more free time.

The results findings established that more than four fifths of the respondents below 18 years (83.3%) attested experiencing high sleep deprivation as a result of internet use while only 25.0% of respondents above 40 years admitted sleep deprivation as a result of internet usage. Furthermore, the percentage of respondents below 31 years who reported sleep deprivation was much higher than that of the older counterparts (49.7% for 18 to 24 years, 50.7% for 25 to 30 years and 44.1% for 31 to 40 years' age category. The results implied that the proportion of respondents in the lower age group categories experiencing high sleep deprivation as a result of internet usage was higher than the proportion of respondents in higher age group categories experiencing high sleep

deprivation due to internet usage. These results findings signified that younger students would be more likely to be over excited by internet content than the older counterparts and thus could choose to sacrifice sleep time to be on the internet. On the other hand, the older students would be more likely to value sleep time over overindulgence in problematic internet usage. Subsequently, the younger students would suffer sleep deprivation as a result of problematic internet usage more severely than the older counterparts.

In regard to isolation from friends and family as a result of problematic internet usage, 58.3% of respondents below 18 years reported high isolation from friends and family while 33.3% of the respondents above the age of 40 years attested high isolation from friends and family as a result of internet use. The results implied that students in lower age group categories were likely to experience high isolation from friends and family as a result of problematic internet usage more than their counterparts in the higher age group categories. A possible explanation of this result could be the fact that the younger university students would be in a state of seeking independence from their family, having been under their parents' authority for a long period. Consequently, such students derive great pleasure from internet usage and ultimately they experience isolation from friends and family. The more they derive pleasure from internet usage, the more they are likely to cut close links with friends and family since they would perceive pleasure or satisfaction from internet usage as more beneficial than the social support from friends and family.

The findings indicated that 58.3% of respondents below the age of 18 years reported that they mostly felt happy only when on the internet while 33.3% of respondents above the age of 40 years attested that they mostly felt happy only when on the internet. This result

suggests that the proportion of students in the lower age group category who admitted that they mostly felt happy only when on the internet was higher than that of their counterparts in the higher age group categories. This result is consistent with earlier findings in this study that established that students in lower age group categories encountered high loss of track of time when on the internet, experienced high sleep deprivation and high isolation from friends and family, due to internet use, at a high intensity than their counterparts in higher age group categories.

The study established that three quarters of the respondents below the age of 18 years (75.0%) reported inability to prioritize due to internet usage while only a quarter of the respondents above 40 years testified inability of prioritize as a result of internet usage. This result implied that the proportion of students in the lower age group categories that suffered inability to prioritize as a result of internet usage was higher than the proportion of their counterparts students in higher age group categories who experienced inability of prioritize as a result of internet use. An explanation of this finding could be the fact that older students are likely to have more commitments both in the university and outside the university; be it in terms of social life, relationships and business engagements and as such, they were compelled to prioritize their issues to ensure no aspect of their lives was unattended. Consequently, the older students could easily he in a position to control their internet usage and ultimately be in charge of their priorities. Conversely, the younger students were likely to have fewer engagements as hence they would be more prone to overindulge in internet usage leading to inability to prioritize their issues.

It was revealed that 58.3% of the respondents below the age of 18 years attested that they neglected other responsibilities as a result of internet use while only 8.3% of the respondents above the age of 40 years admitted that they neglected other responsibilities

as a result of internet use. This result suggests that the proportion of students in the lower age group categories were more likely to neglect other responsibilities as a result of internet use than their counterparts in the higher age group categories. The results were consistent with an earlier finding that established that younger students were more likely to experience inability to prioritize due to internet usage at a higher intensity than their older counterparts.

Table 9: Age and Problematic Internet usage Chi Square Test

		Value	df	P-Value
using the internet longer than originally intended	Pearson Chi-Square	1.342[a]	4	.854
	Likelihood Ratio	1.366	4	.850
	Linear-by-Linear Association	.321	1	.571
	N of Valid Cases	317		
Sleep Deprivation	Pearson Chi-Square	9.108[a]	4	.058
	Likelihood Ratio	9.736	4	.045
	Linear-by-Linear Association	4.457	1	.035
	N of Valid Cases	317		
Isolation from friends and family	Pearson Chi-Square	6.016[a]	4	.198
	Likelihood Ratio	5.808	4	.214
	Linear-by-Linear Association	.367	1	.545
	N of Valid Cases	317		
Feeling happy only when on the internet	Pearson Chi-Square	1.906[a]	4	.753
	Likelihood Ratio	1.925	4	.750
	Linear-by-Linear Association	.120	1	.729
	N of Valid Cases	317		
Inability to prioritize	Pearson Chi-Square	7.425[a]	4	.115
	Likelihood Ratio	7.585	4	.108
	Linear-by-Linear Association	3.963	1	.047
	N of Valid Cases	317		
Neglecting other responsibilities	Pearson Chi-Square	20.756[a]	4	.000
	Likelihood Ratio	20.632	4	.000
	Linear-by-Linear Association	.093	1	.760
	N of Valid Cases	317		
	N of Valid Cases	317		

A chi square test was performed to examine the relationship between aspects of problematic internet usage and age category. Results displayed in Table 9 indicated that one of the six aspects of problematic internet usage had significant relationship with students' age category. Specifically, the relationship between neglecting other responsibilities when on the internet and age category was significant, χ^2 (4, N = 317) = 20.756, p < .001. Thus, neglecting other responsibilities as a result of internet usage varied significantly between age categories. However, the relationship between the other five aspects of problematic internet use and age categories was not significant since the p – value was more than .05.

Table 10 : Age and Study Variables Cross Tabulation

		Age category					
		Below 18 years	18 to 24 years	25 to 30 years	31 to 40 years	Above 40 years	Total
Non Problematic Internet Use	F	3	80	19	26	9	137
	%	25.0%	47.9%	28.4%	44.1%	75.0%	43.2%
Problematic Internet Use	F	9	87	48	33	3	180
	%	75.0%	52.1%	71.6%	55.9%	25.0%	56.8%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online gambling	F	4	75	24	28	10	141
	%	33.3%	44.9%	35.8%	47.5%	83.3%	44.5%
High Risk of addiction to online gambling	F	8	92	43	31	2	176
	%	66.7%	55.1%	64.2%	52.5%	16.7%	55.5%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online pornography	F	7	89	29	36	12	173
	%	58.3%	53.3%	43.3%	61.0%	100.0%	54.6%
High Risk of addiction to online pornography	F	5	78	38	23	0	144
	%	41.7%	46.7%	56.7%	39.0%	.0%	45.4%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online sexual violence	F	7	116	46	34	11	214
	%	58.3%	69.5%	68.7%	57.6%	91.7%	67.5%
High Risk of addiction to online sexual violence	F	5	51	21	25	1	103
	%	41.7%	30.5%	31.3%	42.4%	8.3%	32.5%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to drug and substance abuse	F	8	92	36	43	10	189
	%	66.7%	55.1%	53.7%	72.9%	83.3%	59.6%
High Risk of addiction to drug and substance abuse	F	4	75	31	16	2	128
	%	33.3%	44.9%	46.3%	27.1%	16.7%	40.4%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

A chi square test was performed to examine the relationship between aspects of problematic internet usage and age category. Results displayed in Table 9 indicated that one of the six aspects of problematic internet usage had significant relationship with students' age category. Specifically, the relationship between neglecting other responsibilities when on the internet and age category was significant, χ^2 (4, N = 317) = 20.756, p< .001. Thus, neglecting other responsibilities because of internet usage varied significantly between age categories. However, the relationship between the other five aspects of problematic internet use and age categories was not significant since the p – value was more than .05.

Table 8: Age and Study Variables Cross Tabulation

		Age category					
		Below 18 years	18 to 24 years	25 to 30 years	31 to 40 years	Above 40 years	Total
Non Problematic Internet Use	F	3	80	19	26	9	137
	%	25.0%	47.9%	28.4%	44.1%	75.0%	43.2%
Problematic Internet Use	F	9	87	48	33	3	180
	%	75.0%	52.1%	71.6%	55.9%	25.0%	56.8%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online gambling	F	4	75	24	28	10	141
	%	33.3%	44.9%	35.8%	47.5%	83.3%	44.5%
High Risk of addiction to online gambling	F	8	92	43	31	2	176
	%	66.7%	55.1%	64.2%	52.5%	16.7%	55.5%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online pornography	F	7	89	29	36	12	173
	%	58.3%	53.3%	43.3%	61.0%	100.0%	54.6%
High Risk of addiction to online pornography	F	5	78	38	23	0	144
	%	41.7%	46.7%	56.7%	39.0%	.0%	45.4%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to online sexual violence	F	7	116	46	34	11	214
	%	58.3%	69.5%	68.7%	57.6%	91.7%	67.5%
High Risk of addiction to online sexual violence	F	5	51	21	25	1	103
	%	41.7%	30.5%	31.3%	42.4%	8.3%	32.5%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Low Risk of addiction to drug and substance abuse	F	8	92	36	43	10	189
	%	66.7%	55.1%	53.7%	72.9%	83.3%	59.6%
High Risk of addiction to drug and substance abuse	F	4	75	31	16	2	128
	%	33.3%	44.9%	46.3%	27.1%	16.7%	40.4%
Total	F	12	167	67	59	12	317
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Results indicated in table 10 revealed that, three quarters of the respondents below the age of 18 years (75.0%) exhibited problematic internet usage while only a quarter (25.0%) of the respondents above the age of 40 years displayed problematic internet usage. Besides, the proportion of respondents below 31 years exhibiting problematic internet usage was evidently higher than the proportion of respondents above 30 years who displayed problematic internet usage. These results suggested that the respondents in the lower age bracket category were more affected by problematic internet usage than their counterparts in the higher age group categories. A possible explanation of the results could be the fact that younger students could be more curious than their older counterparts could and as such, they could be more vulnerable to problematic internet usage than their older counterparts could. Conversely, older students were likely to have more responsibilities than their younger counterparts, leaving them with less time to spend on the internet. Subsequently, the older students could be less vulnerable to problematic internet use.

The research found out that two thirds of the respondents below the age of 18 years (66.7%) exhibited high risk of addiction to online gambling while 55.5% of the respondents above the age of 40 years displayed high risk of addiction to online gambling. Moreover, the proportion of respondents below 31 years exhibiting high risk of addiction to online gambling was much higher than the proportion of respondents above 30 years who displayed high risk of addiction to online gambling. This result infers that the respondents in the lower age bracket categories were more vulnerable to risk of addiction to online gambling than their counterparts in the higher age group categories. It was possible that the older students could be financially independent while their younger counterparts could be dependent on their parents and guardians for financial support. Consequently, the younger students could easily risk their money in

gambling since the worst-case scenario would be to ask for more money from their parents, and as long as they could construct a storyline to justify the extra money, they could always access more money. However, the older students could be more cautious when engaging in gambling since they financed the activity with their own funds.

The results established that 41.7% of the respondents below the age of 18 years exhibited high risk of addiction to online pornography while none of the respondents above the age of 40 years displayed high risk of addiction to online pornography. Likewise, the proportion of respondents below 31 years exhibiting high risk of addiction to online pornography was much higher than the proportion of respondents above 30 years who displayed high risk of addiction to online pornography. The results signified that the respondents in the lower age bracket categories were more vulnerable to risk of addiction to online pornography than their counterparts in the higher age group categories. The results were in line with an earlier finding that established that students in the lower age bracket categories were more affected by problematic internet usage than their older counterparts.

It was revealed that 41.7% of the respondents below the age of 18 years exhibited high risk of addiction to online sexual violence while only 8.3% of the respondents above the age of 40 years displayed high risk of addiction to online sexual violence. Equally, the proportion of respondents below 31 years exhibiting high risk of addiction to online sexual violence was much higher than the proportion of respondents above 30 years who displayed high risk of addiction to online sexual violence. This result indicates that the respondents in the lower age bracket categories were more vulnerable to risk of addiction to online sexual violence than their counterparts in the higher age group categories. This result is in agreement with an earlier finding that established that students in the lower

age bracket categories were more vulnerable to risk of addiction to online pornography than their older counterparts.

The study revealed that a third of the respondents below the age of 18 years (33.3%) exhibited high risk of addiction to drug and substance abuse while only 16.7% of the respondents above the age of 40 years displayed high risk of addiction to drug and substance. Correspondingly, the proportion of respondents below 31 years exhibiting high risk of addiction to drug and substance abuse was much higher than the proportion of respondents above 30 years who displayed high risk of addiction to drug and substance abuse. The results indicated that the respondents in the lower age bracket categories were more vulnerable to risk of addiction to drug and substance abuse than their counterparts in the higher age group categories. Possibly, the younger students could have a higher appetite for experimenting due to curiosity and love for fun, and could indulge in drug and substance abuse at a higher rate than their older counterparts.

Table 9: Age and Study Variables Chi-Square Test

		Value	df	P - Value
Problematic Internet Use	Pearson Chi-Square	14.103[a]	4	.007
	Likelihood Ratio	14.531	4	.006
	Linear-by-Linear Association	.311	1	.577
	N of Valid Cases	317		
Risk of Addiction to online Gambling	Pearson Chi-Square	10.198[a]	4	.037
	Likelihood Ratio	10.658	4	.031
	Linear-by-Linear Association	2.406	1	.121
	N of Valid Cases	317		
Risk of Addiction to online Pornography	Pearson Chi-Square	14.600[a]	4	.006
	Likelihood Ratio	19.139	4	.001
	Linear-by-Linear Association	3.582	1	.058
	N of Valid Cases	317		
Risk of Addiction to online Sexual Violence	Pearson Chi-Square	6.610[a]	4	.158
	Likelihood Ratio	7.299	4	.121
	Linear-by-Linear Association	.019	1	.890
	N of Valid Cases	317		
Risk of Addiction to Drug and Substance abuse	Pearson Chi-Square	9.749[a]	4	.045
	Likelihood Ratio	10.305	4	.036
	Linear-by-Linear Association	5.459	1	.019
	N of Valid Cases	317		

A chi square test was performed to examine the relationship between Age categories and the study variables. The relationship between age categories and four of the five study variables was significant. Results displayed in Table 11 indicated that the relationship between age categories and problematic internet use was significant, χ^2 (4, N = 317) = 14.103, p = .007. Hence, problematic internet use varied significantly between age categories. Besides, the relationship between age categories and risk of addiction to

online gambling was significant, χ^2 (4, N = 317) = 10.198, p = .037. Hence, risk of addiction to online gambling varied significantly between age categories. It was further established that the relationship between age categories and risk of addiction to online pornography was significant, χ^2 (4, N = 317) = 14.600, p = .037. Hence, risk of addiction to online pornography varied significantly between age categories. Additionally, the relationship between age categories and risk of addiction to drug and substance abuse was significant, χ^2 (4, N = 317) = 9.749, p = .045. Hence, risk of addiction to drug and substance abuse varied significantly between age categories.

The findings of the study agreed with the results of the research by Ambad et al. (2017) which maintained that undergraduate students between the ages of 19 and 24 years were more susceptible to the risk of addictions. Students at this age bracket used internet more than other age groups. This was because of their developmental stage where they were seeking to develop relationships and therefore, searched for the relevant information online (Ogachi, 2015). The study findings also concurred with the research by Kapahi et al. (2013) who indicated that youth between the ages of 18-24 years were more likely to develop problematic internet usage. The findings of this study acknowledged that university students who were likely to develop problematic internet usage ranged from the ages of 18 – 24 years, which was higher (52.1%) than other age groups. At this age, the students stayed online for longer periods of time, which predisposed them to the risk of addictions.

4.2.2.3 Gender of the Respondents

Undergraduate students were requested to tick against their gender. It was further established that 51.7% of the respondents were females while 48.3% were males.

Table 10: Distribution of the Respondents by Gender

	Frequency	Percent
Male	153	48.3
Female	164	51.7
Total	317	100.0

The research findings displayed in table 12suggested that both genders were adequately represented in the study in nearly equal proportions. This was good for the study as it could allow for comparison of variables scores between the genders. The gender of the students was important in establishing the characteristics of students that could influence the likelihood of developing problematic internet usage. The study showed that more females 164 (51.7%) than males 153 (48.3%) participated in the study.

Table 11: Gender and Problematic Internet usage Cross tabulation

		Gender		
		Male	Female	Total
Negligible using the internet longer than originally intended	F	72	80	152
	%	47.1%	48.8%	47.9%
High using the internet longer than originally intended	F	81	84	165
	%	52.9%	51.2%	52.1%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Sleep Deprivation	F	78	83	161
	%	51.0%	50.6%	50.8%
High Sleep Deprivation	F	75	81	156
	%	49.0%	49.4%	49.2%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Isolation from friends and family	F	107	101	208
	%	69.9%	61.6%	65.6%
High Isolation from friends and family	F	46	63	109
	%	30.1%	38.4%	34.4%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Sometimes feeling happy only when on the internet	F	79	91	170
	%	51.6%	55.5%	53.6%
Mostly feeling happy only when on the internet	F	74	73	147
	%	48.4%	44.5%	46.4%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Inability to prioritize to a low extent	F	87	94	181
	%	56.9%	57.3%	57.1%
Inability to prioritize to a large extent	F	66	70	136
	%	43.1%	42.7%	42.9%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Neglecting other responsibilities to a low extent	F	104	118	222
	%	68.0%	72.0%	70.0%
Neglecting other responsibilities to a large extent	F	49	46	95
	%	32.0%	28.0%	30.0%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%

Results displayed in Table 13 indicated that 52.1% of the respondents exhibited high loss of track of time when on the internet. The proportion of male respondents that recorded

high using the internet longer than originally intended when on the internet was 52.9% while the proportion of female respondents who reported high loss of track of time when on the internet was 51.2%. Hence, the proportion of male respondents that attested high loss of track of time when on the internet was slightly higher than that of their female counterparts. The results suggested that male students are more likely to lose track of time when on the internet possibly because females could be better in multitasking than their male counterparts. Consequently, a male student on the internet was likely to focus fully on the content in question, be glued and lose track of time when on the internet. Such was likely to be experienced at a lower degree by their female counterparts who could carry out other chores like cooking and watching a favourite program while on the internet. Possibly, this could be one reason why most males in Kenya who are football funs choose to leave their homes and watch football in restaurants and clubs where they believe they would fully concentrate on watching the football matches and subsequently achieve optimal satisfaction. Conversely, most females who were football fans opted to watch the matches from home as what would be perceived to males as interruptions could not apply to them since they were better in multitasking.

It was further established that 49.2% of the respondents experienced high sleep deprivation because of internet usage. The proportion of female respondents that reported high sleep deprivation was 49.4% while 49.0% of the male respondents had experienced high sleep deprivation because of internet usage. Hence, sleep deprivation because of internet usage was experienced at almost the same intensity across the gender since the proportion of female respondents experiencing high sleep deprivation was higher than the proportion of male respondents experiencing sleep deprivation with a very small margin.

Concerning isolation from friends and family, 34.4% of the respondents reported high isolation from friends and family because of internet usage. The proportion of female respondents who attested high isolation from friends and family because of internet usage was 38.4% while the proportion of male respondents who exhibited high isolation from friends and family was 30.1%. Hence, more female respondents experienced high isolation from friends and family because of internet usage than their male counterparts. A possible explanation of this result could be the perception that male students were more emotionally stable than their female counterparts implying that female students experienced mood swings, which was rare to male students. Consequently, it was likely that when a female student spent much time on the internet, her emotions were carried away by the content, she consumes, and because, she had less time for friends and family. On the other hand, a male student could spend as much time in the internet, which could not affect his relationship with friends and family since he could have a higher control of his emotions than his female counterpart could.

Nearly half of the respondents (46.4%) indicated that they mostly felt happy only when on the internet. The proportion of male respondents that attested regularly feeling happy only on the internet was 48.4% while 44.5% of female respondents admitted that most times they felt happy only when on the internet. The results signified that male respondents sought satisfaction from the internet at higher rate than their female counterparts did. A probable reason to this result might have been the fact that female students share their fears and experiences more openly than their male counterparts do and as such, male students could have a higher gap for emotional satisfaction. What a man would find unimaginable to share with his peers could be easily shared if experienced by a woman since men are classified as logical beings while female are regarded as emotional being. In the long run, a male student would result in seeking

happiness from other avenues like the internet to fill the emotional gap arising from trying to act as unmoved by the emotional aspects of his life.

The findings established that 42.9% of the respondents attested that they were unable to prioritize their affairs due to internet usage. Besides, 43.1% of the female respondents reported inability to prioritize because of internet usage while 42.7% of their male counterparts held a similar opinion. The results implied that female students were affected by prioritizing problems at a higher rate than their male counterparts prioritized. The findings were in line with previous results that indicated that female students experienced isolation from friends and family because of problematic internet usage.

The study revealed that 30.0% of the respondents admitted that they often neglected other responsibilities because of continued internet usage. Furthermore, 32.0% of male respondents reported neglecting other responsibilities because of internet usage while 28.0% of the female respondents made a similar observation. This means that male students were more likely to neglect their responsibilities because of internet use than their female counterparts. The results were consistent with an earlier finding that established that male students were more likely to lose track of time when on the internet than their female counterparts. This was also in agreement with Islam and Hossin (2016) who affirmed that males were more likely to use the internet than females. The findings affirmed that males were more technologically competent and more comfortable in using the internet than females. This could be an explanation why more males lost track of time when on the internet than females.

Table 12: Gender and Problematic Internet usage Chi Square Test

		Value	df	P-Value
using the internet longer than originally intended	Pearson Chi-Square	.094[a]	1	.759
	Likelihood Ratio	.094	1	.759
	Linear-by-Linear Association	.094	1	.760
	N of Valid Cases	317		
Sleep Deprivation	Pearson Chi-Square	.004[a]	1	.947
	Likelihood Ratio	.004	1	.947
	Linear-by-Linear Association	.004	1	.947
	N of Valid Cases	317		
Isolation from friends and family	Pearson Chi-Square	2.446[a]	1	.118
	Likelihood Ratio	2.454	1	.117
	Linear-by-Linear Association	2.438	1	.118
	N of Valid Cases	317		
Feeling happy only when on the internet	Pearson Chi-Square	.473[a]	1	.492
	Likelihood Ratio	.473	1	.492
	Linear-by-Linear Association	.471	1	.492
	N of Valid Cases	317		
Inability to prioritize	Pearson Chi-Square	.007[a]	1	.935
	Likelihood Ratio	.007	1	.935
	Linear-by-Linear Association	.007	1	.935
	N of Valid Cases	317		
Neglecting other responsibilities	Pearson Chi-Square	.597[a]	1	.440
	Likelihood Ratio	.596	1	.440
	Linear-by-Linear Association	.595	1	.441
	N of Valid Cases	317		

Results in table 14 show the chi square test performed to determine the association between aspects of problematic internet usage and gender. The association between aspects of problematic internet usage and gender was not significant for each of the six items of problematic internet usage since the p – value was more than .05. Hence, aspects of problematic internet usage did not vary significantly between genders.

Table 13: Gender and Study Variables Cross Tabulation

		Gender		
		Male	Female	Total
Non Problematic Internet Use	F	67	70	137
	%	43.8%	42.7%	43.2%
Problematic Internet Use	F	86	94	180
	%	56.2%	57.3%	56.8%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online gambling	F	61	80	141
	%	39.9%	48.8%	44.5%
High Risk of addiction to online gambling	F	92	84	176
	%	60.1%	51.2%	55.5%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online pornography	F	85	88	173
	%	55.6%	53.7%	54.6%
High Risk of addiction to online pornography	F	68	76	144
	%	44.4%	46.3%	45.4%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to online sexual violence	F	105	109	214
	%	68.6%	66.5%	67.5%
High Risk of addiction to online sexual violence	F	48	55	103
	%	31.4%	33.5%	32.5%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%
Low Risk of addiction to drug and substance abuse	F	94	95	189
	%	61.4%	57.9%	59.6%
High Risk of addiction to drug and substance abuse	F	59	69	128
	%	38.6%	42.1%	40.4%
Total	F	153	164	317
	%	100.0%	100.0%	100.0%

Results in Table 15 indicated that 57.3% of the female respondents exhibited problematic internet usage while 56.2% of their male counterparts displayed problematic internet usage. The results suggested that problematic internet usage among the university students interviewed was experienced at almost the same intensity for both female and male respondents. However, the proportion of female respondents exhibiting problematic

internet usage was slightly higher than the proportion of their male counterparts encountering problematic internet usage, the difference in the scores was low.

The study findings revealed that 60.1% of the male respondents had a high risk of addiction to online gambling while 51.2% of their female counterparts exhibited high addiction to online gambling. The results implied that the proportion of male respondents exhibiting high risk of addiction to online gambling was much higher than the proportion of their female counterparts displaying high risk of addiction to online gambling. Hence, male students were more prone to addiction to online gambling than their female counterparts. The explanation to this finding could be the fact that male students were perceived to be bigger fans of European football matches. In the course of following their favourite matches, they could be tempted to place bets for the teams that they hope would win. Extensive advertisements on betting companies have their originality in Kenya, in the recent past, most of which have connection with the European football league. The government of Kenya had acknowledged that the betting industry had been vibrant in the recent past and this informs why in the last two annual budgets, taxation on the betting firms had been conspicuously increased.

This research established the 46.3% of the female respondents exhibited high risk of addiction to online pornography while 44.4% of male respondents displayed high risk of addiction to online pornography. The results suggested that the proportion of female respondents exhibiting high risk of addiction to online pornography was slightly higher than the proportion of male students displaying high risk of addiction to online pornography. Although the findings of a research by Islam and Hossin (2016) indicated that more males than females were predisposed to addiction risks, the results of this study showed that more females consumed online pornography than their male gender.

Concerning risk of addiction to online sexual violence, the study established that 33.5% of the female respondents exhibited high risk of addiction to online sexual violence while 31.4% of their male counterparts displayed high risk of addiction to online sexual violence. The findings signified that the proportion of female students who exhibited high risk of addiction to online sexual violence was higher than the proportion of male respondents who displayed high risk of addiction to sexual violence. This result is consistent with earlier findings that established that female students experienced problematic internet use at a higher intensity than their male counterparts and female students had a higher risk of addiction to online sexual violence than their male counterparts did.

The study findings further established that 42.1% of the female respondents exhibited high risk of addiction to drug and substance abuse while 38.6% of their male counterparts displayed high risk of addiction to drug and substance abuse. Hence, the proportion of female respondents who exhibited high risk to drug and substance abuse was higher than the proportion of male respondents who displayed high risk of addiction to drug and substance abuse. A possible explanation of to this could be the fact that the packaging and branding of drugs had changed over time. In the past, it would be very easy for a drug abuser to be recognized. The conventional drug and substances that were abused were easy to detect due to their smell and other attributes. However, nowadays drug abusers target the drugs that could be prescribed by a doctor as medicine, bought over the counter, or acquired through online. Hence, when they consume such drugs and other substances no one would be suspicious. Female students target such drugs and substances since they would not want other people to know that they were abusing drugs. Some drugs and substances of abuse could not necessary have any visible effect on the abuser in the short run. In addition, in the long run, the abuser could display symptoms

related to epileptic of heart attack and without the intervention of a physician it would be very hard to detect that was the effect of drug abuse. The research findings concurred with Mountaney et al. (2016) that it was easy to acquire drugs and other substances through online than physically. Through the online, there was anonymity and therefore, privacy in identifying drugs than it was in the past when the transactions were done physically. Equally, female students could abuse drugs to experience elevated moods and for self-medication, which could become a habit and led to the risk of being addicted. Griffith and France (2019) also agreed with the results of this study that both males and females use drugs and other substances. However, females developed drug and substance abuse problems faster than males. In females, drug and substance related problems progressed faster than in males. Females also had a higher chance of developing an addiction than males because they escalated faster, had higher side effects and stabilized at higher doses.

Table 14: Gender and Study Variables Chi-Square Tests

		Value	df	P - Value
Problematic Internet Use	Pearson Chi-Square	.040[a]	1	.842
	Likelihood Ratio	.040`	1	.842
	Linear-by-Linear Association	.039	1	.843
	N of Valid Cases	317		
Risk of Addiction to online Gambling	Pearson Chi-Square	2.545[a]	1	.111
	Likelihood Ratio	2.550	1	.110
	Linear-by-Linear Association	2.537	1	.111
	N of Valid Cases	317		
Risk of Addiction to online Pornography	Pearson Chi-Square	.115[a]	1	.735
	Likelihood Ratio	.115	1	.735
	Linear-by-Linear Association	.115	1	.735
	N of Valid Cases	317		
Risk of Addiction to online Sexual Violence	Pearson Chi-Square	.169[a]	1	.681
	Likelihood Ratio	.169	1	.681
	Linear-by-Linear Association	.168	1	.681
	N of Valid Cases	317		
Risk of Addiction to Drug and Substance abuse	Pearson Chi-Square	.405[a]	1	.524
	Likelihood Ratio	.406	1	.524
	Linear-by-Linear Association	.404	1	.525
	N of Valid Cases	317		

A chi square test was performed to examine the relationship between scores in the study variables and gender as shown in table 16. The relationship between scores in the study variables and gender was not significant for each of the five study variables since the p – value was more than .05. Hence, scores in the study variables did not vary significantly between genders.

4.2.3 Reliability Test Results

Table 15: Reliability Statistics for Study Variables

Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Problematic Internet Use	.829	.828	24
Risk of addiction to online Gambling	.875	.876	5
Risk of addiction to online Pornography	.715	.742	5
Risk of addiction to online Sexual Violence	.759	.767	5
Risk of addiction to Drug and Substance Abuse	.750	.750	5

The findings shown in Table 17signify the Cronbach's coefficient Alpha for the twenty-four items on problematic internet usage was .829. Besides, the Cronbach's coefficient Alpha for the five items on risk of addiction to online gambling, risk of addiction to online pornography, risk of addiction to online sexual violence and online drug and substance abuse were .875, .715, .759 and .750 respectively. Hence, the internal consistence of the items under the study was good, since it was within the acceptable range of 0.7 to 0.9.

Table 16: Item Statistics for Variables in the Study

Variable	Mean	Min	Max	Range	N of Items
Problematic Internet Usage	3.08	2.57	3.89	1.319	24
Risk of addiction to online Gambling	3.10	2.80	3.37	.568	5
Risk of addiction to online Pornography	2.71	2.63	2.82	.196	5
Risk of addiction to online Sexual Violence	2.62	2.39	2.81	.416	5
Risk of addiction to Drug and Substance Abuse	2.85	2.64	2.98	.341	5

The aspects of the five variables under study were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Subsequently, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results in table 18 show that the twenty four items on problematic internet use enumerated a mean of 3.08 with a range of 1.319; the five items on risk of addiction to online gambling posted a mean of 3.10 with a range of .568 and the five items on risk of addiction to drug and substance abuse registered a mean 2.85 with a range of .341. Additionally, the five items on risk of addiction to online pornography registered a mean of 2.71 with a range of .196 while the five items on risk of addiction to online sexual violence recorded a mean of 2.62 with a range of .416. The results indicated that each of the study variables enumerated items scores within a range which was good for the study since it implied that the items measured the desired constructs.

4.2.4 Availability of Internet Connectivity and Technological Devices

Undergraduate students were asked to indicate the availability of internet connectivity and technologies used in universities by ticking on the list of infrastructure provided. They were supposed to choose from the following: mobile devices, computers, bandwidth and WIFI. They were further requested to indicate whether they used any other technology, not provided on the list.

Table 17: Availability of Internet connectivity and technological devices

		Frequency	Percent
Availability of mobile devices in the University	Available	303	95.6
	Not available	9	2.8
	Not sure	5	1.6
	Total	317	100.0
Availability of computers in the University	Available	253	79.8
	Not available	40	12.6
	Not sure	24	7.6
	Total	317	100.0
Availability of Band width in the University	Available	99	31.2
	Not available	45	14.2
	Not sure	173	54.6
	Total	317	100.0
Availability of WIFI in the University	Available	302	95.3
	Not available	10	3.2
	Not sure	5	1.6
	Total	317	100.0
Utilization of internet technology	Yes	317	100.0
Technological device mostly utilized	Mobile device	172	54.3
	Computer	39	12.3
	Band width	4	1.3
	WIFI	77	24.3
	Other	25	7.9
	Total	317	100.0

The findings indicated in Table 19show that 95.6% of the respondents attested that they accessed the internet by use of a mobile device, 95.3% specified availability of Wi-Fi within the university, 79.8% indicated that computers were available within the university and were connected to the internet while 31.2% reported availability of bandwidth within the University for Internet Connectivity. Besides, all the respondents reported utilization of internet technology within the university premises. The most prevalent device for internet connectivity utilized by the respondents was mobile phones (54.3%) followed by Wi-Fi (24.3%). In addition, 12.3% of the respondents indicated

computers as their preferred device for internet connectivity, 7.9% specified other devices while 1.3% indicated bandwidth as the preferred device for internet connectivity within the university premises. The findings imply that all the respondents had access to internet connectivity within the university premises and that all the respondents utilized internet technology within the university premises. The results were significant to the study in examining the problematic internet usage influence on the risk of selected addictions among undergraduate students in universities in Kenya. All the respondents had an experience in internet usage and therefore, were able to respond to the items on the questionnaire with ease.

The study findings indicated that all the universities under investigation provide free and unlimited internet connectivity to the students and staff. This indicated that undergraduate students were predisposed to problematic internet usage, which, could lead to the risk of addictions. Romano et al. (2013) who indicated that exposure to internet affected negatively on the emotional and mood state of problematic internet users and increased the likelihood of developing addictions support the findings of the current study. The findings affirmed that the students who developed problematic internet usage also engaged in the addictive activities. Zaremohzzabieh et al. (2014) who acknowledged that, although university students benefited from social networking, those who used internet excessively had a likelihood of developing addictions also support these propositions.

The research findings concur with Ojino and Mich (2018), that mobile phones are more popular with university students than other gadgets. The undergraduate students used mobile phones to engage on the internet, which was available within the university premises. However, a great number of students also accessed the internet while outside

the universities. Chris (2015) supports the results of this study that, mobile devices are the most used technologies for accessing the internet by university students. From the findings, there was an indication that universities provided free internet for the students for academic and accessing the relevant information. Deviation from this purpose could lead to spending great amount of time online, which could lead to problematic internet usage and had a likelihood of the risk of selected addictions.

4.3 Analysis of Data from Undergraduate Students on Problematic Internet Usage

This section details the descriptive analysis of variables under study. Specifically, the means and standard deviations of aspects of problematic internet use, risk of addiction to online gambling, risk of addiction to online pornography, risk of addiction to online sexual violence and risk of addiction to online drug and substance abuse among undergraduate students in universities in Kenya have been presented. For the assessment of the degree to which undergraduate students engaged in problematic internet usage, they were asked to tick on the Likert scale provided. The Likert scale comprised of items 1-5 in which, 1 was the least and 5 was the highest, 5 implied strongly agree, 4 agree, 3 somewhat agree, 2 neither agree nor disagree and 1 somewhat disagree. The results findings were analysed according to the variables of the study.

4.3.1 Using the internet longer than originally intended

The study sought to establish undergraduate's opinion on the extent to which there was usage of the internet longer than originally intended.

Table 18: Using the Internet Longer than Originally Intended

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I often have trouble completing important tasks because of being on the internet	317	3.89	1.23	109	34.4	208	65.6
I am usually pre-occupied with internet when offline	317	3.83	1.20	104	32.8	213	67.2
I often use the internet longer than intended to access information that is not academic in nature	317	3.72	1.22	124	39.1	193	60.9
I often feel restless because of the need to use internet but is not available	317	3.20	1.29	176	55.5	141	44.5

The four items on usage of the internet longer than originally intended were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Subsequently, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results displayed in Table 20 indicate that the four items on loss of track of time when on the internet enumerated means ranging from 3.20 to 3.89. This means that all the four items on loss of track when on the internet since each posted a mean greater than 2.5 significantly affected the respondents. Specifically item one on loss of track when on the internet - I often have trouble completing important tasks because of being on the internet recorded a mean of 3.89 (SD = 1.23) closely followed by item two I am usually pre-occupied with internet when offline which enumerated a mean of 3.83 (SD = 1.20). Besides, item three - I often use the internet longer than intended to access information that is not academic in nature posted a mean of 3.72 (SD

= 1.22) while item four I often feel restless because of the need to use internet but is not available registered a mean of 3.20 (SD = 1.29). The results signified that largely, the respondents often had trouble controlling their internet usage. Moreover, the respondents regularly utilized internet to access information that was not academic in nature and often felt restless because of the need to use internet but was not available. Hence, in respect to using the internet longer than originally intended, the respondents exhibited problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - using the internet longer than originally intended. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was established that 67.2% of the respondents had trouble completing important tasks because of being on the internet, 65.6% were usually preoccupied with internet when offline, 60.9% often used the internet longer than intended to access information that is not academic in nature and 44.5% often felt restless because of the need to use internet when not available. The result signified that in respect to usage of the internet longer than originally intended, the respondents exhibited problematic internet usage since more than half-posted high scores for three of the four variables.

The findings of this study concur with Kuss (2012), that compulsive internet usage could be manifested by loss of truck of time while on the internet. The current study found out that the undergraduate students who developed problematic internet usage stayed online for extended times and were not conscious about time and keen to attend to other responsibilities. Longo et al. (2002) affirmed that when an individual spends great amounts of time online, they become predisposed to addictive behaviours. This study is in agreement with the researchers as the investigations showed that the undergraduate

students who spent much time online started to develop a routine in browsing which affected the class attendance and participation in other activities. The current research findings acknowledged that undergraduate students utilised the internet longer than intended for other purposes than for academic, which had trouble completing important tasks because of being on the internet. This implied that the more the students engaged in online activities, they participated less in other activities mainly academic and social life.

4.3.2 Sleep Deprivation due to Late Night Internet Engagement

Table 19: Sleep Deprivation due to Late Night Internet Engagement

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I often stay connected to the internet for longer than planned	317	3.23	1.30	172	54.3	145	45.7
I often postpone bed time to be on the internet	317	3.20	1.23	182	57.4	135	42.6
I often stays on the internet for longer hours than intended	317	3.10	1.31	193	60.9	124	39.1
I have severally tried to reduce the time I spent online without success	317	3.03	1.29	204	64.4	113	35.6

The four items on sleep deprivation due to late night internet engagement because of problematic internet usage were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Subsequently, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. These four items on sleep deprivation because of problematic internet usage enumerated means ranging from 3.03 to 3.23 (results displayed in table 21). The results suggested that largely the respondents were influenced by each of the four items on sleep deprivation

because of problematic internet usage since each posted a mean greater than 2.5. Specifically, item one on sleep deprivation - I often stay connected to the internet for longer than planned enumerated a mean of 3.23 (SD = 1.30). item two - I often postpone bed time to be on the internet posted a mean of 3.20 (SD = 1.23) and item three - I often stay on the internet for longer hours than intended registered a mean of 3.10 (SD = 1.31) while item four - I have severally tried to reduce the time spent online without success had a mean of 3.03 (SD = 1.29). The results showed that to a large extent, the respondents often stayed connected to the internet for longer than planned, regularly postponed bed time to be on the internet, often stayed on the internet for longer hours than intended and had severally tried to reduce the time they spent online without success. Hence, in respect to sleep deprivation due to late night internet engagement, the respondents displayed problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - sleep deprivation because of problematic internet usage. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was revealed that 45.7% of the respondents often stayed connected to the internet for longer than planned, 42.6% often postponed bed time to be on the internet, 39.1% often stayed on the internet for longer hours than intended, and 35.6% had severally tried to reduce the time they spent online without success. This result signified that, in respect to sleep deprivation because of internet usage, the respondents displayed problematic internet usage since more than a third of the respondents posted high scores for each of the four items.

The results agreed with Arjunan and Moncy (2016), that problematic internet usage could lead to pre-occupation with online browsing and the user could spend a great

amount of time browsing, which, could affect the sleeping patterns. The findings of the current study showed that the undergraduate students who developed problematic internet usage accessed the internet up to late at night. The students were unable to limit the duration of time spent online. Nakaya (2015) supports the propositions that, due to the freedom and provision of unrestricted and unlimited internet, university students stayed online for longer periods. This research found out that students were deprived of the sleep because due to problematic internet usage. In this regard, they stayed awake late at night to access the addictive materials, which deprived them of sleep. According to Bahadir (2017), problematic internet usage is characterised with poor control of technological uses, which could lead to distress. This is in agreement with the findings of this study that the undergraduate students lost control of time spent online which affected their normal routines such as bedtime. The students were pre-occupied with online activities and could not realise that they stayed on the internet longer than expected. Deursen et al. (2015) who indicated that problematic internet usage could lead to maladaptive behaviour and cause sleep deprivation supported the findings of this study. Undergraduate students who used the internet excessively developed a compulsive behaviour and ensured that they spent their free time including bedtime online.

4.3.3 Isolation from Friends and Family Because of Being Online

Table 20: Isolation from Friends and Family Because of Being Online

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I often engage in internet activities frequently with peers	317	3.19	1.29	187	59	130	41
Often friends and family members complain about the great amount of time spent on the internet	317	3.15	1.32	174	54.9	143	45.1
Usually socialize online rather than engaging in face to face interactions	317	2.81	1.45	214	67.5	103	32.5
Severally caused problems with peers and family members	317	2.76	1.52	211	66.6	106	33.4

The four items on isolation from friends and family because of being online were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Subsequently, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results shown in table 22 established that the four items on isolation from friends and family because of internet use enumerated means ranging from 2.76 to 3. This means that the respondents attested significant influence by each of the four items on isolation from friends and family because of internet use as each posted a mean greater than 2.5. Item one on isolation from friends and family - I often engage in internet activities frequently with peers posted a mean of 3.19 (SD = 1.29). Item two - Often friends and family members complain about the great amount of time spent on the internet registered a mean of 3.15 (SD = 1.32). Item three – I usually socialize online rather than engaging in face to face interactions enumerated a mean of 2.81 (SD = 1.45) while item four - my internet use has severally caused

problems with peers and family members had a mean of 2.76 (SD = 1.52). The results suggest that, largely the respondents often engaged in internet activities frequently with peers. Further, friends and family members complained concerning spending long periods on the internet, usually socialized on the internet instead of engaging in physical relations and used the internet severally which, caused problems with peers and family members. Hence, concerning isolation from friends and family the respondents showed problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - isolation from friends and family. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. The study established that 45.1% of the respondents attested that often friends and family members complained about the great amount of period they spent on the internet. 41.0% often engaged in internet activities frequently with peers, 33.4% testified that they severally caused problems with peers and family members because of internet usage, and 32.5% usually socialized on the internet instead of engaging in physical relationships. The results inferred that concerning isolation from friends and family because of being online, the respondents demonstrated problematic internet usage since more than a third of the respondents posted high scores for each of the four items.

The results of study showed that a great number of undergraduate students had experienced isolation from friends and family because of spending much time on the internet and neglecting social interactions. This agreed with Dutta (2017) who posited that, problematic internet usage could lead to withdrawal from friends and family members and could lead to social isolation. The findings also concur with Deursen et al. (2015) that, excessive internet usage could lead to social isolation. The undergraduate

students who developed problematic internet usage spent much time online and were not able to interact with peers and family members. Akar (2015) who affirmed that problematic internet usage might lead to antisocial behaviour supported the study findings. The results showed that undergraduate students who engaged in problematic internet usage had strained relationships with peers, friends and family members. The students withdrew from social interactions and avoided face-to-face relationships.

4.3.4 Feeling Happy only when Online and Pre-Occupied with Internet when Off-Line

Table 21: Feeling Happy when Online and Pre-Occupied With Internet When Off-Line

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I often feel an urge to stay longer periods on the internet to be contented	317	3.18	1.35	170	53.6	147	46.4
I usually think about what it would be like being online when not on the internet	317	3.16	1.36	181	57.1	136	42.9
I often feel restless because of the need to use internet although it is not accessible at the moment	317	3.02	1.30	206	65	111	35
I often use internet to establish online relationships	317	3.01	1.34	201	63.4	116	36.6

The four items on feeling happy only when online and pre-occupied with internet when off-line were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Consequently, a mean of 2.5 to 5.0 signified high extent of involvement while a mean less than 2.5 inferred involvement to a low extent. Results in table 23 indicated that four items on feeling happy only on the internet recorded means ranging from 3.01 to 3.18 meaning that they greatly influenced the respondents since each posted a mean greater than 2.5. Item one on feeling happy only on the internet - I often feel an urge to

stay longer periods on the internet to be contented enumerated a mean of 3.18 (SD = 1.35). item two - I usually think about what it would be like being online when not on the internet registered a mean of 3.16 (SD = 1.36) and item three - I often feel restless because of the need to use internet although it is not accessible at the moment posted a mean of 3.02 (SD = 1.30) while item four - I often use internet to establish online relationships had a mean of 3.01 (SD = 1.34). This is an indication that,largely the respondents often felt an urge to stay longer periods on the internet to be contented. Frequently thought about what it would be like being online when not on the internet, often felt restless because of the need to use internet although it was not accessible at the moment, and utilized internet to establish online relationships. Hence, in respect to feeling happy only when online and pre-occupied with internet when off-line, the respondents exhibited problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - feeling happy only on the internet. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was established that 46.4% of the respondents often felt an urge to stay longer periods on the internet to be contented. 42.9% usually imagined about what it would be like being online when not on the internet, 36.6% often used internet to establish online relationships and 35.0% often felt restless because of the need to use internet when not accessible at the moment. The results suggested that in respect to feeling happy only when online and pre-occupied with internet when off-line, the respondents exhibited problematic internet usage since more than a third of the respondents posted high scores in the four items.

The study findings showed that undergraduate students spent long periods online, which could result to problematic internet usage. The findings showed that the students were very happy when online which resulted into spending much time on the internet. The findings are supported by Ambad et al. (2017) that when a person is addicted to online browsing, they could take a excessive amount of time continuously on the internet and could be excited to continue browsing. However, the results of this research were contrary to the study by Romano et al. (2013) who highlighted that people who engaged in problematic internet usage were unhappy. This implied that the researchers tested the mood and the emotional states of the respondents. For this study, the students were requested to tick on the indicators of feeling happy only when one is on the interned, which was done without measuring the mood and emotional state because it was not the focus of the research. The Behavioural Theorists posited that, rewards could increase the likelihood of a behaviour to be repeated. In this case, the satisfaction experienced in accessing the internet and the freedom to visit any site elicits happiness, which could lead to spending long hours online and could predispose a person to problematic internet usage and hence developing addictions. Moreover, undergraduate students felt happy when on the internet and were unable to control the urge to remain online. Lack of control on how long undergraduate students remained online indicated that they were unable to prioritize other important tasks.

4.3.5 Inability to Keep Schedules or Prioritize

Table 22: Inability to Keep Schedules or Prioritize

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I often feel bored when not on the internet	317	3.38	1.20	158	49.8	159	50.2
I always push problems away by engaging on the internet	317	3.01	1.38	193	60.9	124	39.1
I usually realize that I am waiting for the time when I can use the internet again	317	2.85	1.36	228	71.9	89	28.1
I usually forget to eat when on the internet	317	2.84	1.36	219	69.1	98	30.9

The four items on inability to keep schedules or prioritize were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. It was further revealed that the four items on inability to prioritize enumerated means ranging from 2.84 to 3.38 meaning that each of the four items significantly influenced the respondents since each posted a mean greater than 2.5 as shown in table 24. Item one of inability to prioritize - I often feel bored when not on the internet registered a mean of 3.38 (SD = 1.20). Item two - I always push problems away by engaging on the internet recorded a mean of 3.01 (SD = 1.38) and item three - I usually realize that I am waiting for the time when I can use the internet again enumerated a mean of 2.85 (SD = 1.36) while item four - I usually forget to eat when on the internet recorded a mean of 2.84 (SD = 1.36). The findings indicate that largely the respondents often felt bored when not on the internet, always pushed problems away by engaging on the internet, usually realized that they were waiting for the time when they could use the internet again, and usually forgot to eat when on the internet. Hence, in

respect to inability to keep schedules or prioritize, the respondents suffered problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - inability to prioritize. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was established that 50.2% of the respondents often felt bored when not on the internet, 39.1% always pushed problems away by engaging on the internet, 30.9% usually forgot to eat when on the internet, and 28.1% usually longed for the time when they could use the internet again. These results indicated that, in respect to inability to prioritize, the respondents suffered problematic internet usage since more than a third of the respondents posted high scores in three out of the four items.

The research findings indicated that undergraduate students stayed online for long periods and lost control of time. This indicated that the students were unable to prioritize other important tasks. The research findings were also supported by Bahadir (2017) who highlighted that pre-occupation with internet usage may lead to being unable to prioritize therefore, could cause academic drop and psychological problems. Dutta (2017) agreed with the results of the current study that problematic internet usage could lead to negative repercussions including low academic achievement. The undergraduate students failed to prioritize academics and other important activities because of engaging in online activities. This had a negative effect on academic and psychosocial well-being. The findings also concurred with Islam and Hossin (2016) who indicated that compulsive use of the internet could affect behaviour negatively.

4.3.6 Neglecting Other Responsibilities to be on the Internet

Table 23: Neglecting Other Responsibilities to be on the Internet

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I always get irritated if bothered while on the internet	317	2.68	1.33	225	71	92	29
I usually feel unable to concentrate on other duties because of thinking about the internet	317	2.58	1.27	243	76.7	74	23.3
At times I miss classes because of engaging on the internet	317	2.58	1.49	232	73.2	85	26.8
I neglect other responsibilities to be on the internet	317	2.57	1.31	228	71.9	89	28.1

The four items on neglecting other responsibilities to be on the internet were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results shown in Table 25 indicated that the four items on neglecting other responsibilities to be on the internet enumerated means ranging from 2.57 and 2.68 signifying that they significantly influenced the respondents since each item posted a mean greater than 2.5. Specifically, item one on neglecting other responsibilities to be on the internet - I always get irritated if bothered while on the internet enumerated a mean of 2.68 (SD = 1.33). Item two - I usually feel unable to concentrate on other duties because of thinking about the internet registered a mean of 2.58 (SD = 1.27). Item three - At times I miss classes because of engaging on the internet recorded a mean of 2.58 (SD = 1.49) while item four - I neglect other responsibilities to be on the internet posted a mean of 2.57 (SD = 1.31). The results signified that largely, the respondents always got irritated if bothered while on the internet, usually felt unable

to concentrate on other duties because of thinking about the internet, at times missed classes because of engaging on the internet and neglected other responsibilities to be on the internet. Hence, in respect to neglecting other responsibilities to be on the internet, the respondents exhibited problematic internet usage.

The respondents were further categorized into two in respect to the responses availed on the item - neglecting other responsibilities to be on the internet. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. The findings revealed that 29.0% of the respondents always got irritated if bothered while on the internet, 28.1% neglected other responsibilities to be on the internet, 26.8% at times missed classes because of engaging on the internet, and 23.3% usually felt unable to concentrate on other duties because of thinking about the internet. The results findings showed that in respect to neglecting other responsibilities to be on the internet, the respondents exhibited problematic internet usage since nearly a third of the respondents posted high scores in three of the four items.

The results of this research agree with Akar (2015),that excessive internet usage could lead to destruction from participating in other activities. According to the researcher, students who engaged in excessive internet usage neglected other responsibilities mainly; academic and social interactions which impaired their relationships with peers and family members. The current research revealed that undergraduate students neglected other duties to engage in activities on the internet. Moreover, a great number of undergraduate students who developed problematic internet usage dropped in academics and were withdrawn from social relationships. In support of the current study, Wohab and Mubarak (2018), affirmed that problematic internet usage caused a drop in academics.

4.4 Analysis of Data from Students Counsellors and Student Peer Counsellors on Problematic Internet Usage

This section presents data collected during the in-depth interviews with students' counsellors and focus group discussions with the student peer counsellors. The study sought responses from students' counsellors on the role of problematic internet usage in selected addiction risks among undergraduate students.

During the collection of data from the interview schedule, students' counsellors indicated that online gambling and online compulsive shopping were the major activities that undergraduate students engaged in. They acknowledged that a great number of students used internet excessively especially when there were international matches. Some students missed classes to participate in bets hoping to win money. Further, students' counsellors reported that undergraduate students engaged in online pornography and online sexual violence due to problematic internet usage. Drug and substance abuse was a significant factor among the students who engaged in online pornography and online sexual violence as it was reported that some used drugs to gain courage and be able to participate in online pornography and online sexual violence. Furthermore, the students' counsellors reported that undergraduate students who developed problematic internet usage had started as a normal search on the internet, which lead to spending more time online and hence, development of addictive behaviours. The study findings concur with Akar (2015) who posited that excessive internet usage predisposes the user to problematic internet usage. This is an indication that problematic internet usage predisposed the undergraduate students to the risk of the selected addictions.

Due to provision of free and unlimited internet connectivity provided by the universities, undergraduate students could access the internet within the universities and in the surrounding area. This was an indication that a great number of students were able to

access the internet at all times and everywhere which encouraged them to engage more in online activities. Engaging on the internet excessively without control encouraged more searches and hence a likelihood of the risk of addictions. One student counsellor commented the following;

> *'The university has a very strong internet connectivity which allows students to browse at all times and everywhere. This freedom and unlimited internet access could result to problematic internet usage. The highest number of clients who have sought counselling services due to problematic internet usage were addicted to online gambling and online pornography.'*

Comparing the results from the in-depth interview and the findings from the quantitative data, the research established that problematic internet usage led to the risk of addiction to online gambling, online pornography, online sexual violence and online drug and substance abuse.

The focus group discussions established that students engaged in problematic internet usage because they required information concerning social issues. Some students engaged in problematic internet usage because they needed money for their daily use and therefore were involved in gambling with the hope of winning. Results from in-depth interview scheduled agreed with focus group discussion that undergraduate students engaged in problematic internet usage due to peer pressure. The students participated in activities such as online gaming, watching videos, communicating and sharing information with peers. This indicated that the students had to use internet in order to be connected, which could lead to problematic internet usage and predispose them to the risk of addictions. Further, they were involved in chatrooms connecting a number of them from different points. Persuasive media adverts was also mentioned as playing a big role in the undergraduate students being involved in problematic internet usage.

Advertisements portraying people winning bets and lottery encouraged the students to participate more with the hope of winning. Findings from focus group discussions also revealed that undergraduate students engaged in problematic internet usage because they stayed for long periods of time online learning from the internet models such as trying to master the skills portrayed by the models. Two students' counsellors said that;

> *'The number one reason why undergraduate students engaged in problematic internet usage was search for information concerning social issues such as how to treat the opposite sex partner and information on sexual matters. 'University students have a great need for money, some come from very humble backgrounds and are not provided for by the guardians, so they engage in gambling*

The study findings established in quantitative data generated from questionnaires for students was supported by the findings from students' counsellors and student peer counsellors. The findings indicated that undergraduate students developed problematic internet usage because of different reasons. Students' counsellors reported that the causes of problematic internet usage were mainly curiosity, influence from peers, availability of free and unlimited internet, persuasive media advertisements, and idleness and as a way of dealing with depression, stress and anxiety. The results indicated that undergraduate students sought assistance from students' counsellors when they realised that the problem was worsening. A number of students developed problematic internet usage because of curiosity of getting information regarding relationships; a number of students also developed online relationships and therefore, needed to be connected for long periods to interact with friends. The research established that students were convinced after media persuasions on how to win bets to try their lack. This led to engagement in online gambling with the hope of winning money. Students' counsellors reported that students developed problematic internet usage because of idleness. This agrees with the findings of the data collected from students' questionnaire that a great number of second

year students engaged in problematic internet usage more than third year students, which, indicated that second years students had less engagement in academic activities than third year students.

Results findings indicated that some students developed problematic internet usage as a way of coping with depression, stress and anxiety. The students found comfort in online activities, which lead to accessing addictive materials. Undergraduate students were free to access any content online because their activities online were not monitored. There was preference in searching for information online than consulting the adults. Some students developed problematic internet usage due to peer pressure as they interacted online and shared information through the internet. Two students' counsellors said that;

> *'Problematic internet usage among undergraduate students is caused by a number of factors; availability of free and unlimited internet connectivity causes students to stay online for long periods. Some students are not free to share disturbing information which depresses and results to using the internet as a temporary relieve from depression. 'Undergraduate students develop addictions to a number of online activities such as online sex, watching pornography, betting and compulsive online shopping.'*

During focus group discussions, the student peer counsellors were asked to mention the addictions caused by problematic internet usage among undergraduate students. Analysis of data from focus group discussion showed that problematic internet usage lead to several problems among undergraduate students. The problems that were identified were relationship issues, academic drop, isolation from social interactions, accessibility of harmful materials and neglecting other responsibilities to be online. The findings indicated that a great number of undergraduate students started developing problematic internet usage due to curiosity.

The students visited harmful sites as they were doing their academic work and through curiosity, they could browse further hence, becoming more exciting which became a habit.

The findings also highlighted that some students who engaged in problematic internet usage had problems in relating with peers, friends and family members. This implied that the students engaged more on the internet than in face-to-face interactions. Further, students developed problematic internet usage because it was available and could be assed freely and at any time. This encouraged the students to sped great amounts of time online, which lead to problematic internet usage. The analysis further established that some students developed problematic internet usage as they engaged in online games hoping to win and improve their financial status. If winning could not happen during the start of a game, the students could continue to participate and make several trials, which lead to one being predisposed to problematic internet usage and having financial crisis.

The results from focus group discussion further showed that some students became addicted to WhatsApp, Facebook and Twitter, which further predisposed them to the selected addiction risks because of the content shared through these platforms. Student counsellors indicated that apart from the undergraduate students being predisposed to the risk of the selected addictions, they also experience other problems because of problematic internet usage:

Table 24: Influence of Problematic Internet Usage on Undergraduate Students

Students' Counsellor	Influence of problematic internet usage
Students' Counsellor A	Undergraduate students experience poor concentration on the academics because of being addicted to online activities, which could lead to academic drop and cause distress.
Students' Counsellor B	Undergraduate students misuse resources including fees and borrowing money from friends to use in gambling hence, leads to being in debts.
Students' Counsellor C	Problematic internet usage lead strained relationships and unhealthy sexual behaviours because students practice what they watch on the internet.
Students' Counsellor D	Problematic internet usage could lead to the development of addictive behaviours.

The responses displayed on table 26 indicated that undergraduate students experienced problems due to problematic internet usage mainly; poor concentration on academics, misuse of resources including fees, debts, formation of bad behaviours, development of addictions and emotional distress. Further, problematic internet usage also lead to strained relationships and unhealthy sexual behaviours. Students' counsellors also identified problematic internet usage as a main cause of harm, trauma and depression on the students involved, which, led to poor interpersonal relationships. Other problems caused by problematic internet usage were uncontrolled sex urge, unplanned pregnancies, university dropout, unprotected sex and exposure to HIV/AIDS and other sexually transmitted diseases. Analysis from in-depth interview schedule concurred with Deursen et al. (2015) who posited that engagement in problematic internet usage could cause problems. The researchers indicated that some of the negative effects of problematic internet usage were psychological and physical.

The psychosocial problems of problematic internet usage identified by students' counsellors also agree with Shahnaz and Karim (2014) who highlighted apart from the university students developing an addiction to online gambling, they also experienced other problems such as cyber affairs and pornography watching. Griffiths (2015) also agrees with the results of this study that university students experience psychological, social, financial and academic drop because of engaging excessively in online activities.

4.5 The Role of Internet Usage in the Risk of Addiction to Online Gambling

Table 25: Risk of Addiction to Online Gambling

				Low Scores		High Scores	
	N	Mean	Std. Deviation	F	%	F	%
I always feel exited winning money after placing bets	317	3.37	1.57	141	44.5	176	55.5
I usually feel distressed because of being unable to engage in gambling activities	317	3.21	1.49	164	51.7	153	48.3
I often gamble on the internet	317	3.13	1.56	167	52.7	150	47.3
I feel an urge to continue gambling even after losing great amounts of money	317	3.02	1.46	189	59.6	128	40.4
I feel restless trying to stop the gambling behaviour	317	2.80	1.44	210	66.2	107	33.8

The five items on risk of addiction to online gambling were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results in table 27indicate that the five items on risk of addiction to online gambling enumerated means ranging from 2.80 and 3.37implying that on average, the respondents had a considerable risk of addiction to online gambling since each posted a score greater than 2.5. Specifically, item one on risk of addiction to online gambling - I

always feel exited winning money after placing bets registered a score of 3.37 (SD = 1.57). Item two - I usually feel distressed because of being unable to engage in gambling activities recorded a mean of 3.21 (SD = 1.49) and item three - I often gamble on the internet enumerated a mean of 3.13 (SD = 1.56). Besides, item four - I feel an urge to continue gambling even after losing great amounts of money posted a mean of 3.02 (SD = 1.46) while item five - I feel restless trying to stop the gambling behaviour had a mean of 2.80 (SD = 1.44). The results implied that largely, the respondents always felt exited winning money after placing bets, usually felt distressed because of being unable to engage in gambling activities and often gambled on the internet. Moreover, the respondents felt an urge to continue gambling even after losing great amounts of money and regularly felt restless trying to stop the gambling behaviour. Hence, the respondents had a high risk of getting addicted to online gambling.

The respondents were further categorized into two in respect to the responses availed on the item - risk of addiction to online gambling. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was established that 55.5% always felt exited winning money after placing bets, 48.3% usually felt distressed because of being unable to engage in gambling activities, 47.3% often gamble on the internet, and 40.4% felt an urge to continue gambling even after losing great amounts of money, while 33.8% feel restless trying to stop the gambling behaviour. The results indicated that the respondents had a high risk of getting addicted to online gambling since more than a third posted high scores for all the five items.

Table 26: Risk of Addiction to Online Gambling Cross Tabulation

		Risk of Addiction to Online Gambling		
		Low Risk	High Risk	Total
Non Problematic Internet Use	F	79	58	137
	%	56.0%	33.0%	43.2%
Problematic Internet Use	F	62	118	180
	%	44.0%	67.0%	56.8%
Total	F	141	176	317
	%	100.0%	100.0%	100.0%

The study sought to examine the problematic internet usage influence on the risk of addiction to online gambling among undergraduate students in universities Kenya. Results displayed in Table 28 illustrated that 67.0% of the respondents exhibiting high risk of addiction to online gambling had problematic internet usage while only 44.0% of respondents with low risk of addiction to online gambling had problematic internet usage. Hence, the proportion of the respondents displaying high risk of addiction to online gambling that had problematic internet use was higher than the proportion of the respondents exhibiting low risk of addiction to online gambling that had problematic internet usage.

Table 27: Risk of Addiction to Online Gambling Chi-Square Tests

	Value	df	P – Value
Pearson Chi-Square	16.984[a]	1	.000
Likelihood Ratio	17.074	1	.000
Linear-by-Linear Association	16.930	1	.000
N of Valid Cases	317		

Table 29 displays a chi square test, which was per formed to examine the relationship between problematic internet usage and risk of addiction to online gambling. The

relationship between problematic internet usage and risk of addiction to online gambling was significant, χ^2 (1, N = 317) = 16.984, p< .000. Hence, the null hypothesis - problematic internet usage is not statistically significant in risk of addiction to online gambling was rejected.

Table 28: Risk of Addiction to Online Gambling Comparison Analysis

Internet Use	N	Mean	Std. Deviation	Std. Error Mean
Non Problematic Internet Use	137	13.7	6.4	0.54
Problematic Internet Use	180	16.9	5.6	0.42

A T-test was performed to determine whether different results could be arrived at concerning the relationship between problematic internet usage and risk of addiction to online gambling. Results illustrated in Table 30 showed that the mean risk of addiction to online gambling score for respondents exhibiting problematic internet usage was 16.9 (SD = 5.6) while the score of their counterparts with non-problematic internet usage was 13.7 (SD = 6.4). The results implied that the scores for risk of addiction to online gambling for respondents exhibiting problematic internet usage were higher than the risk of addiction to online gambling scores for their counterparts with non-problematic internet usage.

Table 29: Risk of Addiction to Online Gambling Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	Df	P - Value	Mean Difference	Std. Error Difference
Equal variances assumed	8.205	.004	-4.832	315	.000	-3.256	0.674
Equal variances not assumed			-4.751	272.4	.000	-3.256	0.685

An independent-samples t-test indicated that the scores for risk of addiction to online gambling were significantly higher for respondents exhibiting problematic internet usage (M = 16.9, SD = 5.6) than for their counterparts with non-problematic internet usage (M = 13.7, SD = 6.4), t (315) = 4.832, $p < .001$ as displayed in table 31. Hence, the study established a significant relationship between problematic internet usage and risk of addiction to online gambling. Therefore, the null hypothesis – problematic internet usage is not statistically significant in risk of addiction to online gambling was rejected.

Gainsbury (2017) acknowledged that young people engaged on online gambling to earn money, for entertainment and for leisure. In line with this, the current study found out that a great number of undergraduate students engaged in online gambling to earn money. The students visited several gambling sites provided on the internet. The findings also affirmed that undergraduate students engaged in sports betting to compete with peers and get wealthy. Mwadime (2017) who acknowledged that young people engaged in sports betting to gain quick money and to improve financial status supports this. Furthermore, sports betting sites were accessible at all time and from everywhere.

The study findings concurred with Falton (2015), who argued that problematic internet usage occurred when individuals had minimal monitoring on what they did on the internet. The current research found out that majority of the university undergraduate students used the internet frequently. Spending long periods on the internet predisposed the students to the risk of being addicted to online gambling. The results indicated that 118 (67%) of the respondents were engaged in problematic internet usage and were at a risk of being addicted to online gambling. This agreed with the study by Kuss (2013) that addiction to online gambling was because of problematic internet usage. Moreover, involvement in online gambling had a negative effect on the psychological and social

wellbeing of the person. Those involved in online gambling were isolated from family and friends as they withdrew from the social circles.

The findings of this study established that problematic internet usage lead to the risk of addiction to online gambling which was contrarily to a research by (Shahnaz & Karim, 2014). The researchers indicated that internet usage among university students involved other activities other than online gambling such as online discussion, adult chatting, online gaming, cyber affair and pornography watching. The results of this research established that although university students engaged in other activities, online gambling was a significant factor in problematic internet usage. Availability of gambling points, free internet connectivity and persuasive media motivated the students to gamble. Availability of internet technology and connectivity allowed people to engage in online gambling (Gainsburry, 2015). This assertion agreed with the findings of the current study, which showed that majority of university undergraduate students, used mobile phones to gamble online. The students who participated in the study indicated having stayed awake late at night to gamble and a number of them also indicated having gambled during class time. A high number of students reported that they were not able to control their gambling habits, which was an indication of an addiction. Some of the problems that undergraduate students experienced due to gambling behaviour were psychological, social, financial and academic drop. This was in agreement with Griffiths (2015) that addiction to online gambling led to psychological and social problems.

Through the in-depth interview schedule, the students' counsellors pointed out that undergraduate students engage in online gambling because of the expectation that they would win quick money and a desire to have quick wealth by placing bets. Further, a great number of undergraduate students gambled due to peer pressure while some

engaged in online gambling as a way of dealing with financial constraints. Students' counsellors highlighted that engagement in online gambling involved placing bets online hoping to earn more money after winning. This predisposed the students to developing addiction to online gambling because of the many trials in which essentially they ended up losing. One student counsellor said that;

> *'Undergraduate students place bets on games because of media advertisements promising them to win money if their predictions were correct which, does not happen most of the time. This leads to loss of money and more engagement in the gambling activity, which becomes an addiction.'*

The findings from the in-depth interviews showed that undergraduate students enjoyed online gambling on smartphones any time because it was quick and automatic to participate. They could one game and continue to another immediately or later or at all times.

Student peer counsellors were asked to indicate the nature of problematic internet usage in relation to online gambling. The results indicated that the process of registering to engage in online gambling was done on the internet. This was an indication that the undergraduate students who engaged in problematic internet usage had a higher chance of being addicted to online gambling. The findings of this study agrees with Gainsbury et al. (2016) who pointed out that people get encouraged to gamble because of the messages displayed on social media displaying excitement after winning. The results of this study showed that students engaged in online gambling with the hope of winning money where they kept on making predictions with the hope of winning even after several trials without success. The results implied that problematic internet usage was a significant factor in online gambling. The activities and events that occurred concerning online gambling required the students to be on the internet for long hours predisposing

them to problematic internet usage, which could lead to addiction to online gambling. Two focus group discussion participants commented that;

> *'Undergraduate students who engage in online gambling usually register online at all times and from anywhere even when they are attending lectures, they keep on checking the progress of the game to see if they have won.'*

> *'Many undergraduate students engage in online gambling because they want to win easy money and upgrade their livelihood. A number of them make several trials in predicting the outcome of an activity with the hope of winning money which does not always happen as anticipated.'*

The results of this study also concur with Mwadime (2017) who affirmed that young people gamble to earn money. This study indicated that a great number of undergraduate students in universities in Kenya engage on online gambling to win easy money. The students keep on checking if they have won, hence spending several hours online, which became problematic and hence, predisposing them to the risk of addiction to online gambling.

4.6 The Role of Internet Usage in the Risk of Addiction to Online Pornography

Table 30: Risk of addiction to Online Pornography

	N	Mean	Std. Deviation	Low Scores F	Low Scores %	High Scores F	High Scores %
I always get preoccupied with sexual thoughts	317	2.82	1.39	209	65.9	108	34.1
I often feel restless because of trying to stop pornography watching	317	2.74	1.52	212	66.9	105	33.1
Pornography watching usually interferes with academic work, interpersonal relationship or leisure activities	317	2.71	2.18	235	74.1	82	25.9
I always view pornographic materials on the internet	317	2.64	1.43	236	74.4	81	25.6
I often access online to get involved in sexual or romantic relationships	317	2.63	1.45	206	65	111	35

The five items on risk of addiction to online pornography were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Results displayed in table 32, measured the risk of addiction to online pornography. Five items were used to examine the respondents' degree of risk namely; I always get preoccupied with sexual thoughts. I often feel restless because of trying to stop pornography watching, pornography watching usually interferes with academic work, interpersonal relationship or leisure activities, I always view pornographic materials on the internet and I often access online to get involved in sexual or romantic relationships. The five items posted means ranging from 2.63 and 2.82 implying that on average, the respondents had a considerable risk of addiction to online pornography since each posted a mean greater than 2.5. Precisely, item one - I always get preoccupied with

sexual thoughts enumerated a mean of 2.82 (SD = 13.9). Item two - I often feel restless because of trying to stop pornography watching registered a mean of 2.74 (SD = 1.52. Item three - Pornography watching usually interferes with academic work, interpersonal relationship or leisure activities scored a mean of 2.71 (SD = 2.18).Item four - I always view pornographic materials on the internet posted a mean of 2.64 (SD = 1.43) while item five - I often access online to get involved in sexual or romantic relationships registered a mean of 2.63 (SD = 1.45). The results suggested that largely, the respondents were always preoccupied with sexual thoughts, often felt restless because of trying to stop pornography watching, had their academic work and interpersonal relationship compromised because of pornography watching, always viewed pornographic materials on the internet and often accessed online to get involved in sexual or romantic relationships. Hence, the respondents had a high risk of addiction to online pornography.

The respondents were further categorized into two in respect to the responses availed on the item - risk of addiction to online pornography. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was revealed that 35.0% of the respondents often accessed online to get involved in sexual or romantic relationships. 34.1% always got preoccupied with sexual thoughts, 33.1% often felt restless because of trying to stop pornography watching, and 25.9% attested that pornography watching usually interfered with their academic work, interpersonal relationship or leisure activities, while 25.6% always viewed pornographic materials on the internet. The result signified that the respondents had a high risk of addiction to online pornography since more than a third posted high scores in three of the five items.

Table 31: Risk of Addiction to Online Pornography Cross Tabulation

		Risk of Addiction to Online Pornography		
		Low Risk	High Risk	Total
Non Problematic Internet Use	F	85	52	137
	%	49.1%	36.1%	43.2%
Problematic Internet Use	F	88	92	180
	%	50.9%	63.9%	56.8%
Total	F	173	144	317
	%	100.0%	100.0%	100.0%

The study sought to explore the role of problematic internet usage in the risk of addiction to online pornography, among undergraduate students in universities in the counties of Meru and Nairobi, Kenya. Results displayed in Table 33 illustrated that 63.9% of the respondents exhibiting high risk of addiction to online pornography had problematic internet usage while 50.9% of respondents with low risk of addiction to online pornography had problematic internet usage. Hence, the proportion of the respondents displaying high risk of addiction to online pornography that had problematic internet usage was higher than the proportion of the respondents exhibiting low risk of addiction to online pornography that had problematic internet usage.

Table 32: Risk of Addiction to Online Pornography Chi-Square Tests

	Value	df	P - Value
Pearson Chi-Square	5.430[a]	1	.020
Likelihood Ratio	5.460	1	.019
Linear-by-Linear Association	5.413	1	.020
N of Valid Cases	317		

Results displayed in table 34 showed a chi square test performed to examine the relationship between problematic internet usage and risk of addiction to online pornography. The relationship between problematic internet usage and risk of addiction to online pornography was significant, χ^2 (1, N = 317) = 5.430, p = .020. Hence, the null

hypothesis - problematic internet usage is not statistically significant in risk of addiction to online pornography was rejected.

Table 33: Risk of Addiction to Online Pornography Comparison Analysis

Internet Use	N	Mean	Std. Deviation	Std. Error Mean
Non Problematic Internet Use	137	9.9	4.2	0.36
Problematic Internet Use	180	11.7	5.5	0.41

A T-test was performed to determine whether different results could be arrived at in regard to the relationship between problematic internet usage and risk of addiction to online pornography. Results illustrated in Table 35 showed that the risk of addiction to online pornography score for respondents exhibiting problematic internet usage was 11.7 (SD = 5.5) while the score of their counterparts with non-problematic internet use was 9.9 (SD = 4.2). This was an indication that the scores for risk of addiction to online pornography for respondents exhibiting problematic internet use were higher than the risk of addiction to online pornography scores for their counterparts with non-problematic internet use.

Table 34: Risk of Addiction to Online Pornography Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	P - Value	Mean Difference	Std. Error Difference
Equal variances assumed	.062	.803	-3.248	315	.001	-1.833	0.564
Equal variances not assumed			-3.370	315.0	.001	-1.833	0.544

Results in table 36 showed an independent-samples t-test indicated that the scores for risk of addiction to online pornography were significantly higher for respondents

exhibiting problematic internet usage (M = 11.7, SD = 5.5) than for their counterparts with non-problematic internet usage (M = 9.9, SD = 4.2), t (315) = 3.248, p < .001. Hence, the study established a significant relationship between problematic internet usage and risk of addiction to online pornography.

The developmental stage at which an individual is in may be significant in engaging in online pornography (Kyriaki et al., 2018). The research findings of this study concurred with the researchers those undergraduate students between the ages of 18 – 24 years engaged in online pornography more than those in other age brackets. Majority of the students used smartphones to access online pornography and sexually explicit materials. The results of the also agreed with Duffy et al. (2016) that internet accessibility could lead to addiction to online pornography. This study found out that, there was free internet connectivity in all the universities of study and those students could connect any time especially by use of smartphones. As opposed to other researchers who concentrated on the frequency of pornography watching, the results of this study established that problematic internet usage was a significant factor in online pornography. A great number of students reported having stayed awake late at night to engage in online pornography. A small number stayed within the university premises to use free internet to engage in online pornography. Engagement in online pornography had negative effects on the students as a number of them missed classes to engage in sexual behaviours with friends and strangers whom they had met online. This behaviour led to avoidance of face-to-face relationships hence, affecting the students' psychologically and socially.

In agreement with Andrew and Nash (2018), that exposure to online pornography led to impractical views and values about sex the current study indicated that engaging in

online pornography led to early sex and pre-occupation with sex. The undergraduate students who were more likely to be addicted to online pornography used the internet frequently and did not have control of the sites that they visited as posited by (Chelsea, 2011). In Wamaitha et al. (2014), college students watch pornography because they are a developmental stage where they are seeking relevant information concerning sexuality. This is in agreement with the findings of the current study that, the university students who developed problematic internet usage were between the ages of 18 – 24 years. This indicated that at this age was when students were developing relationships and searching for the information on sexuality. Further, students shared sex materials with friends, peers and strangers whom they had met online. The findings of this research indicated that problematic internet usage could lead to addiction to online pornography.

Data collected from in-depth interview schedules indicated that undergraduate students engaged in online pornography to get sexual satisfaction due to curiosity and exposure. This is in agreement with Wamaitha et al. (2014) who indicated that university students engaged in online pornography for entertainment, curiosity, safe outlet. Further, the students accessed sexually explicit materials by use of smart phones and could be accessed from everywhere because the internet was provided by universities free and limitless. Moreover, some undergraduate students engaged in online pornography due to lack of acceptance by peers and idleness. The findings indicated that some undergraduate students engaged in online pornography because of curiosity. Students accessed online pornography to gain information on sexuality. A number of students who engaged in online pornography to gain sexual satisfaction because they feared the consequences of normal sex such as sexually transmitted diseases, HIV and pregnancy. Students' counsellors reported that the highest number of undergraduate students who engaged in online pornography was because of childhood experiences. The undergraduate students

engaged in online pornography because they also lacked sex education. The findings agree with Sirera and Mwenje (2014) that university students watched pornography as a way for searching for sex education. The students did not have adult role models in confide to therefore, sought information concerning sexuality from the internet, which predisposed them to addiction to online pornography. Furthermore, students accessed pornographic materials to gain exposure and experience sexual pleasure through online interactions with friends, peers and even strangers. They visited pornographic materials from the comfort of their rooms or beds and were not monitored on online sites visited, which, encouraged them to remain on the internet for long hours predisposing them to addiction to online pornography. Two students' counsellors commented that;

> *'Undergraduate students engage in online pornography because of curiosity, they want to confirm the stories they have heard from peers and friends it they are true and to gain experience and exposure on matters of sexuality'.*
> *'Undergraduate students access pornographic materials from the comfort of their rooms to get sexual satisfaction because of fear of the consequences of physical sexual contact such as sexually transmitted diseases and pregnancy'.*

Analysis from focus group discussion on the nature of problematic internet usage in relation to online pornography showed a significant relationship between the two factors. The results agreed with those of students' counsellors that undergraduate students spent several hours online, which lead to the exploration of several sites, which affected them negatively as reported by (Wamaitha et. al., 2014). The study found out that students accessed information concerning sexuality some of which was transmitted in form of sexually explicit materials, videos and images. The materials were sometimes accessed unintentionally after following the links provided online due to curiosity. Focus group discussions also reported that undergraduate students engaged in online pornography to experience sexual pleasure and as a way of dealing with boredom and idleness. This was

an indication that availability and accessibility of free and limitless internet allowed the students to visit any site and at any time.

The results concur with Owens et al. (2012) that growth of the internet had made it easy for anyone to access online pornography. However, the findings indicated that the students accessed the internet even when outside the university premises. This showed that undergraduate students could access pornographic materials from the secret of their rooms. The anonymity involved encouraged more searches and involvement in online pornography hence, became difficult to stop. Therefore, this suggested that problematic internet usage was a significant factor in the risk of addiction to online pornography. The research findings agreed with Densley (2016) who affirmed that it was easy to access pornographic materials through smart phones and from everywhere. The researcher indicated that too much engagement in online activities could lead to an addiction.

4.7 The Role of Internet Usage in the Risk of Addiction to Online Sexual Violence

Table 35: Risk of addiction to Online Sexual Violence

			Std.	Low Scores		High Scores	
	N	Mean	Deviation	F	%	F	%
I feel restless because of trying to stop sexual violence	317	2.81	1.38	188	59.3	129	40.7
I sometimes engage in unwanted sexual behaviors	317	2.77	1.18	228	71.9	89	28.1
I have been in a relationship with someone who uses sexual violence	317	2.64	1.17	241	76	76	24
I often have failed to do academic work or to engage in face to face relationships because of engaging in sexual violence	317	2.50	1.19	255	80.4	62	19.6
I usually confront others whom make inappropriate sexual gestures	317	2.39	1.48	242	76.3	75	23.7

The five items on risk of addiction to online sexual violence were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0 signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. The findings displayed in table 37 indicated that the risk of addiction to online sexual violence which was measured using five. The items are; I feel restless because of trying to stop sexual violence. I sometimes engage in unwanted sexual behaviours. I have been in a relationship with someone who uses sexual violence. I often have failed to do academic work or to engage in face-to-face relationships because of engaging in sexual violence. I usually confront others whom make inappropriate sexual gestures. Four of the five items enumerated scores ranging from 2.51 to 2.81 while one item posted a mean of 2.39. This implies that in respect to four of the five items on risk of addiction to online sexual violence, the respondents had a considerable risk of addiction to online sexual violence since each scored a mean greater than 2.5. Item one - I feel restless because of trying to stop sexual violence scored a mean of 2.81 (1.38). Item two - I sometimes engage in unwanted sexual behaviors posted a mean of 2.77 (SD = 1.18). Item three - I have been in a relationship with someone who uses sexual violence registered a mean of 2.64 (SD = 1.17) while item four - I often have failed to do academic work or to engage in face to face relationships because of engaging in sexual violence enumerated a mean of 2.51 (SD = 1.19). On the other hand, item five - I usually confront others whom make inappropriate sexual gestures posted a mean of 2.39 (SD = 1.48). This suggested that largely the respondents felt restless because of trying to stop sexual violence, sometimes engaged in unwanted sexual behaviors, had been in a relationship with someone who used sexual violence and often had failed to do academic work or to engage in face-to-face relationships because of engaging in sexual violence. Hence, the respondents had a high risk of addiction to sexual violence.

The respondents were further categorized into two in respect to the responses availed on the item - risk of addiction to sexual violence. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was established that 40.7% of the respondents felt restless because of trying to stop sexual violence. 28.1% respondents sometimes engaged in unwanted sexual behaviours. 24.0% had been in a relationship with someone who uses sexual violence. 23.7% respondents usually confronted others whom make inappropriate sexual gestures, while 19.6% often failed to do academic work or to engage in face-to-face relationships because of engaging in sexual violence. The results suggested that the respondents had a high risk of addiction to sexual violence since more than a quarter of the respondents posted high scores for three of the five items.

Table 36: Risk of Addiction to Online Sexual Violence Cross Tabulation

		Risk of Addiction to Online Sexual Violence		
		Low Risk	High Risk	Total
Non Problematic Internet Use	F	106	31	137
	%	49.5%	30.1%	43.2%
Problematic Internet Use	F	108	72	180
	%	50.5%	69.9%	56.8%
Total	F	214	103	317
	%	100.0%	100.0%	100.0%

The study sought to determine the role of problematic internet usage in risk of addiction to online sexual violence; among undergraduate students in universities in the counties of Meru and Nairobi, Kenya. Results displayed in Table 38 illustrated that 69.9% of the respondents displaying high risk of addiction to online sexual violence had problematic internet usage while 50.5% of respondents with low risk of addiction to online sexual violence had problematic internet usage. Hence, the proportion of the respondents

displaying high risk of addiction to online sexual violence that had problematic internet usage was higher than the proportion of the respondents exhibiting low risk of addiction to online sexual violence that had problematic internet usage.

Table 37: Risk of Addiction to Online Sexual Violence Chi-Square Tests

	Value	df	P - Value
Pearson Chi-Square	10.703[a]	1	.001
Likelihood Ratio	10.949	1	.001
Linear-by-Linear Association	10.669	1	.001
N of Valid Cases	317		

Table 39 displays a chi square test, which was per formed to examine the relationship between problematic internet usage and risk of addiction to online sexual violence. The relationship between problematic internet usage and risk of addiction to online sexual violence was significant, χ^2 (1, N = 317) = 10.703, p< .001. Hence, the null hypothesis - problematic internet usage is not statistically significant in risk of addiction to online sexual violence was rejected.

Table 38: Risk of Addiction to Online Sexual Violence Comparison Analysis

Internet Usage	N	Mean	Std. Deviation	Std. Error Mean
Non Problematic Internet Use	137	12.1	3.9	0.34
Problematic Internet Use	180	13.9	4.2	0.31

Results shown in table 40 indicated an independent-samples t-test scores for risk of addiction to online sexual violence were significantly higher for respondents displaying problematic internet usage (M = 13.9, SD = 4.2) than for their counterparts with non-problematic internet usage (M = 12.1, SD = 3.9), t (315) = 3.984, p < .001. Hence, the study established a significant relationship between problematic internet usage and risk of addiction to online sexual violence.

Table 39: Risk of Addiction to Online Sexual Violence Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	P - Value	Mean Difference	Std. Error Difference
Equal variances assumed	.510	.476	-3.984	315	.000	-1.847	0.464
Equal variances not assumed			-4.023	302.5	.000	-1.847	0.459

In table 41, an independent-samples t-test indicated that the scores for risk of addiction to online sexual violence were significantly higher for respondents displaying problematic internet usage (M = 13.9, SD = 4.2) than for their counterparts with non-problematic internet usage (M = 12.1, SD = 3.9), t (315) = 3.984, p < .001. Hence, the study established a significant relationship between problematic internet usage and risk of addiction to online sexual violence. The null hypothesis - problematic internet usage is not statistically significant in risk of addiction to online sexual violence was rejected.

The findings of the current study agreed with Svensson et al. (2018), that problematic internet usage facilitates crime and violence. The undergraduate students who developed problematic internet usage were involved in unwanted sexual behaviours. A number of the students reported having been coerced and blackmailed to engage in indecent sexual behaviours with friends and strangers. A number of the students reported being involved in aggressive sexual acts, which they had learnt online. This research also concurred with Zhang (2015), that problematic internet usage could lead to the risk of an addiction to sexual violence. Students reported having practiced the aggressive behaviours learnt online with peers, which strained interpersonal relationships. The students were also violent towards members of the opposite sex.

Through the in-depth interview schedule, the students' counsellors affirmed that some undergraduate students were involved in online sexual violence due to lack of self-acceptance and self-confidence due to upbringing. A majority of the students who went for counselling indicated having been abused as they were growing up of having experienced or witnessed some kind of violence in the family. Applying humiliation on the member of opposite sex served as booster to feel important after dominating others. Zhang (2018) supports the findings of this study that males who engaged in online sexual violence believed that females enjoyed violet sex. Some students engaged in online sexual violence because of being blackmailed or coaxed by friends and strangers. This is in agreement with Powell and Henry (2016) that online sexual violence was facilitated by use of digital technologies and took a form of sexual coercion. A small number engaged in online sexual violence due to various reasons. They include; pleasure in sexual sadism, revenge, anger, psychological or mental problems and family orientation. One student counsellor said that;

> *'Problematic internet usage is greatly influencing sexual violence which implies all forms of sexual abuse including sexual exploitation, harassment, rape, manipulation and sexual coercion. It is a form of sexual and gender based violence, which can affect either of the genders, although the majority of the affected are females. Many undergraduate students learn these behaviours from the internet and practice them.'*

From focus group discussion, peer counsellors were asked to highlight the nature of problematic internet usage in relation to online sexual violence. The findings indicated that undergraduate students engaged in online sexual violence because of learning such behaviours on the internet. This was an indication that easy access of violent sexual materials and the anonymity involved encouraged the students to visit such sites. The findings of the study concurred with Holladay (2016) that an increase in social media

and internet usage could lead to online sexual violence. This suggested that through the internet, the undergraduate students were able to imitate the behaviours portrayed online and practice with peers, friends and even strangers. Focus group discussion acknowledged that sexual exploitation and harassment was common among the students. Further, sexual based violence was also common although majority victims were females as supported by (Fansher, 2017). The results implied that undergraduate students could learn and practice online sexual violence on the internet therefore; there was a relationship between problematic internet usage and risk of addiction to online sexual violence.

4.8 Internet Usage and the Risk of Addiction to Online Drug and Substance Abuse

Table 40: Risk of addiction to Drug and Substance Abuse

			Std.	Low Scores		High Scores	
	N	Mean	Deviation	F	%	F	%
I have used drugs or substances abuse	317	2.98	1.36	184	58	133	42
Drugs or substances abuse have caused trouble at the institution	317	2.96	1.47	195	61.5	122	38.5
I have ever acquired drugs or substances abuse on the internet	317	2.87	1.32	217	68.5	100	31.5
I often experience problems trying to stop the use of drugs and substances abuse	317	2.80	1.47	200	63.1	117	36.9
I access information on drugs and substances abuse on the internet	317	2.64	1.37	231	72.9	86	27.1

The five items on risk of addiction to drug and substance abuse were measured using a Likert scale of 1-5 in which, 1 inferred the least and 5 highest. Thus, a mean of 2.5 to 5.0

signified high extent involvement while a mean less than 2.5 inferred involvement to a low extent. Risk of addiction to drug and substance abuse was measured using five items. I have used drugs or substances abuse, drugs or substances abuse have caused trouble at the institution, I have ever acquired drugs or substances abuse on the internet, I often experience problems trying to stop the use of drugs and substances abuse and I access information on drugs and substances abuse on the internet. The five items enumerated means ranging from 2.64 to 2.98 as shown in table 42 implying that the respondents had a considerable risk of addiction to drug and substance abuse. Specifically, item one; - I have used drugs or substances abuse scored a mean of 2.98 (SD = 1.36). Item two – Drugs or substances abuse have caused trouble at the institution posted a mean of 2.96 9SD = 1.47). Item three - I have ever acquired drugs or substances abuse on the internet registered a mean of 2.87 (SD = 1.32. Item four - I often experience problems trying to stop the use of drugs and substances abuse posted a mean of 2.80 (SD = 1.47) while item five - I access information on drugs and substances abuse on the internet had a mean of 2.64 (SD = 1.37). The results implied that largely, the respondents had used drugs or substances abuse, drugs or substances abuse had caused trouble at the institution. The respondents had acquired drugs or substances abuse on the internet at some point, often experienced problems trying to stop the use of drugs and substances abuse, and accessed information on drugs and substances abuse on the internet. Hence, the respondents had a high risk of addiction to drug and substance abuse.

The respondents were further categorized into two in respect to the responses availed on the item - risk of addiction to drug and substance abuse. In this respect, scores of either 4 or 5 were classified as high scores while scores of either 1, 2 or 3 were classified as low scores. It was revealed that 42.0% of the respondents attested that they had actively used drugs or substances abuse, 38.5% testified that drugs or substances abuse had caused

trouble at the institution. 36.9% often experienced problems trying to stop the use of drugs and substances abuse, and 31.5% had ever acquired drugs or substances abuse on the internet, while 27.1% accessed information on drugs and substances abuse on the internet. The results indicated that the respondents had a high risk of addiction to drug and substance abuse since more than a third posted high scores in three of the five items.

Table 41: Risk of Addiction to Drug and Substance Abuse Cross Tabulation

		Risk of Addiction to Drug and Substance Abuse		
		Low Risk	High Risk	Total
Non Problematic Internet Use	F	93	44	137
	%	49.2%	34.4%	43.2%
Problematic Internet Use	F	96	84	180
	%	50.8%	65.6%	56.8%
Total	F	189	128	317
	%	100.0%	100.0%	100.0%

The study sought to investigate the role of problematic internet usage in risk of addiction to drug and substance abuse among undergraduate students in universities in the counties of Meru and Nairobi, Kenya. Results displayed in Table 43 illustrated that 65.6% of the respondents displaying high risk of addiction to drug and substance abuse had problematic internet use while 50.8% of respondents with low risk of addiction to drug and substance abuse had problematic internet usage. Hence, the proportion of the respondents displaying high risk of addiction to drug and substance abuse that had problematic internet usage was higher than the proportion of the respondents exhibiting low risk of addiction to drug and substance abuse that had problematic internet usage.

Table 42: Risk of Addiction to Drug and Substance Abuse Chi-Square Tests

	Value	df	P - Value
Pearson Chi-Square	6.841[a]	1	.009
Likelihood Ratio	6.909	1	.009
Linear-by-Linear Association	6.819	1	.009
N of Valid Cases	317		

Table 44 indicates a chi square test was performed to examine the relationship between problematic internet usage and risk of addiction to online drug and substance abuse. The relationship between problematic internet usage and risk of addiction to online drug and substance abuse was significant, χ^2 (1, N = 317) = 6.841, p = .009.

Hence, the null hypothesis - problematic internet usage is not statistically significant in risk of addiction to online drug and substance abuse was rejected.

Table 43: Risk of Addiction to Drug and Substance abuse Comparison Analysis

Internet Use	N	Mean	Std. Deviation	Std. Error Mean
Non Problematic Internet Use	137	13.4	4.3	0.37
Problematic Internet Use	180	14.9	4.6	0.34

A T-test was performed to determine whether different results could be arrived at in regard to the relationship between problematic internet usage and risk of addiction to drug and substance abuse. Results illustrated in Table 45 showed that the mean risk of addiction to drug and substance abuse score for respondents exhibiting problematic internet usage was 14.9 (SD = 4.6) while the score for their counterparts with non-problematic internet usage was 13.4 (SD = 4.3). The results implied that the scores for risk of addiction to drug and substance abuse for respondents exhibiting problematic internet usage were higher than the risk of addiction to online drug and substance abuse scores for their counterparts with non-problematic internet usage.

Table 44: Risk of Addiction to Drug and Substance Abuse Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	P - Value	Mean Difference	Std. Error Difference
Equal variances assumed	.952	.330	-2.863	315	.004	-1.449	0.506
Equal variances not assumed			-2.892	302.8	.004	-1.449	0.501

Results displayed in table 46 showed an independent-samples t-test indicated that the scores for risk of addiction to online drug and substance abuse were significantly higher for respondents displaying problematic internet usage (M = 14.9, SD = 4.6) than for their counterparts with non-problematic internet usage (M = 13.4, SD = 4.3), t (315) = 2.863, p = .004. Hence, the study established a significant relationship between problematic internet usage and risk of addiction to online drug and substance abuse. The null hypothesis - problematic internet usage is not statistically significant in risk of addiction to online drug and substance abuse was rejected.

As supported by Mountaney et al. (2016), that online drug and substances of abuse could be acquired through chemists, kiosks and online, the findings of this study showed that undergraduate students acquired substances through online and from kiosks neighboring the universities. Students reported having accessed the drugs from other students who were intermediaries. However, internet usage was significant in the acquisition of drugs and substances of abuse. Students were able to interact online and access drugs and substances, which were marketed by use of synonyms best understood by the users. The results of this study disagrees with the research done by Whisman (2015) that, problematic internet usage may not lead to the risk of addiction to online drug and

substance abuse. The findings of the current study indicated that problematic internet usage predisposed students to the risk of addiction to online drug and substance abuse. A big number of students who were abusing drugs and other substances reported having acquired them through the internet by connecting with peers and friends. A small number reported having accessed online drugs and substances through curiosity as they browsed through the internet.

The findings of the study were in agreement with Chege et al. (2017), who posited that online advertisements lead to the development of the urge to explore more about drug and substances of abuse, which lead to the risk of an addiction. Furthermore, the youth learnt how to use the drugs and other substances of abuse online. The research findings from the in-depth interview schedule on the reasons why undergraduate students were involved in online drug and substance abuse indicated that students accessed information concerning drugs and other substances mostly online. One student counsellor said that;

> *'Most of the substances of abuse are today advertised and sold through online technology. Undergraduate students place orders for the types they would wish to purchase. Once they make online payments, the drugs and other substances are delivered to them by transporting agencies.'*

In response to the question of the nature of problematic internet usage in relation to online drug and substance abuse, the student peer counsellors indicated that undergraduate students mostly placed order through the internet. They affirmed that it was easy to access the information concerning drugs and other substances mainly; the location, price and means of delivery from the internet. The findings agrees with Mountaney et al. (2016) who indicated that technological development allows easy access of online drug and substances of abuse. Some students had started abusing drugs through curiosity while others used them as means of relaxing and another number used

the drugs as a means of solving problems. Advertisements and glorifying of the drugs and substances by the peers and friends also encouraged the students the usage as supported by (Chege et. al., 20170. Focus group discussion acknowledged that the drugs and substances could be acquired online by paying using either the mobile money or visa card. Furthermore, the anonymity involved in the process of acquiring the drugs encouraged usage. Moreover, some drugs were given pseudonyms to conceal their actual brand. The study findings implied that problematic internet usage could lead to risk of addiction to online drug and substance abuse.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the summary of research findings, conclusions and recommendations from the study on the role of problematic internet usage in the risk of selected addictions among undergraduate students in universities in Kenya.

5.2 Summary of the Findings

This section covers a summary of research findings mainly; general and demographic data and study findings based on the research objectives. A big number of students who were involved in problematic internet usage were in second year. Problematic internet usage was a significant factor in the risk of addictions. The students experienced freedom to visit any site online and their activities online were not monitored. The study findings revealed that more third years (51%) than second years (49%) participated in the study. Undergraduate students between the ages of 18 to 24 accounted for 52.7% of those likely to use the internet more than other age brackets. This could be an indication that students at this age were more likely to develop problematic internet usage, which could lead to the risk of addictions. At this age bracket, students could also be searching for information online concerning relationships because they are at a developmental stage where they require information on social issues. Therefore, they spent longer hours on the internet, which predisposed them to risk of addictions. The research findings revealed that more females than males engaged in problematic internet usage and were at a higher risk of developing addictions. This could have been an indication that females are able to multitask than males. They were able to be online even when attending classes and when socializing with peers and friends.

5.2.1 Internet Usage and the Risk of Addiction to Online Gambling

The study findings revealed that problematic internet usage was a significant factor in the risk of addiction to online gambling. Out of the sampled students, 118 (67%) of the respondents engaged in problematic internet usage and were predisposed to the risk of addiction to online gambling. The study findings established that problematic internet usage could lead to the risk of addiction to online gambling with a mean of between 2.80 and 3.37 on the measured items indicating a mean higher than 2.50. Chi-square was applied to test the null hypothesis. The test indicated that problematic internet usage was a significant factor in the risk of addiction to online gambling with a p-value of .000. Therefore, the null hypothesis that problematic internet usage influence is not statistically significant on the risk of addiction to online gambling was rejected. From the qualitative data, it was found out that problematic internet usage disposed the students to the risk of addiction to online gambling because of engaging excessively on gambling activities on the internet. Undergraduate students gambled online for various reasons mainly; to overcome boredom, to earn money, to socialize and to feel important by competing and winning bets. The study established that undergraduate students who developed problematic internet usage spent a great amount of time gambling. The students indicated that, they were motivated to gamble by the advertisements on media showing people winning and were influenced by the peers. This implied that the longer undergraduate students stayed on the internet, the more they accessed gambling points and the higher the chances of developing addiction to online gambling.

5.2.2 Internet Usage and the Risk of Addiction to Online Pornography

The current research established that a great number of students who had developed problematic internet usage were engaging in online pornography. The results of the study showed that a great number of students had a likelihood of developing addiction to

online pornography due to problematic internet usage because the items measured posted a mean score greater than 2.5, which was between 2.63 and 2.82. The research found out that 63.9% (92) of the respondents were at a risk of developing addiction to online pornography due to problematic internet usage. Chi-square was applied to test the null hypothesis. The test indicated that problematic internet usage was a significant factor in the risk of addiction to online pornography with a p-value of .020. Therefore, the null hypothesis that problematic internet usage influence is not statistically significant on the risk of addiction to online pornography was rejected. The qualitative data from in-depth interview schedule and focus group discussion established that problematic internet usage predisposed the students to the risk of addiction to online pornography because of engaging excessively on internet activities. Among the ones who engaged in online pornography, they reported having accessed sexually explicit materials while on the internet, while others received pornographic materials from peers, friends and strangers. The privacy and anonymity involved in accessing pornographic materials encouraged more searches, which lead to problematic internet usage and predisposed students to the risk of being addicted. This indicated that problematic internet usage could lead to the risk of addiction to online pornography.

5.2.3 Internet Usage and the Risk of Addiction to Online Sexual Violence

The researcher found out that a few undergraduate students were involved in online sexual violence. The findings established that 69.9% (72) respondents were at a risk of developing addiction to online sexual violence. The highest mean score for the items measured was 2.81 meaning that problematic internet usage could lead to addiction to online sexual violence. Chi-square was applied to test the null hypothesis. The test indicated that problematic internet usage was a significant factor in the risk of addiction to online sexual violence with a p-value of .001. Therefore, the null hypothesis that

problematic internet usage influence is not statistically significant on the risk of addiction to online sexual violence was rejected. The qualitative data from in-depth interview schedule and focus group discussion established that problematic internet usage predisposed the students to the risk of addiction to online sexual violence because the more they engaged on online sexual matters, the more they learnt the behaviors portrayed online and hence, could result to trying out the behaviors. The results indicated that a number of students were engaged in intimate relationships, which were formed through the internet. A number of students who frequented the internet fell victims to sexual predators at times unknowingly. Furthermore, the students reported having been coaxed or blackmailed to participate in adult chat rooms. This indicated that problematic internet usage was a significance factor in the risk of addiction to online sexual violence.

5.2.4 Internet Usage and the Risk of Addiction to Online Drug and Substance Abuse

The research findings established that problematic internet usage was significant to online drug and substance abuse. Out of the sampled students, 84 (65.6%) of the respondents engaged in problematic internet usage and were predisposed to the risk of addiction to online drug and substance abuse. The study findings established that problematic internet usage could lead to the risk of addiction to online drug and substance abuse with a mean of between 2.64 and 2.98 on the measured items indicating a mean higher than 2.50. Chi-square was applied to test the null hypothesis. The test indicated that problematic internet usage was a significant factor in the risk of addiction to online drug and substance abuse with a p-value of .009. Therefore, the null hypothesis that problematic internet usage influence is not statistically significant on the risk of addiction to online drug and substance abuse was rejected. The study acknowledged that undergraduate students acquired a number of drugs and other substances through the internet. Media was also reported having provided information on drugs and other

substances although, a few students were introduced to drugs by the peers and friends. Through curiosity, undergraduate students acquired and tried some drugs after learning about them on the internet. The results of this study concluded that problematic internet usage could lead to the risk of addiction to drug and substance abuse.

5.3 Conclusions

The aim of the study was to investigate the role of problematic internet usage in the risk of selected addictions among undergraduate students in universities in Kenya. The study findings indicated that undergraduate students accessed internet at all times and everywhere. The technological device mostly used was the mobile phone, although, other students used lap tops and desks tops. From the research findings, it was concluded that problematic internet usage was a significant factor in the development of addictions. The study was guided by four objectives.

5.3.1 Internet Usage and the Risk of Addiction to Online Gambling

The study examined the role of problematic internet usage in the risk of addiction to online gambling among undergraduate students in universities in Kenya. The study found out that undergraduate students in universities in Kenya were predisposed to online gambling due to problematic internet usage. Apart from the university students using internet for academic, research work, communication and connectedness, online gambling was popular. Students engaged in online gambling for different reasons mainly; to earn money in order to upgrade their financial status, to compete with peers as a way of socializing especially in sports betting, earn quick money and get wealthy and as a way of overcoming boredom. The research showed that availability of gambling points and technology, accessibility, free internet connectivity and persuasive media were some of the motivating factors that facilitated online gambling.

The findings established that a high number of students were unable to control their use of the internet which lead to problematic usage hence, resulting to the risk of addiction to online gambling. Some of the problems the students experienced due to the risk of addiction to online gambling were psychological, social, financial and academic drop. It was also indicated that, the process of registering for online gambling was done on the internet. This was an indication that the students who engaged in problematic internet usage were at a risk of being addicted to online gambling.

5.3.2 Internet Usage and the Risk of Addiction to Online Pornography

The study sought to explore the role of problematic internet usage in the risk of addiction to online pornography in universities in Kenya. The results of the study affirmed that the technological device mostly used by undergraduate students to access online pornography was the smartphone. The group that had was at a higher risk of being addicted to online pornography due to problematic internet usage was between the ages of 18-24. The students spent long periods online searching for the information predisposing them to the risk of online pornography. Exposure to online pornography could led to impractical views and values about sex and pre-occupation with sex pressuring the students to be online all the time and not to have control of the sites they visited. The research found out that undergraduate students engaged in online pornography because of being idle, peer pressure, curiosity, to gain information on sexuality, fear of consequences of normal sex, to gain exposure and experience sexual pleasure. The study affirmed that the students were not monitored on what they did online and therefore, visited the pornographic materials freely.

5.3.3 Internet Usage and the Risk of Addiction to Online Sexual Violence

The study sought to determine the role of problematic internet usage in the risk of addiction to online sexual violence among undergraduate students in universities in Kenya. The research findings established that addiction to online sexual violence could be caused by problematic internet usage. Undergraduate students became involved in online sexual violence because of lack of self-acceptance, self-confidence, upbringing – having grown up in abusive families, revenge, anger, psychological problem and having been abused when growing up. Engagement in online sexual violence lead to involvement in unwanted sexual behaviors, being coerced and blackmailed to engage in indecent sexual behaviors with friends and strangers, aggressive sexual acts and violence towards members of the opposite sex. The results showed that due to problematic internet usage, the students accessed violent sexual materials. The anonymity involved in accessing the materials encouraged more engagement, which predisposed the students to the risk of addiction to online violence.

5.3.4 Internet Usage and the Risk of Addiction to Online Drug and Substance Abuse

The results of the study indicated that problematic internet usage led to online drug and substance abuse. Undergraduate students acquired drugs and other substances online by networking with peers, friends and even strangers. The findings of the study established that students engaged in online drug and substance abuse because of peer pressure, curiosity, anonymity involved in acquiring the drugs, to feel high and to escape from personal problems. It was indicated that undergraduate students in universities in Kenya acquired drugs and substances of abuse through the internet. The information concerning drugs and substances of abuse was also available online, which make it easy for the students to acquire for them using synonyms. The study also showed that advertising, glorifying and the anonymity involved when acquiring the drugs encouraged more

searches leading to problematic internet usage and hence, risk of addiction to online drug and substance abuse.

5.4 Recommendations

From the research findings, the following recommendations were made based on the objectives of the study;

5.4.1 Internet Usage and the Risk of Addiction to Online Gambling

The study recommends that the university management create awareness among the undergraduate students about the influence of problematic internet usage on the risk of addiction to online gambling. The awareness programmes can include responsible media usage to enable the students use the internet responsibly and avoid problematic internet usage to prevent being addicted to online gambling. The university management can also develop preventative measures that will limit the internet sites that could be easily accessed by the university students. This would ensure that online gambling was minimal and limited hence, controlling the engagement by university students and preventing the risk of addiction to online gambling.

5.4.2 Internet Usage and the Risk of Addiction to Online Pornography

The study findings revealed that problematic internet usage was a significant factor in developing addiction to online pornography. Hence, the study recommends that university management and students' counsellors to develop intervention and preventative measures to control internet usage that could lead to risk of addiction to online pornography among undergraduate students. The university management can ensure prevention by training students in developing positive attitude and values to help in right choices. Through intervention, the students can be provided with services that address psychological, social, education and developmental needs. This would ensure

provision of relevant information concerning sexuality and guidance on how to make the right choices and hence, minimize engagement in problematic internet usage, which can lead to the risk of addiction to online pornography.

5.4.3 Internet Usage and the Risk of Addiction to Online Sexual Violence

The research indicated that there was a relationship between problematic internet usage and risk of addiction to online sexual violence. The study recommends that university management and students' counsellors provide information on sexuality to the students to prevent over-reliance on the information from the internet, which could be misleading. The management can develop programmes that addresses the needs of the students through avoidance of problematic internet usage, which can lead to the risk of addiction to online sexual violence by providing leadership and mentorship. This will ensure that the students get the right information from reliable sources hence, minimize problematic internet usage and the risk of being addicted to online sexual violence.

5.4.4 Internet Usage and the Risk of Addiction to Online Drug and Substance Abuse

The study recommends that the university management and student counsellors create information campaigns concerning problematic internet usage and the risk of addiction to online drug and substance abuse. The campaigns will ensure responsible internet usage and help in recognizing and avoiding online drug dealers. The university management can also enforce codes of conduct to ensure that undergraduate students stop engagement in problematic internet usage, which can lead to the risk of addiction to online drug and substance abuse.

5.4.5 Policy Recommendation

Specialists in online services be encouraged to carry out more research to identify preventative measures of problematic internet usage predisposing undergraduate university students to the risk of addictions.

5.4.6 Recommendations for Further Research

Based on the findings of the study, the researcher recommended the following to be explored for further research.

i. A study should be done to investigate the effective interventions of problematic internet usage on the risk of addiction to online gambling.
ii. A study should be carried out on the influence of online pornography on the psychological wellbeing of university students.
iii. A comparative study should be carried out to investigate whether there is any significant difference between the physical sexual violence and online sexual violence.
iv. A study should be done on the influence of family and environment in the development of online drug and substance abuse behavior.

REFERENCES

Abdi, T. A., Ruiter, R. A. C. & Adal, T. A. (2015). Personal, Social and Environmental Risk Factors of Problematic Gambling among High School Adolescents in Addis Ababa, Ethiopia. *Journal of Gambling Studies, 31*(1), 59-72.

Akar, F. (2015). Purposes, Causes and Consequences of Excessive Internet use Among Turkish Adolescents. *Eurasian Journal of Educational Research*, *60*, 35-56.

Akers, R. L., Krohn, M. D. Kaduce, L. L. & Radosevich, M. (2012). Social Learning and Deviant Behaviour: A Specific Test of a General Theory. *American Sociological Review, 44*(4), 636-655.

Ambad, S. N., Kalimiu, K. M. & Yusof, K. A. (2017). The Effect of Internet Addiction on Students' Emotional and Academic Performance. *e-Academic Journal*, *6*(1), 86-98.

APA (2013). *Diagnostic and Statistical Manual of Mental Disorders: DSM – 5* (5th ed). Washington DC: American Psychiatric Association.

Andrew, K. P. & Nash, V. (2018). Internet Filtering and Adolescent Exposure to Online Sexual Material. *Cyber psychology, Behaviour and Social Networking*, *21*(7).

Arjunan, N. K. & Moncy, E. (2016). Internet Dependency among University Entrants: A Pilot Study. *The International Journal of Indian Psychology*, *3*(2), 125-153.

Armstrong, L., Phillips, J. G. & Saling, L. L. (2000). Potential Determinants of Heavier Internet Usage. *International Journal of Human-Computer Studies,53*, 537-550.

Alsulimani, T. (2018). Social Media and Drug Smuggling in Saudi Arabia. *Journal of Civil and Legal Sciences, 7*, 249.

Babbie, R. (2002). *The Basic of Social Research.* Amazon Publishers: New York.

Bahadir, B. (2017). *Psychological, Social, and Cultural Aspects of Internet Addiction.* IF Wenham Institute: Germany.

Belanger, V. O. (2015). Internet Gaming Disorder and Gambling Disorder: A Comparison of Individual Psychological Factors. *Journal of Psychology and Behavioural Science, 3*(2), 122-140.

Bandura, A. (1977). *Social Learning Theory.* Englewood Cliffs: N.J. Prentice Hall.

Binde, P., Romild, U. & Volberg, R. A. (2017). Forms of Gambling, Gambling Involvement and Problem Gambling: Evidence from a Swedish Population Survey. *International Gambling studies, 17*(3), 490-507.

Bryman, A. (2012). *Social Research Methods*. Oxford: Oxford University Press.

Charotta, H. (2015). Adolescents Gaming and Gambling in Relation to Negative Social Consequences and Health. *Digital Comprehensive Summaries of Upscale Dissertations from the Faculty of Medicine, 1131*, 80.

Che, A., Sallehudin, M. N. &Nor, S. O. (2014). Negative and Positive Impact of Internet addiction on Young Adults. Empirical Study of Malaysia.*Intangible Capital, 10*(3), 619-638.

Chelsea, P. O. (2011). *An Examination of Internet Pornography Usage among Male Students at Evangelical Christian Colleges.* (Doctoral dissertation, Loyola University, Chicago). Retrieved from *http://ecommons.lu.edu/luc_diss/150*

Chege, R. W., Mungai, P. G. & Oresi, S. N. (2017). An Investigation of the Factors Contributing to Drug and Substance Abuse among the Youth in Kenya: A Survey of Select Rehabilitation Centres in Mombasa County. *International Journal of Public Health, 1*(5), 53-70.

Chris, A. L. (2015). Influence of Social Media on Study Habits of Undergraduate Students in Kenyan Universities. *International Journal of Novel Research and Social Sciences, 2*(4), 42-55.

Cohen, L., Manion, L. &Morrison, K. (2011) *Research Methods in Education.* London: Croom Helm Publishers.

Collins, I. (2014). Five Common Uses for Social Networking and the Effect on your Target Audience (Blog post). Retrieved from *http://www.blogussion. comm/ general/uses-social-networking/*

Communication Authority of Kenya (2015). First Quarter Sector Statistics Report for the Financial Year 205/2016 (July – September 2016).

Communication Commission of Kenya (2013). Quarterly Sector Statistics Report of 2012/13 Financial Year (April – June 2013). Retrieved from http:// www. cck.go.ke/statistics/

Corey, G. (2009). *Theory and Practice of Counselling and Psychotherapy* (8th ed.). Thomson Brooks/Cole, Belmont: USA.

Creswell, J. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.).Thousand Oaks, CA: Sage Publications.

Cripps, J. & Stermac, C. L. (2018). Cyber-Sexual Violence and Negative Emotional States among Women in a Canadian University. *International Journal of Cyber Criminology, 12*, 1.

CUE (2016). State of University Education in Kenya. Nairobi: Commission for University Education.

Daramola, C. F. (2016). Perception and Utilization of Electronic Resources by Undergraduate Students: The Case of the Federal University of Technology Library, Akure. *American Journal of Educational Research, 4*(5), 366-370.

David, N. K., John, S.&Bryan, L. M. (2014). *Emerging Trends in Drug Use and Distribution.* 12 Springer International Publishing, Switzerland. Delhi: New Age International.

Densley, R. L. (2016). *Porn – "I know it when I see it"; Young Adult Perspectives on Pornography.* (Master's Thesis), Texas Technical University.

Deusen, A. Bolle, C., Hegner S. & Kommers, P. (2015). Modelling Habitual and Addictive Smartphone Behaviour: The Role of Smartphone Usage Types, Emotional Intelligence, Social Stress, Self-regulation, Age and Gender. *Computers in Human Behaviour, 45*, 411-420.

Dhuffar, M. K. &Griffiths, M. D. (2015). A Systematic Review of Online Sex Addiction and Clinical Treatments Using Consort Evaluation. *Technology and Addiction, 2*, 163-174.

Duffy, A., Dawson, D. L. & Nair, R. D. (2016). Pornography Addiction in Adults: A Systematic Review of Definitions and Reported Impact. *International Society for Sexual Medicine, 13*(5), 760-77.

Dutta, O. (2017). Internet Use and Psychological Wellbeing: A study of International Students in Singapore. *Journal of International Students, 7*(3), 825-840.

Fansher, A. K. B. (2017). *Risky Dating Behaviours in the Technological Age: Consideration of a New Pathway to Victimization.* (Doctoral Dissertation), Sam Hauston State University.

Feed, R. (2018). The Tech Industry's War on Kids: How Psychology is Being Used as a Weapon against Children. *Journal of Addictions, 12*(3), 18-31.

Fulton, C. (2015). *Playing Social Roulette: The Impact of Gambling on Individuals and Society in Ireland*. Report presented to Department of Social Protection. Retrieved from http://researchrepository.ucd.ie/handle/10197/6796

Gainsbury, S. M., Delfabbro, P., King, D. L. & Hing, N. (2016). An Exploratory Study of Gambling Operators' Use of Social Media and the Latent Messages Conveyed. *Journal of Gambling Studies 32 (1),* 125 – 141.

Gainsbury, S. M. (2015). Online Gambling Addiction: The Relationship between Internet Gambling and Disordered Gambling. *Curr Addict Rep*. *2*(2), 185–193.

Gay, L. & Mills, G. (2011). *Educational Research Competencies for Analysis and Application* (5th ed.). USA: Pearson Publishers.

Gikonyo, M. (2005). *Drug Abusers and Parental Knowledge on Factors Predisposing the Youth to Drugs and Substance Abuse in Nairobi Province, Kenya.* (Unpublished M.Ed. Thesis), Kenyatta University.

Gmel, G., Notari, L. & Schneider, E. (2017). Is there an Internet Addiction and what Distinguishes it from Problematic Internet use - An Attempt to Provide Working Definitions. F*orschungsbericht* 93

Gray, D. E. (2004). *Doing Research in the Real World.* London: Sage Publications.

Griffiths, C. & France, B. L. (2019). Differences between Men and Women in Drug Use Disorders. *Archives of Clinical and Medical Case Reports*, *3*(1), 27-32.

Griffiths, M. D. (2012). Internet Sex Addiction: A Review of Empirical Research. *Addiction Research and Theory*, *20*, 111-124.

Griffiths, M. D. (2015). Adolescents Gambling and Gambling – type Games on Social Networking Sites: Issues, Concerns and Recommendations. *33*(2), 31-37.

Gusciora, L. (2016). *Attitudes and Beliefs towards Pornography Use and Men with Learning Disabilities.* (Doctoral Dissertation), University of Staffordshire and Keele.

Harper, C. & Hodgins, D. C. (2016). Examining Correlates of Problematic Internet Pornography Use among University Students in Canada. *Journal of Behavioural Addictions 5*(2), 179-191.

Henry, N. & Powell, A. (2015). Beyond the Sext: Technology facilitated Sexual Violence and Harassment against Adult Women. *Journal of Criminology 48* (1), 104 – 118.

Holladay, K. (2016). *An Investigation of the influence of Cyber – Sexual Assault on the Experience of Emotional Dysregulation, Depression, Post-traumatic Stress Disorder and Trauma Gilt.* (Doctoral Dissertation), University of Central Florida.

Islam, A. & Hossin, M. Z. (2016). Prevalence and Risk Factors of Problematic Internet Use and the Associated Psychological Distress among Graduate Students in Bangladesh. *Asian Journal of Gambling and Public Health*, 6, 11.

Jacobs, D. F. (1986). A General Theory of Addictions: A New Theoretical Model. *Journal of Gambling Behaviour, 2*, 15-31.

John, S. F. &Rita, S. F. (2004). *Counselling and Psychotherapy Theories in Context and Practice*: *Skills, Strategies and Techniques.* John Wiley and Sons Inc., Hoboken: New Jersey.

Johnson, A. N. (2003). *Understanding the Psychology of Internet Behavior: Virtual Worlds, Real Lives.* Basingstoke & New York: Palgrave Macmillan.

Kalat, J. W. (2017). *Introduction to Psychology* (11th ed.). Cengage Learning.

Kandel, D. B. & Davies, M. (1982). Epidemiology of Depressive Mood in Adolescents: An Empirical Study. *Archives of General Psychiatry*, *39*, 1205–1212.

Kapahi, A., Ling, C. S., Ramadass, S. & Abdullah, N. (2013). Internet Addiction in Malaysia, Causes and Effects. *iBusiness*, *5*, 72-76.

Kariuki, V. M. (2010). *Uses and Gratifications of the Internet.* A Survey Study of Mt. Kenya University and Gretsa University in Thika Municipality, Kenya. Retrieved from *http://erepository.uonbi.ac.ke.*

Kayastha, B., Gurung, A. & Chamal, R. (2018). A descriptive Study to Assess the Level of Internet Addiction among Adolescents: A Case Study of High Schools in Mangalore. *Journal of Child and Adolescent Behavior, 6* (3), 2375-4494.

Kenya National Bureau of Statistics (2009). Kenya Population and Housing Census. Retrieved from *https://www.knbs.or.ke/category/census-2009-summary-of-results/*

Koech, L. K. (2021). Relationship between Watching 'Gengetone' Music and Drug Abuse among the Youth in Uasin Gishu County, Kenya. *East African Journal of Interdisciplinary Studies, 3*(1), 103-115.

Kohut, T. (2014). *An Empirical Investigation of the Concept of Pornography*. (Doctoral Dissertation), the University of Western Ontario.

King'endo, M. (2010). *Incidence and Extent of Substance Abuse among Secondary School Students in Nairobi Province, Kenya: Implications for Specialized Intervention*. (Doctoral Dissertation), University of Embu, Kenya.

Koross, R. (2016). University Students Gambling: Examining the Effects of Betting on Kenyan University Student's Behaviour. *International Journal of Liberal Arts and Social Sciences*, *4*, 8.

Kothari, C. R. (2014). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Publishers.

Klettke, B., Meller, D., Silva, L., Clancy, E.& Sharma, M. (2018). Sexting and Mental Health: A Study of Indian and Australia Young Adults. *Cyber psychology: Journal of Psychosocial Research on Cyberspace, 1*(2), 2.

Kurt, D. G. (2015). Suicide Risks in College Students: The Effects of Internet Addiction and Drug Use. *Education Sciences: Theory and Practice, 15*(4), 841-848.

Kuss, D. (2013). Hooked on the Internet: The Prevalence, Risk, Theory and Presenting Problem of Internet Addiction. Nottingham.

Kuss, D. J. & Griffiths, M. D. (2011). Online Social Networking and Addiction—A Review of the Psychological Literature. *International Journal of Environmental Research and Public Health*, *8*, 3528-3552.

Kyriaki, A., Vasileois, S., Tyronel, L., Daniel, L. K.& Griffiths, M. D. (2018). Internet Pornography Viewing Preference as a Risk Factor for Adolescent Internet Addiction: The Moderating Role of Classroom Personality Factors. *Journal of Behavioral Addictions, 7*(2), 423 – 432.

Leedy, P. D. & Ormrod, J. E. (2014). *Practical Research Planning and Design*, (10th ed.). Boston: Pearson.

Longo, R. E., Brown, S. M., & Orcutt, D. P. (2002). *Effects of Internet Sexuality on Children and Adolescents. Sex and Internet.* A Guide for Clinicians (pp 87-105). New York: Brunner – Rutledge.

Macharia, S. M. (2018). An Exploration of Paratoxic Behaviour and Implications of Hole-in-the-Wallet Phenomenon among University Students in Kenya. *European Journal of Education Studies, 4* (7).

Mayers, D. G. (2013). *Psychology* (10th ed.). Worth Publishers: USA.

Mitchell, K., Finkelher, D. & Wolak, J. (2003). The Exposure of Youth to Unwanted Sexual Material on the Internet:A National Survey of Risk Impact and Prevention. *Youth and Society*,*34*,330-358.

Mounteney, J., Alessandra, B. & Alberto, O. (2016). *The Internet and Drug Markets.* European Monitoring Centre for Drugs and Drug Addiction. European Union, Luxembourg.

Mugenda, O. M, & Mugenda, A.G (2008), *Social Science Research: Theory and Principles.* Kenya, Nairobi: Act Press.

Murugan, A. & Claire, S. (2002). *Managing Web Usage in the Workplace: A Social, Ethical and Legal Perspective.* St. Joseph's University, USA.

Mutai, B. K. (2006). *How to Write Quality Research Proposals: A Complete and Simplified Recipe.* New York: Tally Publications.

Mutai, C., Ombachi, N. & Simiyu, R. (2020). Innovations and Opportunities in Social Media for Management of Drug and Substance Abuse in Selected Informal Settlements of Nairobi, Kenya. *African Journal of Public Health, 1*(5), 53-70.

Mwadime, A. (2017). *Implications of Sports Betting in Kenya: Impact of Robust Growth of the Sports Betting Industry*. (Master's Thesis), United States International University Africa, Kenya.

NACADA (2009). Annual Report for the Office of the National Campaign against Drug Abuse.Nairobi.

Nachmias, C. F. & Nachamias, D. (2008). *Research Method in the Social Science* (5thed). Frankfurt.

Nakanya, A. C. (2015). *Internet and Social Media Addiction.* Reference Point Press, Inc.: USA.

Njoroge, R. (2013). *Impacts of Social Media among the Youth on Behaviour Chance: A Case Study of University Students in Selected Universities in Nairobi, Kenya*. (Master's Thesis), University of Nairobi, Kenya.

Njuguna, E. W. (2017). *Perceptions of Violence against Women on the Social Medial Platform: The Case of Social Media in Kenya.* (Master's Thesis), Kenyatta University.

Odhiambo, L. A., Mbwayo, A. & Tucholsky, R. (2020). Prevalence of Internet Addiction and Socio-Demographics Correlates among Undergraduate Students of Private University of Eastern Africa, Nairobi, Kenya. *International Journal of Humanities and Social Studies, 8*(7), 2321-9203.

Ogachi, M. F. (2015). *Relationship between Depression and Pathological Internet Use among University Students in Kenya*. (Master of Arts Thesis), Kenyatta University, Kenya.

Ojino, R. & Mich, L. (2018). Mobile Applications in University Education: The Case of Kenya. *Journal of e-Learning and Knowledge Society, 14*(1), 121-129.

Orodho, J. A &Kombo (2002*). Techniques of Writing Research Proposals and Reports*. Nairobi: Masola Publishers.

Pass, A., Winther, D. K. & Franck, J. (2017). Internet Addiction in Patients with Substance Use disorder. *Clinical Neuropsychiatry 14*(1), 29-33.

Powell, A. & Henry, N. (2016). Technology-Facilitated Sexual Violence Victimization: Results from an Online Survey of Australian Adults. *Journal of Interpersoanl Violence*. 1-29.

Rash, C. J. & Petry, N. M. (2014). Psychological Treatments for Gambling Disorder. *Psychology Research and Behavior Management, 7*, 285-295.

Reith, G. (2006). Research on the Social Impacts of Gambling. Endinburg, UK. Retrieved from *http://scotland.gov.uk/publications/2006/08/17134534/0*.

Robert, J. W., Robert, T. W. & Jonathan, P. (2012). *Routledge International Handbook of Internet Gambling.* Routledge: USA & Canada.

Romano M., Osborne L. A., Truzoli R.,& Reed, P. (2013) Differential Psychological Impact of Internet Exposure on Internet Addicts. *PLoS ONE,8*(2), e55162

Sajeev, S., Prasad, N., Raj, Z., Abraham, A., Vinayak, M., Balu, A., & Narayanankutty, O. (2015). Internet Addiction and Substance Use Disorders in Adolescent Students - A Cross-Sectional Study. *Journal of International Medicine and Dentistry*, 2(3), 172-179.

Schell, B. H. (2007). *The Internet and Society: A Reference Handbook.* Santa Barbara, California: USA.

Schultz, W. (2015). Neuronal Reward and Decision Signals: From Theories to Data. *Physiological review*, *95*(3), 853-951.

Seboru, K. A. (2015). Influence of Internet Technologies Use on Socialization Among the Youth: A Case of Undergraduate Students at University of Nairobi. Retrieved from*http://erepository.uonbi.ac.ke:8080/handle/123456789/4030*

Scott, B. (2017). *Aggression and Depression Factors in Pornography use of College Aged Individuals.* (Senior Theses), Trinity College, Hartford, CT.

Shahnaz, I. & Karim, A.R. (2014). The Impact of Internet Addiction on Life Satisfaction and Life Engagement in Young Adults. *Universal Journal of Psychology*, *2*(9), 273-284.

Skinner, B. F. (2014). *Science and Human Behaviour.* Cambridge: The B. F. Skinner Foundation.

Sounter, D. & Kerretts, M. (2012). Internet Governance in Kenya. Retrieved from *http://www.itu.int/wsis/docs2/tunis/oft/6revi.html*.

Suzanne, D. W. & Nancy, L. D. (2011). *Integrating the Expressive Arts into Counselling Practice: Theory-Based Interventions*. Springer Publishing Company: New York.

Svensson, J., Baer, N. & Silva, T. (2018). Adolescents' Level of Knowledge of and Supportive Attitudes to Sexual Crime in the Swedish Context. *Journal of Sexual Aggression*, *25*(2), 75-89.

Thomas, C. C. (2003). *The Biology of Gambling.* Charles C. Thomas Publisher Ltd., Springfield: Illinois.

Waithaka, M. W. (2013). *Internet Use among University Students in Kenya. A Case Study of the University of Nairobi, Kenya*. (Master's Thesis), University of South Africa.

Wamaitha, A., Sirera, M. A. & Mwenje, M. (2014). Prevalence and Factors Contributing to Pornography Viewing among Male Students in Selected Universities in Kenya. *Journal of Humanities and Social Sciences, 19*(11), 01-07.

Whisman, J. L. (2015). *A Comparative Analysis of Internet Addiction and Substance Abuse in Adolescents*. Colorado State University-Pueblo. Retrieved from *https://mountainscholar.org/bitstream.*

Winther, D. K. (2014). *Excessive Internet Use – Fascination or Compulsion?* (Doctoral Dissertation), London School of Economics and Political Science. Retrieved from *http://etheses.ise.ac.uk/id/eprint/1062*

Wohab, A. & Mubarak, A. R. (2015). A Conceptual Framework of Risk-Taking Behaviours of Adolescents while using the Internet. *International Journal of Computer Applications, 132*(16), 0975-8887.

World Health Organization (2014). Public Health Implications of Excessive Use of the Internet, Computers, Smartphones and Similar Electronic Devices. *National Cancer Research Centrer*. Tokyo: Japan, 27-29.

Zaki, M. M., Sayed, F. S.& Elatta, N. F. (2018). Use and Psychological Well-being for Baccalaureate Nursing Students at Benha University. *Journal of Nursing and Health Science 7*(1), 13-21.

Zaremohzzabieh, Z., Samah, B. A., Omar, Bolong, S. Z. & Kamarudin, N. A. (2014). Addictive Facebook Use among University Students. *Asian Social Science 10*(6), 107-116.

Zhang, G. (2015). *Adolescent Bystander Perceptions of Sexual Violence Scenarios.* (Master's Thesis), The University of Western Ontario. Retrieved from *https://ir.lib.uwo.ca/etd/2748*

Zuluta, F. M., Nestor, T. & Costales, J. R. (2004). *Methods of Research thesis – Writing and Applied Statistics.* Philippines: National Bookstore.

APPENDICES

Appendix I: Questionnaire for University Undergraduate Students

Purpose

This questionnaire is designed to collect information on the role of problematic internet usage in the risk of selected addictions. The questionnaire comprises offour sections: Section A is designed to collect the background information, Section B will collect information on internet connectivity, Section C will collect data on problematic internet usage and Section D will collect information on the risk of selected addictions. The rick of selected addictions are online gambling, online pornography, online sexual violence and online drug and substance abuse.

Instructions for providing information

As one of the respondents, you will be required to provide information on each specific indicator provided using a Likert rating scale provided in section B. Tick (√) only one scale for each indicator. The information you given will be treated with utmost confidentiality.

Section A: Background Information

Please provide information on the following.

1. Indicate your year of study……
2. Age:
   Below 18 years [ ]
   18 – 24 years [ ]
   25 – 30 years [ ]
   31 – 40 years [ ]
   Above 41 years [ ]
3. Gender:
   Male [ ]
   Female: [ ]

Section B: Internet Connectivity

This section is designed to assess the availability of internet connectivity and technologies among undergraduate students in the universities.

4. Please indicate the availability of the following internet connectivity and technologies used in your university by ticking on the technologies.

Internet connectivity and technological devices	**Available**	**Not available**	**Not sure**
Mobile devices			
Computers			
Band width			
WIFI			

5. (a) Do you use any of the above named internet technology?

   Yes [ ] No [ ]

   (b) If yes to question 5(a), which one do you use? ……

   (c) If no to question 5(a), do you have any other internet technology that you use? Please elaborate. ……

   ……..

   ……

Section C: Problematic Internet Usage

This section investigates problematic internet usage among undergraduate students. Using the Likert scale of 1-5 in which, 1 is the least and 5 highest, where SA means Strongly Agree, A – Agree, SA – Somewhat Agree, NAD – Neither Agree nor Disagree and SD – Somewhat Disagree. Please tick only on one scale for each of the following:

Indicator	**Question Item**	**SA 5**	**A 4**	**SA 3**	**NAD 2**	**SD 1**
Using the internet longer than originally intended	(i) I often has trouble completing important tasks because of being on the internet.					
	(ii) I usually preoccupied with internet when offline.					
	(iii)I Use the internet regularly to access information that is not academic in nature.					
	(iv)I Feel restless because of the need to use the internet but is not available.					
Sleep deprivation due to late night internet engagement	(i) I Stay connected to the internet for longer than planned					
	(ii) I Postpone bed time to be on the internet.					
	(iii)I often stay on the internet for longer hours than intended.					
	(iv)I severally tried to reduce the amount of time spent online without success.					
Isolation from friends and family because of being online	(i) I engage in internet activities frequently with peers.					
	(ii) I severally caused problems with peers and family members.					
	(iii)I usually socialize online rather than engaging in face-to-face interactions.					
	(iv)I often friends and family members complain about the great amount of time spent on the internet.					
Feeling happy only when online and	(i) I feel restless because of the need to use internet although it is not					

pre-occupied with internet when off-line	accessible at the moment.					
	(ii) I Use internet to establish online relationships.					
	(iii)I frequently feels an urge to stay longer periods on the internet to be contented.					
	(iv)I usually thinks about what it would be like being online when not on the internet.					
Inability to keep schedules or prioritize	(i) I often feels bored when not on the internet.					
	(ii) I usually realizes that I am waiting for the time when I can use the internet again.					
	(iii)I always pushes problems away by engaging on the internet.					
	(iv)I usually forget to eat when on the internet.					
Neglecting other responsibilities to be on the internet	(i) I always gets irritated if bothered while on the internet.					
	(ii) I usually feels unable to concentrate on other duties because of thinking about the internet.					
	(iii)I Neglect other responsibilities to be on the internet.					
	(iv)I Miss classes because of engaging on the internet.					

Section D: Risk of Selected Addictions

This section seeks information on the risk of the selected addictions.

Using the Likert scale of 1-5 in which, 1 is the least and 5 highest, please assess the role of problematic internet usage on the addiction risks. where SA means Strongly Agree, A – Agree, SA – Somewhat Agree, NAD – Neither Agree nor Disagree and SD – Somewhat Disagree. Tick only on one scale for each of the following:

Indicator	**Question Item**	**SA 5**	**A 4**	**SA 3**	**NAD 2**	**SD 1**
Online Gambling	**(i)** I often gambles on the internet.					
	(ii) I usually feels distressed because of being unable to engage in gambling activities.					
	(iii) I always feels exited winning money after placing bets.					
	(iv) I feels an urge to continue gambling even after losing great amounts of money.					
	(v) I feel restless trying to stop the gambling behaviour.					
Online Pornography	(i) I always views pornographic materials on the internet.					
	(ii) I always gets preoccupied with sexual thoughts.					
	(iii) Pornography watching usually interferes with my academic work, interpersonal relationships or leisure activities.					
	(iv) I often accesses online to get involved in sexual or romantic relationships.					
	(v) I feel restless because of trying to stop pornography watching.					
Online Sexual violence	(i) I usually confronts others who make inappropriate sexual gestures.					
	(ii) I sometimes engage in unwanted sexual behaviours.					
	(iii) I have been in a relationship with someone who uses sexual violence.					
	(iv) I often has failed to do academic work or to engage in face-to-face relationships because of engaging in sexual violence.					

	(v) I feel restless because of trying to stop sexual violence.					
Drug and substance abuse	(i) I Accesses information concerning drugs and substances of abuse on the internet.					
	(ii) I have ever acquired drugs or substances of abuse on the internet.					
	(iii) I have used drugs or substances of abuse.					
	(iv) Drugs or substances of abuse have caused me trouble at the institution or interfered with social relationships.					
	(v) I Often experience problems trying to stop the use of drugs and substances of abuse.					

Thank you for participating in this study.

Appendix II: Interview Schedule for Students' Counsellors

Purpose and Design

The interview schedule is designed to collect information on the role of problematic internet usage in the risk of selected addictions. Please provide information on the following:

1. As a student counsellor, mention the addictions among your clients that you think could have been caused by problematic internet usage.

……

……

……

……..

2. As a student counsellor, what do you think could be the causes of problematic internet usage?

……

……

……

……...…

3. Please indicate whether risk of addiction to online gambling is related to problematic internet usage among undergraduate students.

……

……

……

……..…

4. Indicate why undergraduate students engage in online pornography.

……

……

……

……..……

5. Why do you think undergraduate students get involved in online sexual violence?

……

……

…….

6. Please mention whether risk of addiction to online drug and substance abuse is related to problematic internet usage.

……

……

……

7. Please indicate other issues among your clients that you think could have been caused by problematic internet usage.

……

……

……

……

Thank you for participating in this study.

Appendix III: Focus Group Discussions for Student Peer Counsellors

Purpose and Design

The Focus Group Discussion is designed to collect information on the role of problematic internet usage influence on the risk of selected addictions among undergraduate students in universities in Kenya.

1. Mention the addictions among students that are caused by problematic internet usage.
2. Comment on undergraduate students' engagement on problematic internet usage.
3. What is the nature of problematic internet usage in relation to the following?
   a) Online gambling
   b) Online pornography
   c) Online sexual violence
   d) Online drug and substance abuse.
4. How has problematic internet usage influenced undergraduate students in relation to the risk of addictions in number 3 above.
5. In your opinion, do you think problematic internet usage predisposes the undergraduate students to the risk of the selected addictions? Probe more.

Thank you for participating in this study.

Appendix IV: Introduction Letter from the University

KABARAK UNIVERSITY

Private Bag - 20157
KABARAK, KENYA
http://kabarak.ac.ke/institute-postgraduate-studies/

Tel: 0773 265 999
E-mail: directorpostgraduate@kabarak.ac.ke

BOARD OF POSTGRADUATE STUDIES

17th June, 2019

The Director General
National Commission for Science, Technology & Innovation (NACOSTI)
P.O. Box 30623 – 00100
NAIROBI

Dear Sir/Madam,

RE: JANE GAKII MARETE- REG. NO. GDC/M/1582/09/16

The above named is a Doctor of Philosophy student at Kabarak University in the School of Education. She is carrying out research entitled ***"Role of Problematic internet Usage in Selected Addiction Risk among Undergraduate Students in universities in the Counties of Meru and Nairobi, Kenya".*** She has defended her proposal and has been authorized to proceed with field research.

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please provide her with a research permit to enable her to undertake her research.

Thank you.

KABARAK UNIVERSITY DIRECTOR POST GRADUATE STUDIES 17 JUN 2019 PRIVATE BAG -20157, KABARAK

Yours faithfully,

Dr. Betty Jeruto Tikoko
DIRECTOR, POSTGRADUATE STUDIES

Kabarak University Moral Code
As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)

Appendix V: NACOSTI Research Authorization

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/3987/31530**

Date: **4th July 2019**

Jane Gakii Marete
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"role of problematic internet usage in selected addition risks among undergraduate students in universities in the counties of Nairobi and Meru, Kenya."*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi and Meru Counties** for the period ending **3rd July, 2020.**

You are advised to report to **the County Commissioners, and the County Directors of Education, Nairobi and Meru Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONFACE WANYAMA.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

9/8/2019

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666

The County Director of Education
Nairobi County.

Appendix VI: NACOSTI Research Permit

THIS IS TO CERTIFY THAT:
MS. JANE GAKII MARETE
of KABARAK UNIVERSITY, 0-60200
MERU,has been permitted to conduct
research in *Meru , Nairobi Counties*

on the topic: *ROLE OF PROBLEMATIC INTERNET USAGE IN SELECTED ADDITION RISKS AMONG UNDERGRADUATE STUDENTS IN UNIVERSITIES IN THE COUNTIES OF NAIROBI AND MERU, KENYA*

for the period ending:
3rd July,2020

.....
Applicant's Signature

Permit No : NACOSTI/P/19/3987/31530
Date Of Issue : 4th July,2019
Fee Recieved :Ksh 2000

.....
Director General
National Commission for Science, Technology & Innovation

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and Innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 25718

CONDITIONS: see back page

Appendix VII: Research Authorization County Commissioner, Meru

THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegrams:
Telephone:
Email: ccmeru@yahoo.com
Fax:
When replying please quote
And Date

COUNTY COMMISSIONER
MERU COUNTY
P.O. BOX 703-60200
MERU.

REF: ED. 12/3 VOL. IV/8 **10TH JULY 2019**

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – JANE GAKII MARETE

This is to inform you that Jane Gakii Marete of Kabarak University, Kabarak has reported to this office as directed by the National Commission for Science, Technology and Innovation and will be carrying out Research on **"Role of problematic internet usage in selected addition risks among undergraduate students in universities in the Counties of Nairobi and Meru, Kenya".**

Since authority has been granted by the said Commission, and the above named applicant has reported to this office, she can embark on her research project for a period ending **3rd July 2020**.

Kindly accord her necessary assistance she may require.

A. N. MACHARI
COUNTY COMMISSIONER
MERU COUNTY

Appendix VIII: Research Authorization Ministry of Education, Nairobi

Republic of Kenya

MINISTRY OF EDUCATION

STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone; Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

When replying please quote

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: RCE/NRB/GEN/VOL.1

DATE: 9th July, 2018

Jane Gkii Marete
P. Box 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on *"role of problematic internet usage in selected addition risks among undergraduate students in universities in the counties of Nairobi and Meru, Kenya."*

This office has no objection and authority is hereby granted for a period ending 24th June, 2020 as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

REGIONAL DIRECTOR OF EDUCATION NAIROBI 09 JUL 2019 MINISTRY OF EDUCATION P. O. Box 74629, NAIROBI

KINOTI KIOGORA
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

Copy to: Director General/CEO
National Commission for Science, Technology and Innovation
NAIROBI

Appendix IX: Research Authorization Ministry of Education, Meru

REPUBLIC OF KENYA
MINISTRY OF EDUCATION
State Department of Early Learning and Basic Education

Telegrams: " ELIMU " Meru
EMAIL: cdemerucounty@gmail.com
When Replying please quote

County Director Of Education
Meru County
P.O. Box 61
MERU

Ref: MRU/C/EDU/11/1/234

10th July, 2019

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATON – JANE GAKII MARETE

Reference is made to letter Ref: NACOSTI/P/19/3987/31530 dated 4th July, 2019.

Authority is hereby granted to **Jane Gakii Marete** to carry out research on "***Role of problematic internet usage in selected addition risks among undergraduate students in universities in the counties of Nairobi and Meru, Kenya",*** *You are hereby authorized to perform the same in Meru County* for the period ending 3rd July, 2020.

Kindly accord her the necessary assistance.

COUNTY DIRECTOR OF EDUCATION
MERU COUNTY
P. O. Box 61-60200
TEL: 064-32372 MERU

Kamande Mburu
For: County Director of Education
MERU

Appendix X: List of Publications

Marete, J. G., Kay, J., & Githaiga, D. (2020). The Role of Problematic Internet Usage in the Risk of Addiction to Online Sexual Violence among Undergraduate Students in Universities in Kenya. *Editon Cons. J. Econ. Dev. Stud.*, *2*(2), 126-135.

Marete, J. G., Githaiga, D., & Kay, J. (2020). The Link Between Internet Usage and Addiction to Online Gambling Among Undergraduate Students in Kenya. *Editon Cons. J. Psychol. Guid. Couns. 2*(1), 136-148.

Appendix XI: Map Showing Nairobi and Meru Counties

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