EFFECTS OF DIGITAL TECHNOLOGIES AND SOCIAL MEDIA ON SEXUAL BEHAVIORS AMONG THE YOUTH AT THE COLLEGE OF HEALTH SCIENCES UNIVERSITY OF NAIROBI, KENYA.

BY

MADALO GLORIA KALERO KUCHAWO

REGISTTRATION NUMBER: H56/80246/2012

A RESEACH DESSERTATION PRESENTED IN PARTIAL FULFILMENT IF THE REQUIREMENTS FOR THE AWARD OF A MASTERS DEGREE IN NURSING SCIENCES (COMMUNITY HEALTH NURSING) OF THE UNIVERSITY OF NAIROBI

AUGUST, 2014

DECLARATION

I declare that this thesis is the result of my original work and that it has not been submitted to any other institution for an academic award.

Name: **MADALO GLORIA KALERO KUCHAWO**

Signature: _____

Date: _____

SUPERVISORS APPROVAL

This is to certify that this thesis entitled "Effects Of Digital Technologies and Social Media on Sexual Behaviors among the Youth at the College of Health Sciences, University of Nairobi, Kenya" has been submitted in partial fulfillment for the award of the degree of Masters of Science in Nursing (Community Health Nursing) of the University of Nairobi with our approval as internal supervisors.

1. **Dr. Waithira Mirie**

   DHSc, MSc, BSc, IBCLC

   Senior Lecturer, School of Nursing Science,

   University of Nairobi,

   P.O Box 19676-00202,

   Nairobi.

   Signed: _____

   Date: _____

2. **Ms. Lucy Kivuti-Bitok**

   BScN, Msc. Health Systems Management,

   Lecturer, School of Nursing Science,

   University of Nairobi,

   P.O Box 19676-00202,

   Nairobi.

   Signed: _____

   Date: _____

DEDICATION

I dedicate this work to my husband Christopher Malemba and my children Edith and Success for their love and support which continues to strengthen me. To my mother Evelyn Kuchawo and my father Leonard Kuchawo for believing in me and being there for me all the time.

ACKNOWLEDGEMENT

I am grateful to my supervisors Dr. Waithira Mirie and Mrs. Lucy Kivuti-Bitok of the School of Nursing Sciences, University of Nairobi for their continuous guidance and support throughout the study period.

I also thank all the School of Nursing faculty and staff for their contribution towards my learning.

The Government of Malawi for awarding me the sponsorship that has enabled me to study at the University of Nairobi.

I wish to acknowledge with much gratitude the management and staff of the College of Health Sciences, University of Nairobi and all the schools of the College for their support during the study. The Kenya Medical Training College (KMTC), Nairobi campus for allowing me to pretest my study tools at their institution.

To all the respondents that participated in the study including the class representatives that assisted me in recruiting participants I extend my sincere gratitude.

I also acknowledge my classmates and all those who played a role in one way or another in this study.

Above all I wish to thank the almighty God for making everything possible.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BDS	Bachelor of Dental Surgery
BSc	Bachelor of Science
BPharm	Bachelor of Pharmacy
CDC	Centre for Disease Control
CHS	College of Health Sciences
EU	European Union
FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
IM	Instant Messaging
KDHS	Kenya Demographic health survey
KMTC	Kenya Medical Training College
KNH	Kenyatta National Hospital
MBChB	Bachelor of Medicine and Surgery
MSE	Movie Sexual Exposure
MMS	Multimedia Messaging Service
SMS	Short Message Service
SNS	Social Networking Site
SONS	School of Nursing Sciences
SPSS	Statistical Package on Social Science
STIs	Sexually Transmitted Infections
TV	Television

UNDESA	United Nations Department of Economic and Social Affairs
UNICEF	United Nations Children's Fund
UNAIDS	Joint United Nations Programme on HIV and AIDS
UON	University of Nairobi
USA	United States of America
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Adolescent - any person aged between 10 and 19 years.

Blog - A Web site on which an individual or group of users record opinions, information, etc. on a regular basis.

Digital technologies - the new media technologies and platforms used to communicate information and ideas, including wireless technology via cell phones and personal Digital assistants (PDA's) and their capabilities (such as text messaging and taking pictures) and the internet and its capabilities (such as websites, social networking sites and gaming).

Digital technologies and social media use – viewing, sharing or posting content through internet or text messaging.

Mass media – media designed to reach a large numbers of people, such as newspapers television radio or the internet.

Media – the means of conveying information or expressing ideas to people, examples include; interpersonal communication, television, magazines, movies, theater, billboards, internet, music, the Internet, theater, and billboards.

Risky sexual behavior – having first sex before the age of 16, inconsistent condom use and having multiple sexual partners.

Safe sex – Abstaining from sex until marriage, being faithful to one sexual partner, or consistently using condoms with each act of sex.

Sexting – Sending, receiving, or forwarding sexually explicit messages, photographs, or images via cell phone, computer, or other digital devices

Sexual content - is defined as any depiction of sexual activity, sexually suggestive behavior, or talk about sexuality or sexual activity.

Social media – websites and other means of communication that are used by large groups of people to share information and to develop social contacts.

Youth/Young people – for this study, males and females 18 to 24 years old.

Self presentation - the practice of posting or sharing messages, pictures, or videos of self on social media sites such as Facebook or singles sites for other users to see.

ABSTRACT

Background: The use of digital communication technologies and social media has grown dramatically in the world including in Kenya. It has been suggested that the media influences people's behaviors including sexual behaviors. Few studies have been done to investigate the effects of using these digital technologies and social media on sexual behaviors among the youth.
Objective: The objective of this study was to assess the patterns of use and effects of using digital technologies and social media on sexual behaviors among the youth at the College of Health Sciences, University of Nairobi, Kenya.

Methodology: This was a cross sectional descriptive study of undergraduate university students aged between 18 and 24 years. Quantitative data was obtained from 331 students using a self administered semi structured questionnaire. Four focus Group Discussions (FGDs) with 8 students in each discussion were conducted to obtain qualitative data. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) software version 17, while qualitative data was analyzed using content analysis.

Results: Mobile, internet enabled digital devices such as laptop computers (77%), cell phones with internet (58.5%), and Smartphones (46.2%) were the common digital devices owned and used by participants. Almost all participants (93.4% (n =309) had a profile on Facebook. Sending sexually suggestive messages (41.4%, n=136), meeting people in real life they first met on social media (43.5%, n= 144), and accessing pornographic materials online (36.3%, n= 120) were common activities participants reported doing on their devices and social media. Having multiple sexual partners was related to sending (p= 0.020, F), receiving (P= 0.010, F= 3.886) and sharing (p= 0.003, F= 4.718) of sexually suggestive messages on internet. Participants with multiple sexual partners also had ever met people in real life they only met on social media (p=0.002, F= 5,126) and accessed pornographic materials on internet (p= 0.0001, F= 2.283). Use of laptops, cell phones without internet and smart phones was shown to have an effect on participant's sexual behaviors such as having multiple sexual partners and inconsistent use of condoms.

Conclusion: Ownership and use of mobile, internet enabled digital devices and social media is common among students at the college. Use of digital devices and exposure to sexually suggestive content on digital devices and social media is associated to risky sexual behaviors such as having multiple sexual partners and inconsistent use of condoms.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Almost half of the world's population is made up of people under the age of 20 years (UNDESA, 2013). The youth also referred to as young people constitute a large part of this population. The United Nations in 1985 defined young people or the youth as individuals between the ages of 15 and 24 years (UNDESA, 2013).

Today young people's lives are increasingly being influenced by digital technology including internet and mobile phones (Kachur et al., 2013). The youth are the largest population of users and early adopters of digital communication technologies, such as text messaging by short message service (SMS) and social network sites (SNSs) such as Facebook and Myspace (Buhi et al., 2012). Rates of computer and internet use are reported to be highest among adolescents and the youth. For instance among young people aged 12 to 17 years old in the USA 90% reported using the internet,73% using SNSs , 75% had a cell phone (Lenhart, 2010) while 97% reported playing video games (Lenhart 2008). The picture is similar in most countries such as Turkey, Indonesia, South Africa (Houck et al., 2014) and even Kenya where around 20% of the total population was reported to be using the internet and the 18 to 24 years old age group was reported to be the largest population on facebook (UNICEF, 2011).

The digital technologies have drastically changed the communication landscape especially for the youth (Guse et al., 2012). Because of the availability of the digital technologies and social media, the youth today engage in social behaviors such as chatting with friends, flirting, and even dating in different ways than what used to happen in the past before the introduction of these technologies. The digital technologies and social media have also become important sex educators for the youth, because they provide them with anonymous avenues for seeking health information in general and sexual health, in particular (Kachur et al., 2013). The youth use the digital technologies to learn about sensitive and often stigmatized topics such as sexual health and Sexually Transmitted Infections (STIs) (Buhi et al., 2009). This could be because the youth feel more comfortable looking for information and answers to their sexual health and reproductive health questions from the digital technologies and social media than their parents or teachers. Results of studies on adolescent have suggested that teenagers prefer to receive

information of sexual health and STIs through SMS and social media sites because of their convenience and relative anonymity (Buhi et al., 2012). In a study that was conducted in Kenya, most young people reported that they want to seek information and connections on their terms, to have a private world where they can explore, be inquisitive, be social or even exhibitionist among their friends. Digital and social media gives them the private space that they often lack in their offline lives that are controlled by adults such as parents or teachers (InterMedia, Voices of the Youth CITIZENS, and UNICEF, 2013).

Although digital technology and social media has changed the way in which the youth interact and access information, the youth still remain a vulnerable population when it comes to sexual risks (Kachur et al., 2013). Sexually transmitted infections including HIV and AIDS and early pregnancies are still high amongst health problems affecting the youth.

The world over, young people are disproportionately affected by STIs including HIV and AIDS. In 2012 there were 2.3 million new HIV infections globally, with an estimated 5500 new infections each day among adults aged 15 years and above, of whom 39% were aged 15 to 24 years (UNAIDS, 2013). Most of these new HIV infections occurred in Sub-Saharan Africa, with 1.6 million adults and children infected, accounting for almost 70% of all new infections globally (UNAIDS, 2013). In the United States of America (USA), nearly 20 million new STI infections occur each year and half of them are among young people aged 15 to 24 years (CDC, 2012).

Early unplanned and sometimes unwanted pregnancies are also another problem that is affecting the youth. Each year about 16 million women aged 15 to 19 years give birth, contributing about 11% of all births worldwide (WHO, 2014). It is reported that men in their early 20's father most births to these adolescents in the USA (Health Teen Networks, 2013). The situation is worse in low and middle income countries including sub-Saharan Africa where about 10% of girls become mothers by 16 years of age. These early pregnancies pose a lot of problems to the health of the adolescents, many of the adolescents end up getting unsafe abortions. Every year 2.6 million adolescents are reported to have unsafe abortions and 14% of all the unsafe abortions in middle and low income countries are among women aged 15-19 years (WHO, 2014).

Risky sexual behaviors such as early sexual debut, low levels of condom use and having multiple sexual partners contribute to the sexual and reproductive health problems among the youth. The

Kenya Demographic Health Survey (KDHS) report of 2008/09, indicated that more young women were married by age 18 years (1 out of 4), increasing their likelihood of having children at an early age. Nearly half of the births to these young women are the result of unintended pregnancies. Furthermore a large proportion of the youth aged 15 to 19 engaged in higher-risk sex. For example of those who had sexual intercourse in the last 12 months prior to the survey, nearly 60% of the young women and nearly 100% of the young men had sexual intercourse with a partner who was neither their spouse nor lived with them, and only 40% of the young women and 55% of the young men used a condom during their last higher-risk sexual encounter (KDHS, 2008/09). This is also similar to results of a study that was conducted among adolescents in Thika district in Kenya which found that there was low use of condoms among sexually active secondary school students, exposing them to the risks of HIV/AIDS, STIs, or unwanted pregnancies (Kola, 2010).

It has been said that universities have the majority of youth with risky sexual behaviors such as having multiple sexual partners (Magu et al., 2012). A study that was conducted at the Federal University of Parana among students enrolled in the department of Health Sciences and the department of Biological and Health Sciences at the State University of Parana in Brazil, found that being a university student in a health science course did not ensure safe sexual behavior. The results showed that more than half of the 572 students aged 18 to 24 years who were recruited in the study were sexually active, with the majority being those aged 21 to 24 years (70%). The study also found that the practice of safe sex was directly associated with lower age and living away from home (Moser, Reggiani and Urbanetz, 2007). In Nepal a cross sectional study among male college students found that despite religious and cultural restrictions in the country, 39% of the study participants reported having premarital sex. Risky sexual behaviors such as sex with commercial sex workers, multiple sexual partners and inconsistent use of condoms with non regular partners were common among the students (Adhikari and Tamang, 2013). This shows that even among the youth in universities the practice of unsafe sexual behaviors is common.

1.2 Statement of the Problem

Kenya is one of Africa's fastest growing internet markets. The number of internet users has grown from 1.7 million in 2007 to 14.032 million by the end of June 2012 (CCK, 2012). Just as in other parts of the world, the largest population of internet users in Kenya is the youth, with the

18 to 24 year olds being reported as the largest population on Facebook (InterMedia, Voices of the Youth Citizens, and UNICEF, 2013). The availability of cheap web-enabled mobile phones in the country means that a large number of youth are able to use the internet for different purposes (UNICEF, 2013).

Studies have shown that the youth use digital technologies and social media to communicate with their friends, search for information and develop and maintain online and social interactions (Okinda, 2012). Activities on these digital technologies and social media include frequent discussions and portrayals of sexual behaviors that can affect young peoples' conceptions of sexual attractiveness, romantic relationships and sexual behavior, (Brown, Keller and Stern, 2009). This can influence the youth to engage in risky sexual behaviors by modeling what they see on the social media because in most cases the content on these media does not include any mention or depiction of the possible risks or responsibilities of the risky behaviors that are portrayed (Brown, Keller and Stern, 2009).

Evidence shows that the youth often engage in risky sexual behaviors which can expose them to negative health outcomes such as STIs including HIV and AIDS. Data in the KDHS of 2008/09 indicates that in Kenya a significant proportion of young people aged 15 to 24 years are sexually active, 38% young men and 24% young women who had never been married reported having sex in the 12 months prior to the survey. Early sexual debut was also evident among the youth as 58% of the young men and 47% young women in the survey reported having had their first sexual encounter before the age of 18, while 22% young men and 11% young women initiated sexual intercourse before the age of 15 years. A significant proportion (1.6%) of the youth aged 15 to 24 compared to those aged 25 to 29 years (0.9%) also reported having multiple sexual partners and the percentage was high among those in urban areas, with 1.8% in Nairobi (KDHS, 2009/08). The prevalence of HIV and STIs is also high among the youth population in the country with 5.6% of the 15 to 24 year olds living with HIV in 2009 (UNICEF, 2012), compared to the adult prevalence of 6.3% (UNAIDS 2013), while the prevalence of Syphilis was at 0.2% among the youth (NASCOP, 2011).

This is also true among university students, as was reported from a study of 500 university students which was conducted at Maseno University in Kenya which found that more than half (68.5%) of the students were sexually active with a significant proportion of first year students

reporting having their first sexual encounter at the university, and only 15.8% of the students reporting consistent use of condoms (Othero, Aduma and Opil, 2009). Another study that assessed risky sexual behaviors among youth in Kenya reported that more than half (66%) of university students in the study continued to engage in risky sexual behaviors such as unprotected sex with multiple partners even after being aware of their HIV status (Magu et al., 2012).

The majority of undergraduate university students are young people in the age group of 18 to 24 years. Most students have personal laptop computers or have access to computers which are provided in the university libraries (Okinda, 2007). Apart from that most students own mobile phones. This means that university students have ready access to digital technologies and social media and are at risk of being influenced by contents and activities on these technologies, just like the rest of the youth. Though there is literature linking exposure to mass media such as magazines and television to sexual behavior among the youth, research is lacking on the effects of using digital technologies and social media on sexual behavior among the youth especially in Kenya.

1.3 Justification

The youth today spend a lot of their time using digital technologies and social media. The content and activities they are exposed to on these technologies can influence their sexual behaviors either in a positive way or negatively. Establishing the patterns of use and effects of these technologies and social media on sexual behaviors among the youth can help in improving the sexual and reproductive health services for the youth.

Literature is lacking which shows how digital technologies and social media are used and how they impact on the sexual behaviors of the youth especially in African countries including Kenya. This study was intended to address that gap.

1.4 Benefits of the Study

Understanding the association between the use of digital technologies and social media and sexual behaviors among the youth can assist in the development of policies and effective interventions targeting the youth with appropriate and accurate sexual and reproductive health information and services which can promote responsible sexual behaviors and values. Responsible sexual behaviors of the youth can lead to improved child and family wellbeing,

reduction in poverty, increased opportunities for young men and women to complete their education or achieve other life goals, and hence contribute to a healthy and stronger nation.

1.5 Research Questions

i. What are the patterns of digital technologies and social media use among the youth?
ii. What type of sexual content and activities are the youth exposed to on digital technologies and social media?
iii. What are the effects of using digital technologies and social media on the sexual behaviors of the youth?

1.6 Objectives of the Study

1.6.1 Broad Objective

The objective of the study was to explore the effects of use of digital technologies and social media on sexual behaviors among the youth at the College of Health Sciences, University of Nairobi.

1.6.2 Specific Objectives

i. To describe the patterns of use of digital technologies and social media among the students.
ii. To assess sexual content and activities the students are exposed to on digital technologies and social media.
iii. To determine the influence of exposure to sexual content on digital technologies and social media on sexual behaviors among the youth.
iv. To determine the influence of using digital technologies and social media on the sexual behaviors of the youth.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Use of digital technologies and social media is very common activity these days including among the youth. The digital technologies and social media that the youth commonly use include internet, text messaging, social networking sites such as Facebook and Myspace, video sites such as You Tube and blogs such as Twitter (Boyd and Ellison, 2008). The key features of these media that make them different from the old traditional media such as television, and radio is that they are social, interactive, malleable and portable hence mobile (Brown, Keller and Stern, 2009), this means that users can use them anytime and anywhere, hence their popularity among the youth. Facebook one of the most common SNSs had more than 500 million members in 2011(Livingstone, 2008). Many web services such as Yahoo and Hotmail also incorporate social networking features that allow users to interact and participate in discussions when online. The digital technologies and social media play a large part in the sexual socialization of the youth (L'Engle et al., 2006).

2.2 Patterns of Use of Digital Technologies and Social Media

The use of digital technologies and social network sites (SNSs) has grown dramatically across the world (Ahn, 2012). More young people these days own or have access to some form of digital technology such as cell phones or computers which they use for activities such as interacting on SNSs or texting. In the USA national and global surveys in 2010 reported that 46% of the U.S. population was using social network sites (Pew Global Attitudes Project, 2010 as cited by Ahn, 2012). Among the youth, the uptake of SNSs is even more wide spread, in 2006 it was reported that 32% young people aged 16 to 24 years were using SNSs, with 31% of MySpace users in the USA being under the age of 18 while Europe had 6.6 million 12 to 17 year olds users (Livingstone, 2008). Several reports also indicate that the youth are the most prolific users of SNSs, a poll that was done in America in 2009 found that, 22% of teenagers log on to their favorite social media site more than 10 times a day, and more than half of adolescents log on to a social media site more than once a day, (Common Sense Media, 2009). Another survey found that of all the teenagers who were utilizing the internet, 73% were members of some SNS community (Lenhart,et al., 2010). A study on offline consequences of online victimization

among teenagers found that 75% of the teenagers in the study owned cell phones and 25% were using them for social media, 54% for texting and 24% for instant messaging (Hinduja and Patchin, 2007).

2.2.1 Access to Digital Technologies and Social Media

The sites and preferences for accessing these digital technologies and social media vary according to a number of factors such as availability and location with some young people accessing from their homes, while some access from internet cafes or school libraries and some from mobile phones. According to a study of online activities of European Union Kids that recruited 1 018 urban and rural internet users aged 9 to 16 years, who were sampled randomly, only 10% accesses the internet from a mobile phone, with a further 3% accessing the internet from a mobile device other than a phone. The study reported that 40% had their own personal computer or laptop, 39% shared it with family members and 49% identified home as their primary location of internet access with 33% reporting using it from their own room (Livingstone et al., 2011).

A similar picture was also found in Turkey where a study that was conducted among high school students aged 12 to 18 years in 2009/10 found that out of the 2 658 study participants, 80.2% owned mobile phones, 71.4% owned a computer, and almost all of them (97.9%) were using the internet. Among the participants male students had a higher (6% higher) ownership than females. The study also found that the young people in the study used the internet on both computers and phones with more male accessing on the computer than females. (Uçanok et al., 2009). In another study of 366 children aged 6 to 13 years it was reported that 61.9% had a home internet connection, while 27.7% reported that they accessed internet from school, 37.5% from friends' homes and 30.7% from internet cafes. Only 2.1% respondents reported using the library to access the internet (Atici and Bati, 2010). Data from Turkey also indicated that males preferred to use the internet cafes while females preferred to access the internet in private settings such as their homes or relatives homes (Topcu, Erdur-Baker and Capa-Aydin, 2008).

On the other hand in developing countries the youth have been reported to access the internet more from mobile phones. For example out of 152 youths aged 12 to 17 years who participated in a study that examined the use and impact of digital and social media among adolescents in

Kenya, it was found that very few young people (66) had access to computer, laptop or tablet with internet connection at home while almost all 150 participants reported having a mobile phone with internet, and 107 had access to a TV set. Most of the youth in the study reported a preference for accessing online social media via mobile phones, with access to audio and video content, SMS and MMS capabilities, multiple applications, internet access, cameras and access to an array of social networking applications. In addition to mobile phones, regular use of cyber cafés was also reported, especially when mobile phone screens are too small for a particular activity such as video games (InterMedia, Voices of the Youth CITIZENS, and UNICEF, 2013).

2.2.2 Frequency and Duration of Use

The frequency and amount of time spent using these technologies can also contribute to the type of content the youth are exposed to and how it affects them. Youth in the USA and increasingly around the world spend more time with the media than they do in school or with their parents, results of nationally representative surveys in the USA, indicated that the average adolescent (ages 12 to 18) was reported to spend 6 to 7 hours a day, hooked up to or plugged in to some kind of media such as a computer or TV (Brown, 2008). In Turkey the youth reported spending more than 5 hours a day on internet with males spending more time on internet than females (Uçanok et al., 2009). In the EU, the majority (53%) of the 9 to 16 years old children in the study of online activities of Kids were using internet few times a week, 33% used internet everyday or almost every day, 11% used it few times a month, and 4% used internet less often (Livingstone et al., 2011). On the other hand the study of 12 to 18 year old youth from Turkey reported that 34.1% of female and 41.1% of male students stated they access internet every day while 61% of female students, 32.1% male students stated they use SMS everyday (Topcu and Erdur-Baker, Erdur-Baker & Capa-Aydin, 2008). In the Kenya youth study, frequency of use of digital technologies and social media was also high with 42% of the respondents reporting that they access the internet 2 to 3 times a day and 24 % several times a day while 25% reported accessing internet once a day and only 9 % reported accessing 2 to 3 times a week (InterMedia,Voices of the Youth CITIZENS, and UNICEF, 2013). This means that more than 90% of the Kenyan youth in the study accessed internet every day.

Research also indicates that use of computers and internet is related to the education level with people with higher education (90.4%) being more likely to use computers and the internet while 71.8% high school graduates and only 15.3% primary school graduates use computers and internet (Uçanok et al., 2009).

2.2.3 Motivation to Use Digital Technologies and Social Media

The youth access and use digital technologies and social media for different reasons including communication, entertainment, information gathering and persuasion and self presentation (Martino, Collins and Shaw, 2012). The media has been reported as a preferred source of information on sexual and reproductive health for the youth, for instance a study that was done in Japan reported that high school and university students identified magazines and television as the most common source of sex related information followed by friends and acquaintances (Gurman and Underwood, 2008). Though some youth spend most of the time online doing school work (92%) significant proportions also spend their time doing other things such as watching music clips (49%), social networking (48%), reading and watching news (40%) and downloading music or movies (40%) (Livingstone et al., 2011). The Hecettepe University research, found that adolescents use mobile phones mostly for talking, sending and receiving SMS, listening to music, taking photos and playing games. It was also found that females use mobile phones for sending, receiving SMS, access internet and play games more than males. The study also found that the high school adolescents prefer internet for communication and socializing, and as age increases social networking and instant messaging becomes more important for them than other online activities (Ucanok, 2009).

Peer influence, self- presentation, and relationship formation are some of the processes that take place when the youth socialize and when these process take place online they occur differently compared to when they happen in a face to face situations because of the social distance that media affords. This social distance may thus lead to frank and helpful discussions of sexual health issues or it may lead to inappropriate or ill-advised disclosure of intimate information or feelings, such as sending of sexually suggestive messages or pictures which is commonly called sexting (Martino, Collins, and Shaw, 2012). Sexting is defined as sending, receiving, or forwarding sexually explicit messages, photographs, or images via cell phone, computer, or other

digital devices (Pittsfield, 2011). This is a phenomenon common among the youth, as results of a survey that was conducted in Washington DC showed, 20% of teenagers reported that they had sent or posted nude or seminude photographs or videos of themselves, (National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). The shared content may be of themselves in which case the message or picture is originally intended for a specific person, boyfriend or girlfriend, or in some cases the shared message is of somebody else, who is not aware, and once shared many of these images become distributed rapidly via cell phones or the internet. (O'Keeffe and Clarke-Pearson, 2009).

Another activity the youth commonly report doing when using the digital technologies and social media, is talking to and meeting strangers. A qualitative study that was conducted in 2010 with a sample of 524 Facebook users aged 9 to 16 years in three cities of Istanbul, Ankara, Izmir, half of the participants noted that they accepted friendship requests of only those people whom they knew, 33% said they only accepted the requests of their friends and their friends' friends and 15% said they accepted all friendship invitations. The research also showed that boys accepted the friendship requests of strangers more often than girls, and that older students tended to more frequently accept requests from all people, irrespective of whether they knew them or not, as compared to younger students. When asked what they would do when they get a message from a stranger on SNS, 44.8% said they never reply back, while 30.3% said that they reply if the message was appropriate, on the other hand 9% said they always reply back to messages from a stranger, with males and older respondents being more likely to reply back than females, and younger respondents (Cocuklarin, 2011).

2.3 Exposure to Sexual Content and Activities on Digital Technologies and Social Media.

As they are using digital technologies and social media the youth can also be exposed to images or messages containing sexual content which can influence their sexual behavior. Results of the EU kids study showed that 13% of the respondents reported seeing images containing sexual content on the internet, and of those exposed to such content, 46% reported that they were uncomfortable with the images. In addition, 14% of respondents reported receiving messages with sexual content, of whom 40% were uncomfortable with the messages and 4% reported having sent sexual content messages (Livingstone et al., 2011).

2.4 Sexual Behaviors among the Youth

Sexual behaviors of young people are important because of the possible reproductive health outcomes, and also because risky sexual behaviors such as unprotected sex and low and inconsistent use of condoms has been associated with HIV infection, (Oyediran et al., 2011). In a cross sectional analytical study of 1278 Nigerian males aged 15 to 24 years it was found that multiple sexual partners and early sexual debut are associated with STIs among adolescents and young adult males (Fatusi and Wang, 2009)

A survey that was conducted among in-and-out-of school adolescents in Tanzania found that one of the predictors of risky sexual behaviors among adolescents were being male as out of the 30% adolescents who reported being sexually active and the 2.5% who reported having multiple sexual partners, the larger proportion was male compared to females. The study also found that nearly 48% of the unmarried sexually active adolescents used a condom during their most recent sexual intercourse. Other predictors of risky sexual behavior were found to be young age (10-14 years) and being in school. Risky sexual behavior in this study was defined as having first sex before the age of 16, inconsistent condom use and having multiple sexual partners (Masatu et al., 2009).

2.4 Research Framework

2.4.1 Theoretical/Conceptual Framework

In this study the social learning theory by Albert Bandura, (1977) was used as a theoretical framework. The social learning theory by Bandura proposes that people can learn new information and behaviors by watching other people. The theory states that learning involves observation, extraction of information from those observations and making decisions about the performance of the behavior (Grusec, 1992). This type of learning which is called observational learning or modeling, has three basic models, a live model, which involves an actual individual demonstrating or acting out a behavior, a verbal instructional model which involves descriptions and explanations of a behavior, and a symbolic model which involves real or fictional characters displaying behaviors in books, films, television programs or online media. In addition to the observation of a behavior learning also occurs through the observation of rewards and punishments, a process known as vicarious reinforcement.

In this study sexual behaviors that the youth observe through digital technologies and social media from live models (e.g. peers, or celebrities), verbal instructional models (e.g. internet websites or messages) and symbolic models (e.g. film or TV characters on videos) on these media, can be learned and influence the youths decision to behave in the same way. Observation of rewards in terms of positive outcomes from the behavior (e.g. popularity, pleasure) or punishments in terms of negative outcomes (e.g. pregnancy, STIs, embarrassment, loss of popularity) will also determine if a behavior is learned or not. Figure 2.1 illustrates the research study conceptual framework modified from the model.

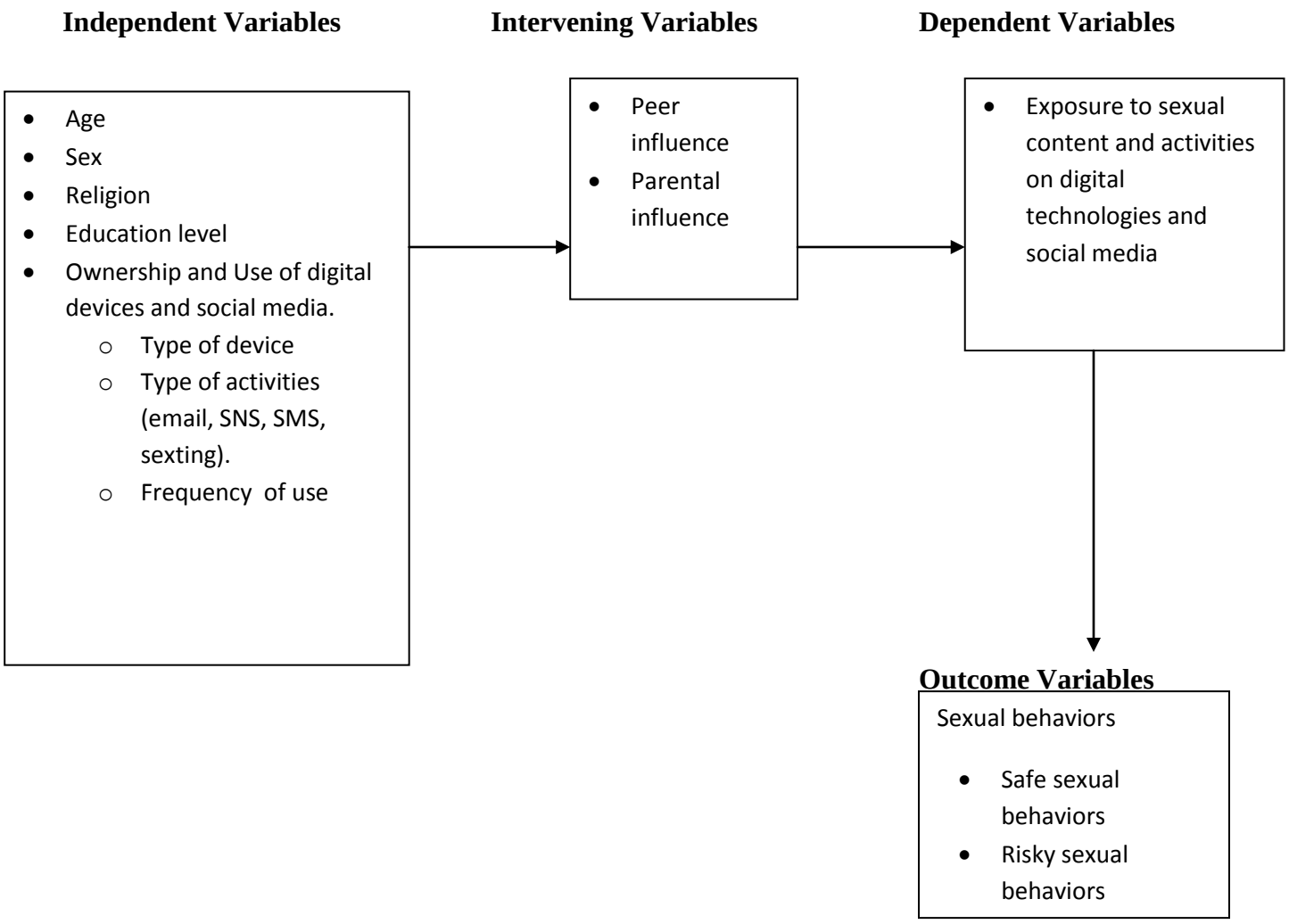

Figure 2.1: The Research Study Conceptual Framework.

CHAPTER THREE: METHODOLOGY

3.1 Study Design

A cross sectional descriptive study design was used with the aim of exploring the effects of the use of digital technologies and social media on sexual behaviors among undergraduate students aged 18 to 24 years from the College of Health Sciences (CHS).

3.2 Study Area

The study was conducted at the University of Nairobi's College of Health Sciences. The University of Nairobi is one of the public universities in Kenya, with a total of 6 constituent colleges. The CHS is one of the constituent colleges, and the focus of the study. The college has 4 schools namely, School of Nursing Sciences (SONS), School of Medicine, School of Dental Sciences and School of Pharmacy, where graduate and undergraduate courses are offered. Undergraduate programmes offered at the college include Bachelor of Medicine and Surgery (MBChB), Bachelor of Dental Surgery (BDS), Bachelor of Pharmacy (BPharm), and Bachelor of Science in Nursing (BSc), Bachelor of Medical Laboratory Sciences Technology (BSc) and Bachelor of Biochemistry (BSc). The total undergraduate population at the college was about 3532 students. Three schools of the college, the Schools of Medicine, Nursing, and Pharmacy are located within the premises of Kenyatta National Hospital (KNH) along the old Mbagathi road, off Ngong road in Upperhill area, Nairobi. The School of Dental Surgery is located in Upperhill area, along Ralph Bunche road off Valley road. Preclinical departments of the college are located at the University's Chiromo campus in Westlands area, Nairobi.

3.3 Study Population

Data was collected among undergraduate students at the CHS who were studying in the MBChB, BDS, BPharm, and BScN programmes.

This population was chosen because most of the students in the undergraduate programmes are within the youth age group of 18 to 24 years. The youth in this study were defined as male and female students aged between 18 and 24 years old. According to the information that was accessed from the College Registrar's office, there were 1735 students enrolled in the MBChB

programme, 215 in the BDS programme, 358 in the BSc Nursing programme and 489 students in the BPharm programme at the time of the study.

3.3.1 Inclusion Criteria

All students enrolled in the undergraduate MBChB, BDS, BPharm and BScN programmes from levels 1 to 4 at the College of Health Sciences aged between 18 years and 24 years, and consenting to participate in the study were eligible to participate in the study.

3.3.2 Exclusion Criteria

The criteria for exclusion in the study was those not enrolled in the MBChB, BDS, BPharm, BScN undergraduate programmes at the CHS and MBChB level 5 students, including those outside the age range of 18 to 24 years. Those meeting the inclusion criteria but not willing to participate in the study or sign the consent form were also excluded from the study.

3.4 Sample Size Determination

The sample size was determined using the formula recommended by Fisher et al 1998.

$$n = \frac{Z^2 P (1-P)}{d^2}$$

where: n = the desired sample size (when the population is greater than 10,000)

Z = standard normal deviation which is equal to 1.96 corresponding to the 95% confidence limit

P = prevalence of the issue under study (prevalence of 50% will be used as indicated by Mugenda and Mugenda 2003) = 0.5%

d = confidence limit of the prevalence (p) at 95% confidence interval = 1 -0.95 = 0.05

thus, $$n = \frac{1.96^2 \text{ X } 0.5 \text{ X } 0.5}{0.05^2}$$

n = 384

Since the target population was less than 10 000, the sample size was adjusted using the following formula: $nf = n / 1 + (n/N)$

Where: nf = desired sample size

n = sample size of population more than 10, 000 (calculated as 384)

N = estimate of the population size of undergraduate students from the College of Health Sciences (2797).

Therefore; $nf = 384/ 1+ (384/2797)$

$= 337.6 \approx 338$ students.

The minimum sample size therefore was 338 undergraduate students from the College of Health Sciences.

3. 5 Sampling Method

Stratified sampling and systematic random sampling techniques were used to recruit level 1 to 4 male and female students aged 18 to 24 years inclusive. A total population of 2, 797 students were enrolled in the BDS, BPharm and BSc Nursing programmes and levels 1 to 4 in the MBChB programme. Using this total population a minimum sample size of 338 was calculated using the formula suggested by Fisher et al, (1998). From the sample size determined (338) proportional allocation of participants was done based on number of male and female students in each level for each programme, so that the number of students selected from each level was proportionate to the distribution of students in the targeted population in the college. The number of participants that was sampled in each level in the 4 programmes is illustrated in the Table 3.1.

Table 3. 1: Number of Participants Selected from Each Programme.

	Gender	Population Size	% of Population	Sample Drawn
MBChB				
Level 1	F	282	10.1%	34
	M	394	14.1%	48
Level 2	F	191	6.8%	23
	M	163	5.8%	20
Level 3	F	170	6.1%	21
	M	189	6.8%	23
Level 4	F	160	5.7%	19
	M	186	6.6%	22
Total		**1735**	**62%**	**210**
BScN				
Level 1	F	85	3%	10
	M	83	3%	10
Level 2	F	30	1%	4
	M	27	0.9%	3
Level 3	F	47	1.7%	6
	M	24	0.9 %	3
Level 4	F	38	1.4%	5
	M	24	0.9%	3
Total		**358**	**12.1%**	**44**
BPharm				
Level 1	F	102	3.6%	12
	M	99	3.5%	12
Level 2	F	62	2.2%	7
	M	45	1.6%	5
Level 3	F	50	1.8%	6
	M	52	1.9%	7
Level 4	F	39	1.4%	5
	M	40	1.4%	5
Total		**489**	**17.4%**	**58**
DBS				
Level 1	F	51	1.8%	6
	M	46	1.6%	6
Level 2	F	23	0.8%	3
	M	20	0.7%	2
Level 3	F	15	0.5%	2
	M	14	0.5%	2
Level 4	F	25	0.9%	3
	M	21	0.8%	3
Total		**215**	**7.6%**	**27**
Grand Total		**2797**	**100%**	**338**

In each school, a list of names of students in each class was obtained and male and female students were arranged separately and numbers allocated to each name. The n^{th} student was calculated as 8 for all the classes in each school, as such the first student was selected from the first 8 students and then every 8^{th} student from that one was included in the sample until required number of participants as calculated was attained. If the 8^{th} student did not meet the inclusion criteria, the next student was considered. The expected sample size was 338 but the actual number of students who filled and returned the questionnaires was 331.

A total of 32 participants who did not participate in responding to the questionnaire were recruited to participate in 4 focus group discussions. One FGD was conducted in each school with eight participants who were purposively selected from each programme.

3.6 Recruitment and Consenting Procedures

3.6.1 Recruitment Procedures

Recruitment of participants was done through the class representatives who provided the class lists and facilitated appointments with the sampled students. Sampled students were informed that they were selected randomly. An explanation on the purpose, objectives and benefits of the study was given and students were invited to participate in the study. Informed consent was sought from the participants and those consenting to participate were then given the questionnaire to fill. Participants for the focus group discussions were recruited from among the students who did not participate in responding to the questionnaire. In each school two participants from each level, a male and a female student were requested to participate in the FGD by contacting the class representative to ask for volunteers.

3.6.2 Consenting Procedure

An explanation was given to sampled participants that participation in the study was voluntary, and they would not experience any physical harm if they chose to participate in the study. Apart from explaining to them, participants were given the informed consent form (appendix III) for them to read and sign if they consented to participate in the study. Consenting participants were then given the semi structured questionnaire to fill.

Participants recruited for the FGD were also given an explanation on the objectives, and benefits of the study and that they would not experience any physical harm due to their participation in the study. They were also given the participant informed consent form for FGD (appendix V) to read and sign if they consented to participate in the discussion before beginning the FGD.

3.7 Data Collection Procedures

After ethical clearance, permission to collect data from the college and an introductory letter were obtained from the College Principal. Sampled students from the 4 schools were invited to participate in the study and offered a semi structured questionnaire to fill until the required sample size for each school according to the level of study and sex had been achieved. Data collection was done from 12th to 27th June 2014. Out of a total of 338 students who consented to participate in the study, 331 completed and returned the questionnaires.

Four FGDs were conducted, one in each school, with a minimum of 8 participants for each FGD. The discussions were moderated by the researcher, guided by questions from an FGD guide (see appendix VI). During the focus group discussion a voice recorder was used to record the proceedings of the discussion. To ensure quality, before starting the discussion the recorder was tested by recording for a few minutes and playing back, and then after the discussion the recording was played back to check the quality of sound.

3.8 Variables

The independent variables in the study were age, sex, level of education, religion and ownership and use of digital technologies and social media. The dependent variables were exposure to sexual content and activities on digital technologies and social media, and sexual behavior.

The intervening variables were peer influence and parental influence.

3.9 Data Collection Instruments

A self administered semi structured questionnaire and an FGD guide were used to collect data in the study. The questionnaire had semi structured questions on demographic details of the participants, patterns of use of digital technologies and social media, exposure to sexual content, activities on digital and social media and sexual behaviors. The focus group discussion guide had questions that guided discussions on access and use of digital technologies and social media and

sexual behaviors among the youth. Both the questionnaire and the FGD guide were in English as the university students could speak and understand English since English is the language of instruction in the university. The study instruments were developed by the researcher with some questions adopted from the KDHS of 2008/09 and the InterMedia, Voices of the Youth CITIZENS, and UNICEF, 2013 Adolescents study. A voice recorder was used to record proceedings of the focus group discussions.

3.10 Pretesting of the Study Tools

The study tool was pretested at Kenya Medical Training College (KMTC) on 8 students aged 18 to 24 years in the basic nursing and Clinical Officer course who were selected using convenience sampling. Pretesting was done at KMTC because the students at KMTC had similar characteristics with students from the UON, CHS in terms of age and access to digital technologies and social media. Pretesting helped the researcher in testing the validity and reliability of the study tools. The results of the pretest were not included in the final analysis of the data.

3.11 Ethical Consideration

Clearance to conduct the research was sought and obtained from the Ethics and Research Committee of Kenyatta National hospital/ University of Nairobi (ERC KNH/UON). Participation in the study was voluntary. Consent was obtained from study participants before they were enrolled into the study and participants signed a consent form. Those wishing to withdraw from the study at any point during the course of data collection were allowed to do so. No names were used on the study tools instead serial numbers were used to ensure anonymity. The participants were assured of confidentiality and anonymity in the use of the study results and all information collected was treated with utmost confidentiality and used for study purposes only. The questionnaires, notes and recordings of the FGDs were kept in a safe place and only the researcher and statistician had access to them.

3.12 Data Management and Analysis

Quantitative data was entered using Excel and then analyzed using Statistical Package of Social Science (SPSS) software version 17.

Data cleaning was done to detect missed and misplaced data. This was done by checking all the questionnaires, for completeness and errors soon after data collection. Data validation and double entry was done to check and correct problems such as missed data, double entered data values or data entered in the wrong field. Finally during analysis data was checked to detect data transfer and extraction errors that could have occurred when transferring data from Excel to SPSS version 17 for analysis such as deleting or duplicating values.

Descriptive statistics were used to analyze characteristics of participants. Inferential statistics such as Chi square and one way ANOVA were used to establish relationships between variables. P value was set at 0.05. Attributable risk percent was used to measure effects of use of digital technologies and social media on sexual behaviors among the youth.

Qualitative data was analyzed manually using content analysis. The FGD notes and voice recordings were transcribed. Data was reviewed and categorized into themes and sub themes and then described according to the themes. Some of the reported statements by focus group participants were quoted verbatim.

3.13 Data Presentation

The analyzed data was presented in frequency tables, pie charts, cross tabulation tables, bar charts. Qualitative data was presented in descriptive form.

3.14 Study Limitations

A limitation of the study is that results of the study might not be generalized to the youth population in all universities and the general youth population because the study participants were just from one college and the sample was small.

Another limitation is that due to the design of the study the results can not establish a strong cause effect relationship between the use of technologies and social media and sexual behaviors of the youth.

3.15 Dissemination of Findings

The study findings were compiled, written and presented to the University of Nairobi for examination purposes. The findings were also presented to relevant stakeholders such as the management of College of Health Sciences, University of Nairobi, to aid in the implementation

of youth sexual and reproductive health services at the college. A manuscript was submitted to a peer reviewed journal for publication.

CHAPTER FOUR: RESULTS

This chapter presents findings of the study based on quantitative and qualitative data that was obtained from undergraduate students at the College of Health Sciences.

Out of the 338 students that were sampled to participate in the study a total of 331 filled and returned the questionnaires while 7 did not return the questionnaires hence the response rate was 97.9%.

4.1 Participants Social Demographic Characteristics

4.1.1 Age of Participants

The mean age of the participants was 21.07 years (SD 1.725), median 21.0 with an age range of 18 to 24 years. More than half of the participants, 57.1% (n= 189) were aged between 21 to 24 years while 42.8% (n=142) were in the age group of 18 to 20 years. There were only 16 (4.8%) participants aged 18years (Figure 4.1).

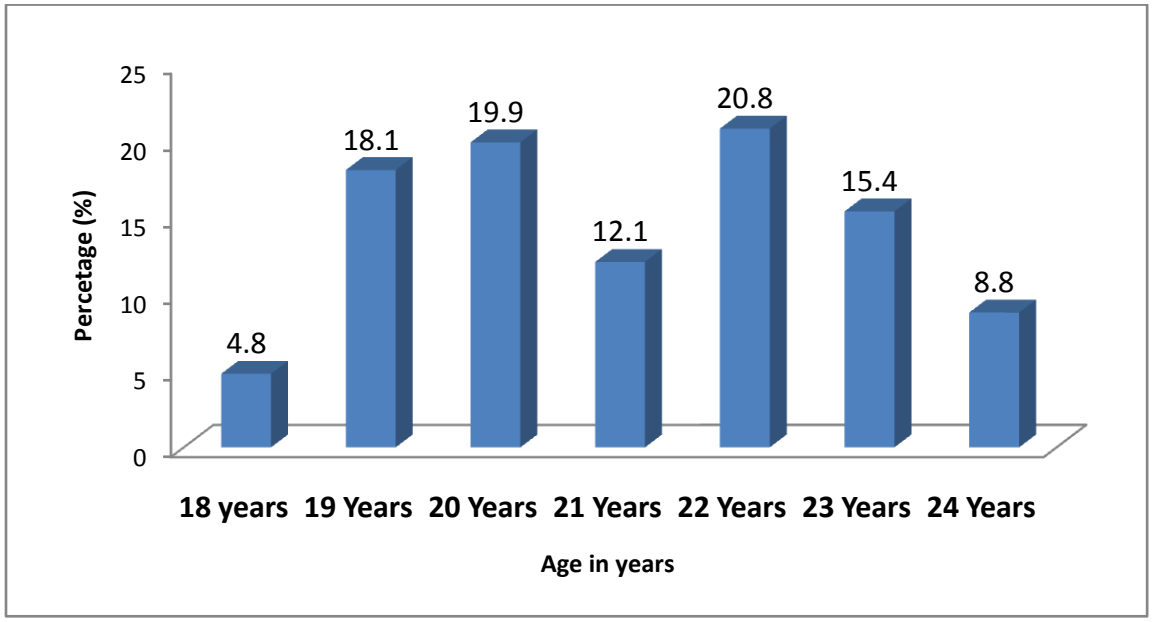

Figure 4.1: Age Distribution of Participants (n=331)

4.1.2 Gender of participants

There were more male participants (52.6%, n = 174) compared to female participants (47.4%, n = 157) in the study. On average male participants were older (mean age 21.3 years, SD 1.686) compared to female participants (mean age 20.8 years, SD 1.782).

4.1.3 Characteristics of Participants

As illustrated in Table 4.1, two hundred and two (61.0%) participants from the School of Medicine, 58 (17.5%) from the School of Pharmacy, 44 (13.3%) from the School of Nursing and 27 (8.2%) participants from the School of Dental Sciences participated in the study. Female participants were more than males in all the other schools except for the school of medicine where there were 113 (64.6%) males and 89 (57.1%) females who participated in the study.

The majority of students that participated in the study were in their first level (year) of study (41.7%, n =138), 65 (19.6%) were in level two, 68 (20.5%) in level 3 and 60 (18.1%) were in their level 4 of study.

The majority of the participants (71.3%, n=236) were single, 24.5% (n=81) were in a serious dating relationship, 3% (n=10) were engaged to be married and 0.9% (n=3) and 0.3% (n=1) were married and divorced respectively.

Most participants (74.9%, n= 248) were residing in the hostels, while 13.9% (n=46) were living with their parents or guardians, 10.3% (n=34) were living alone and only 3 (0.9%) were living with their boyfriends.

Most of the student who participated in the study (61.3%, n=203) said they were protestants by religion, followed by Catholics (18.7%), Adventists (14.2%) and Moslems (4.5%), with very few (0.6%) belonging to other denominations, as shown in Table 4.1.

Table 4. 1: Characteristics of Participants

	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
School						
Dental	14	8%	13	8.3%	27	8.2%
Medicine	113	64.6%	89	57.1%	202	61%
Nursing	19	10.9%	25	16%	44	13.3%
Pharmacy	29	16.6%	29	18.6%	58	17.5%
Level of study						
Level 1	76	23.0%	62	18.7%	138	41.7%
Level 2	32	9.7%	33	10.0%	65	19.6%
Level 3	34	10.3%	34	10.3%	68	20.5%
Level 4	33	10.0%	27	8.2%	60	18.1%
Residence						
Live alone	16	4.8%	18	5.4%	34	10.3
Live with their parents/guardians	24	7.3%	22	6.6%	46	13.9%
Live in hostels	134	40.5%	114	34.4%	248	74.9%
Live with boyfriend/girlfriend	1	0.3%	2	0.6%	3	0.9%
Relationship status						
Single	128	38.7%	108	32.6%	236	71.3%
Serious dating	41	12.4%	40	12.1%	81	24.5%
Engaged to be married	4	1.2%	6	1.8%	10	3%
Married	1	0.3%	2	0.6%	3	0.9%
Divorced	1	0.3%	0	0%	1	0.3%
Religion						
Catholic	29	8.8%	33	10.0%	62	18.8%
Protestant	110	33.4%	93	28.3%	203	61.7%
Moslem	8	4.6%	7	2.15%	15	4.6%
Adventist	25	7.6%	22	6.7%	47	14.3%
Other (Methodist)	1	0.3%	1	0.3%	2	0.6%

4.2. Patterns of Use of Digital Devices

4.2.1 Ownership and Use of Digital Devices

The most common digital device that was owned by participants was the laptop (70.3%, n=234) followed by cell phone with internet (60.1%, n= 199) and smart phones (44.1%, n=146). Only few participants 15.7% (n= 52) said they owned a desktop computer. Similarly when asked which devices they use, the majority of participants (77%, n = 255) mentioned the laptop computer, followed by cell phone with internet 58.5% (n = 195). Forty six point two percent (n =

153) of the participants said they use smart phones, 27.2% (n = 90) desktop computers, 20.2% (n = 67) tablet computers, and 19% (n= 23) said they use cell phone without internet, as illustrated in figure 4.2

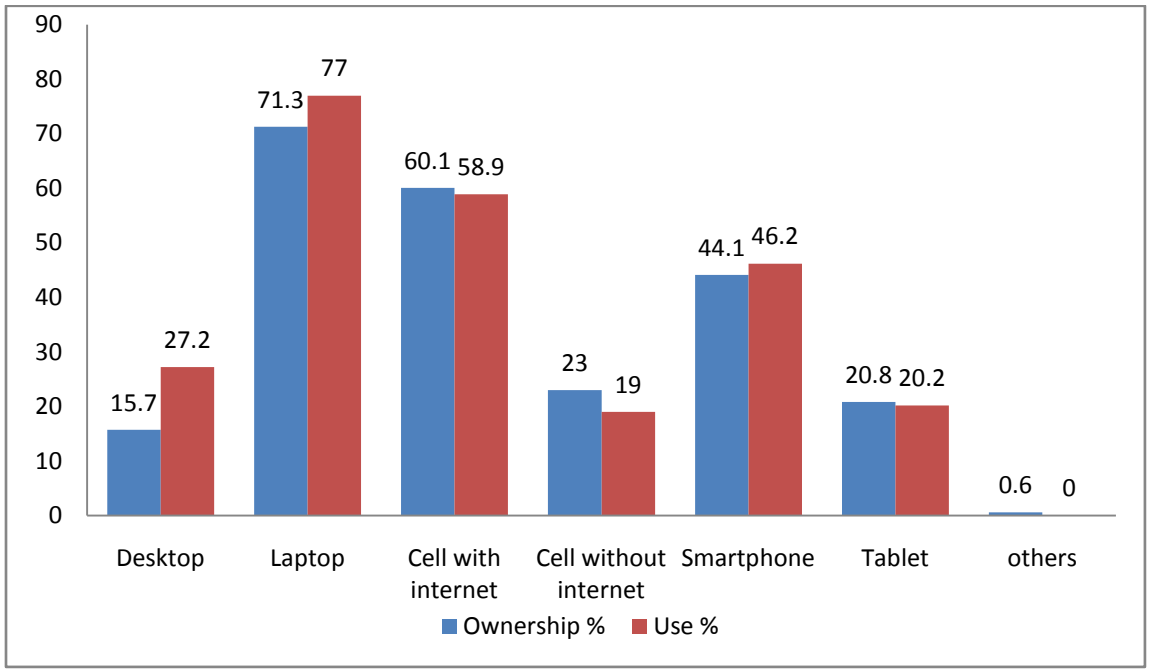

Figure 4.2: Participants Ownership and Use of Digital Devices (n= 331)

4.2.2. Frequency of Use of Digital Devices.

The most frequently used devices were laptops, cell phones with internet and smart phones compared to cell phones without internet, desktop computers and tablet computers. Most participants reported using laptops (57.4%), cell phone with internet (55%), and smart phones (42.3%) more than 3 times in a day. On the other hand, some participants reported never using the cell phone without internet (22.4%), desktop computer (22.1%) and tablet computers (19.9%), as shown in Figure 4.3.

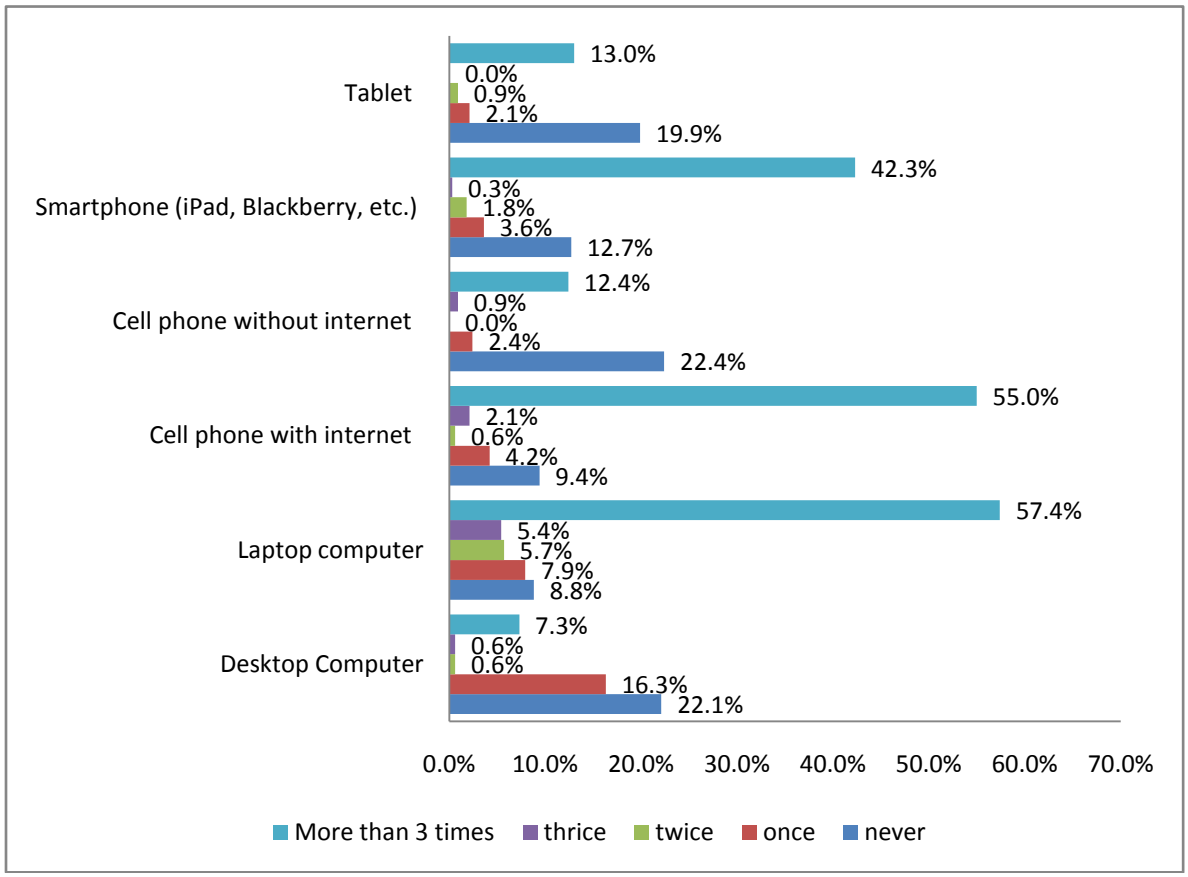

Figure 4.3: Participants Frequency of Use of Digital Devices in a Day (n = 331)

The amount of time spent using the devices in a day was varied with most participants saying they spend more than 5 hours a day (38.7%, n= 128), while some said they spend 4 to 5 hours (19.3%, n=64) and 2 to 3 hours in a day (19.6%, n=65) and few participants said they spend 30 minutes to one hour (13.6%, n=45) and less than 30 minutes in a day (8.8%, n=29) using their digital devices, Figure 4.4. Most participants who said they spend more than 5 hours in a day using their devices were male (23%, n= 76) compared to females (15.7%, n= 52).

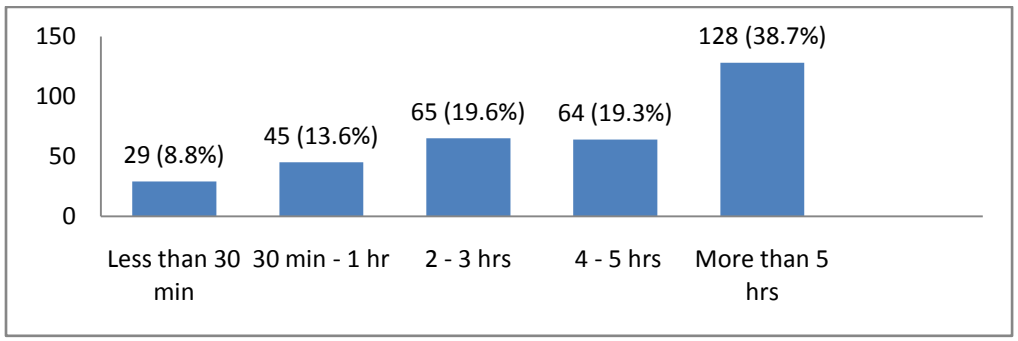

Figure 4.4: Amount of Time Spent Using Devices in a Day

4.2.3 Participants Use of Social Media

Out of the 331 students who participated in the study almost all (99.4%, n= 329)) said they had a profile on a social networking site. Most participants said they had a profile of Facebook (93.4%, n =309), while 16.9% (n = 56) mentioned other social networking sites such as WhatsApp, and Hi5. Only 3% (n =10) had a profile on Myspace.

Participants were further asked the frequency with which they visit the identified sites in a week, and close to half of the participants (46.2%, n= 153) said they visit the identified social networking sites everyday, 25.1% (n=83) said most days, while 18.4% (n= 61) said once a week and 2.7% (n= 9) said they never visit the sites. More male participants (27.8%, n= 92) said they visit their profiles every day compared to females (18.4%, n= 61).

4.3. Exposure to Sexual Content and Activities on Digital Technologies and Social Media

4.3.1 Activities Participants Engage in on Digital Technologies and Social Media

When asked what they had ever done on their digital devices and the social media sites, most participants said they had ever received sexually suggestive messages from someone (74.6%, n= 247). About half of the participants (43.5%, n= 144), said they had met a person in real life whom they had only met from social media. Forty one point four percent (n=136) said they had ever sent a sexually suggestive message to someone and 36.3% (n= 120) had accessed pornographic materials online. Some participants admitted to connecting with others online for purposes of virtual or real sex (10.6%, n= 35) and visiting explicit chat rooms (10.6%, n= 35), as illustrated in Table 4.2.

Table 4. 2: Participants Activities on Digital Technologies and Social Media.

Activity	**Males**	**Females**	**Total**
	No. (%)	**No. (%)**	**No. (%)**
Sent a sexually suggestive message to someone (email, IM, text, etc.)	74(22.4)	62 (18.7)	136 (41.1)
Posted a sexually suggestive message to someone's online profile (e.g. on Myspace, Facebook, etc.)	37 (11.2)	23 (6.9)	60 18.1)
Received a sexually suggestive message from someone (email, IM, text, etc	113 (39.6)	116 (35)	247 (74.6)
Shared a sexually suggestive message with someone other than the one(s) it was originally meant for.	49 (14.8)	43 (13)	92 (21.8)
Had a sexually suggestive message (originally meant to be private) shared with me	78 (23.6)	59 (17.8)	137 (41)
Met a person in real life you only met from social media	71 (21.5)	73 (22.1)	144 (43.5)
Accessed pornographic material online	67	53 (16)	120 (36.3)
Connected with others online for purposes of virtual or real sex	14	21 (6.3)	35 (10.6)
Visited explicit chat rooms (chat rooms for sex)	12	23 (6.9)	35 (10.6)
None of the above activities	18	12 (3.6)	27 (8.2)

4.3.2 People Who Participants Share Sexy Messages or Pictures/Videos of themselves with.

Participants who had ever sent or received sexy messages or pictures/videos of themselves were also asked to whom they had ever sent or who had sent the messages to them. Close to half of the participants (41.7%, n= 138) said they had ever sent sexually suggestive or nude/semi nude pictures or videos of themselves to their boyfriends or girlfriend and 34.7% (n = 115) said they had never sent sexy messages. Most participants who admitted ever receiving suggestive messages or nude/semi nude pictures/videos said they had received from their boyfriends or girlfriends (27%) and someone they had a crush on (26%), while few participants (13%) said they had received from someone they only knew online and very few (6%) from someone they just met.

4.3.3 Participants Reasons for Not Sending Sexy Pictures/Video of Self

To determine the factors that influence participants to engage in activities that lead to exposure of sexual content on the digital technologies and social media, participants were asked why they would be concerned about sending or posting sexy pictures of videos of themselves on the

internet. The majority said because it could hurt their reputation 70.1% (n = 232). More than half said because they might regret it later (58.6%, n= 194) and because it might make people think they are promiscuous in real life (51.7%, n = 171). A notable proportion also said it could disappoint their family (40.8%, n= 135) and because it could hurt their family's reputation (42.6%, n = 141). Very few participants (8.2%) said they already had a bad experience because of the activity, as shown in figure 4.4.

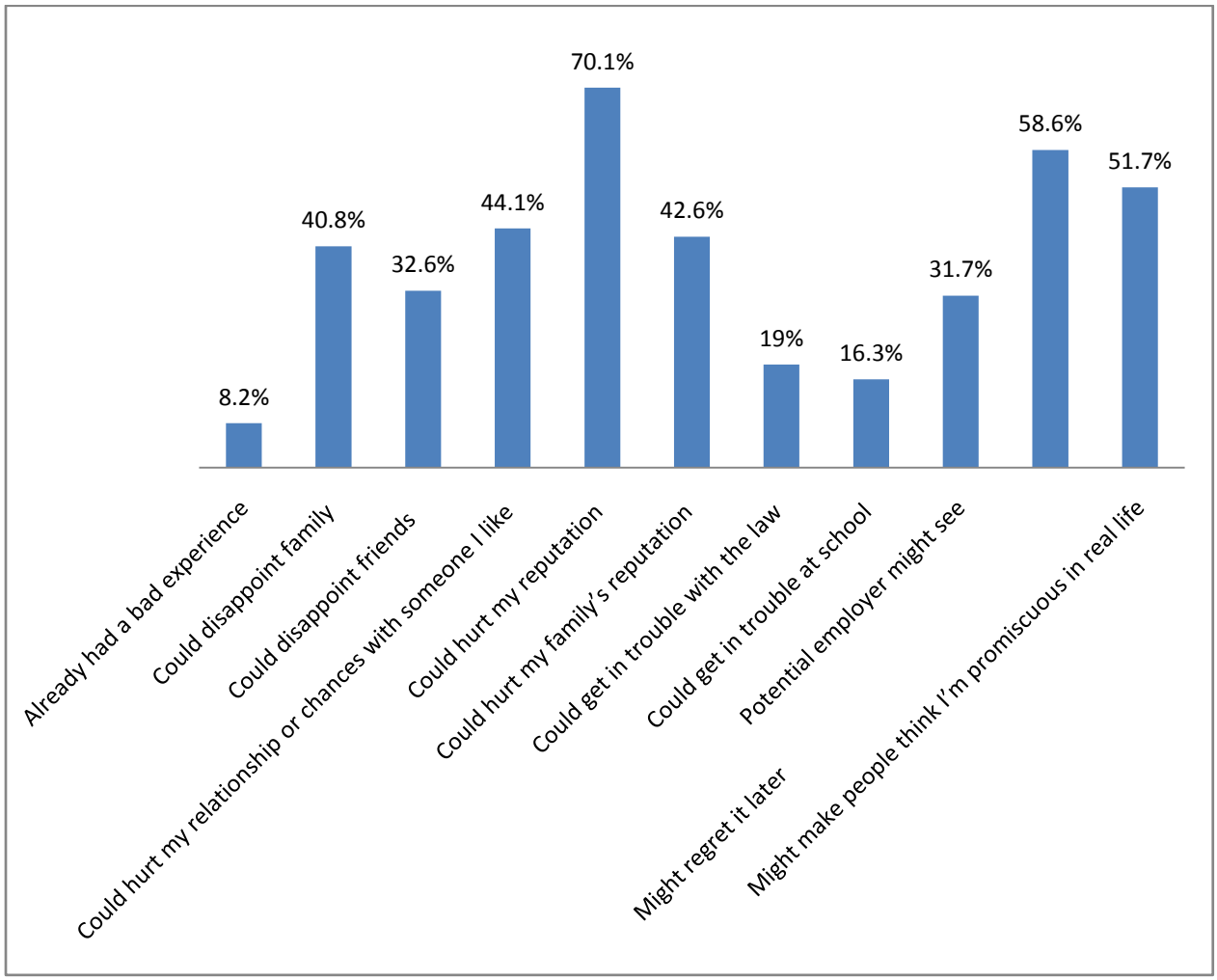

Figure 4.5: Reasons Participants would be Concerned about Sending or Posting Sexy Messages or Pictures/Video of themselves (N= 331).

4.4 Participants Sexual Behaviors

To assess participant's sexual behaviors and the influence of digital technologies and social media of their sexual behaviors participants were asked questions on sexual activity, age at first sexual encounter, number of sexual partners and use of condoms.

4.4.1 Age at First Sexual Encounter

Out of the 331 participants, 53.2% (n = 176) said they had ever engaged in sex, while 46. 8% had never engaged in sex. Out of the 176 who had ever engaged in sex, 96 (54.5%) were male and 80 (45.5%) were female. As shown in table 4.3, close to half (48.9%, n = 86), 48(27.2%) males, and 38 (21.6%) females of those who had ever engaged in sex had their first sexual encounter before the age of 16 years, and the rest (51.1% n =90) between the age of 16 and 19 years. The mean age at first sexual encounter was 16.02, with a standard deviation of 1.66 and the median age was 16.0. Minimum age at first sexual encounter was 14 years and maximum age was 19 years. Half of the participants who had engaged in sex (50%, n= 88) said the first time they had sex was because they wanted to experiment, 21% (n=37) said it was to show commitment to their partner while 15.3% (n= 27) and 11.4% (n= 20) said it was because of pressure from friends and boyfriend/girlfriend respectively. Very few participants (6.3%, n=11) said it was because they were modeling from digital media content, see table 4.3.The majority of participants who had ever had sex said it was with a boyfriend/girlfriend (81.3% n = 143), while 12.3% (n=22) said it was with a casual acquaintance and 6.3% n=11 said it was with a fiancée/fiancé.

Table 4. 3: Age at First Sexual Encounter and Reason for Engaging in Sex

		Male	Female	All
Age at first sexual encounter	Less than 16 yrs	48 (27.2%)	38 (21.6%)	86 (48.9%)
	16 yrs and above	48 (27.2%)	42 (23.8%)	90 (51.1%)
Reason for engaging in sex	Pressure from friends	19 (10.8%)	8 (4.5%)	27 (15.3)
	Pressure from boy/girlfriend	11(6.2%)	9 (5.1%)	20 (11.4%)
	Modeling from digital media content	7 (4%)	4 (2.4%)	11 (6.2%)
	To experiment	40 (22.7%)	48 (27.3%)	88 (50%)
	To show commitment to partner	21 (11.9%)	16 (9.1%)	37 (21%)
	Other	2 (1.1%)	2 (1.1%)	4 (2.3%)

4.4.2 Number of Sexual Partners in the Past 12 Months

The majority of participants (47.2%, n=83), 25.6% (n=45) males and 21.6% (n=38) females, who had ever had sex said in the last 12 months prior to the study said they had one sexual partner while 36.9% (n= 65) 22.7% (n=40) males and 14.2% (n=25) females had two and 6.8% (n= 12)

had more than two. Sixteen participants (9.1%) said they did not have a sexual partner in the last 12 months, see Figure 4.6.

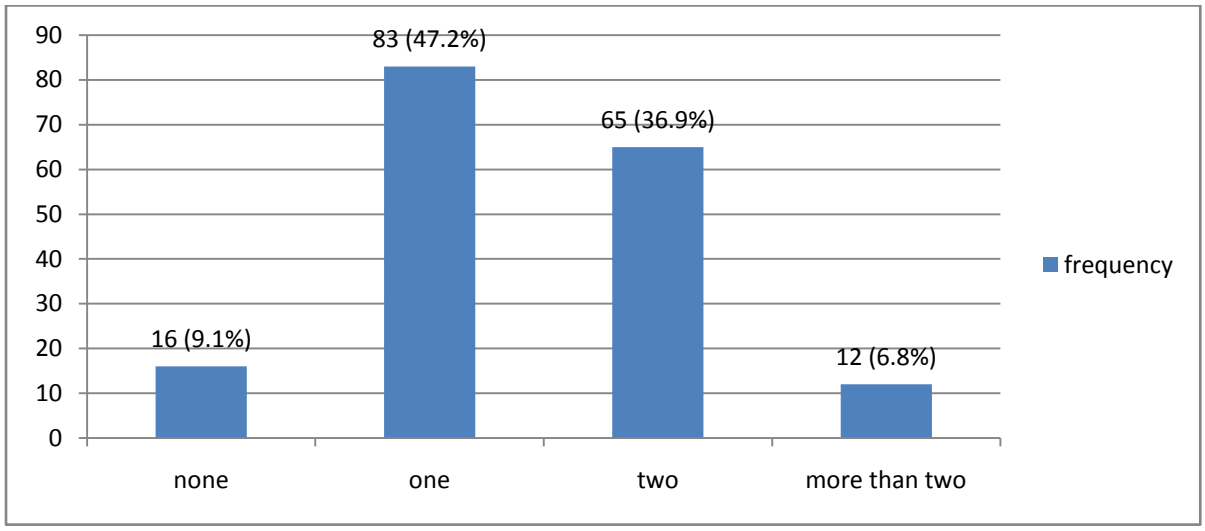

Figure 4.6: Participants Number of Sex Partners in the Last 12 Months (n = 176)

4.4.3 Use of Condoms among participants

Condom use was not very common among study participants. About half (51.1%, n= 90) of those who said they have engaged in sex admitted to not using a condom the last time they had sex, while 38.6% (n= 68) said they had used a condom and 10.2% (n= 18) said they did not know or remember whether a condom was used during their last sexual encounter. When asked if they had used a condom every time they had sex in the last 12 months, 53.4% (n = 94) of the participants said no while 46.6% (n= 82) said they had used a condom see figure 4.7.

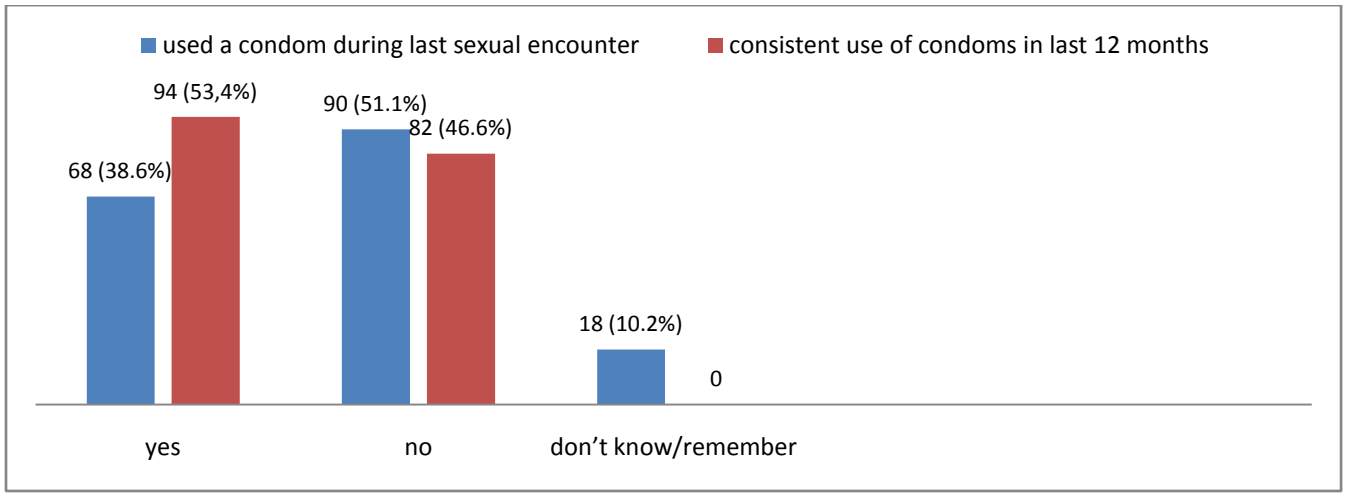

Figure 4.7: Condom Use among Participants.

4.5 Patterns of use of Digital Devices and Participants Characteristics

4.5.1. Participants Gender and Ownership of Digital Devices.

Table 4.4 illustrates the relationship between participant's gender and ownership of digital devices. The study results showed that there was a statistically significant relationship between participants gender and owning cell phone without internet as indicated by the Chi-square results ($p = 0.050$, $df = 1$, $\chi^2 = 3.525$), with more female participants (27.6 n=43) who reported having a cell phone without internet compared to male participants (18.9%, n= 33).

Table 4. 4: Gender of Participants and Owning a Digital Device

Device owned	Yes	No	df	χ^2	p-value
Desktop computer					
Male	30(17.1)	145(82.9)	1	0.576	0.448
Female	22(14.1)	134(85.9)			
Laptop					
Male	128(73.1)	108(69.2)	1	0.617	0.432
Female	47(26.9)	48(30.8)			
Cell phone with internet					
Male					
Female	106(60.6)	93(59.6)	1	0.131	0.859
	69(39.4)	63(40.4)			
Cell phone without internet					
Male	33(18.9)	142(81.1)	1	3.525	**0.050**
Female	43(27.6)	113(72.4)			
Smartphone					
Male	76(43.4)	99(56.6)	1	0.070	0.792
Female	70(44.9)	86(55.1)			
Tablet					
Male	31(17.7)	144(82.3)	1	2.207	0.137
Female	38(24.4)	118(75.6)			

4.5.2. Ownership of Digital Devices and level of Study

As illustrated in Table 4.5 a statistically significant relationship was established between owning a cell phone with internet and the level of study of participants ($p = 0.050$, $df = 3$, $\chi^2 = 7.800$). The majority of participants (71.7%, n=43) who were in their fourth level said they own a cell phone with internet.

Table 4. 5: Participants Level of Study and Ownership of Digital Devices

Type of Digital Device owned	Yes	No	df	χ^2	p-value
Desktop computer					
Level 1	25(18.1)	113(81.9)			
Level 2	10(15.4)	55(84.6)	3	2.092	0.553
Level 3	11(16.2)	57(83.8)			
Level 4	6(10.0)	54(90.05)			
Laptop					
Level 1	98(71.0)	40(29.0)			
Level 2	47(72.3)	18(27.7)	3	1.755	0.625
Level 3	45(66.2)	23(33.8)			
Level 4	46(76.7)	14(23.3)			
Cell phone with internet					
Level 1	87(63.0)	51(37.0)	3	7.800	**0.050**
Level 2	35(53.8)	30(46.2)			
Level 3	34(50.0)	34(50.0)			
Level 4	43(71.7)	17(28.3)			
Cell phone without internet					
Level 1	26(18.8)	112(81.2)	3	6.191	0.103
Level 2	12(18.5)	53(81.5)			
Level 3	18(26.5)	50(73.5)			
Level 4	20(33.3)	40(66.7)			
Smartphone					
Level 1	62(44.9)	76(55.1)	3	1.138	0.768
Level 2	25(38.5)	40(61.5)			
Level 3	32(47.1)	36(52.9)			
Level 4	27(45.0)	33(55.0)			
Tablet					
Level 1	25(18.1)	113(81.9)	3	3.897	0.273
Level 2	12(18.5)	53(81.5)			
Level 3	14(20.6)	54(79.4)			
Level 4	18(30.0)	42(70.0)			

4.5.3. Participant's Level of Study and Use of Digital Devices

The results of the study showed that the relationship between use of cell phone with internet and level of study was statistically significant ($p = 0.012$, $df = 3$, $\chi^2 = 10.833$). As illustrated in the cross tabulation in Table 4.6, the use of cell phone with internet was very common among level 4 participants as 70% (n=42) of the participants in level 4 of study said they use a cell phone with internet.

Table 4. 6: Participants Level of study and Digital Devices used

	Yes	No	Df	χ^2	p-value
Desktop computer					
Level 1	38(27.5)	100(72.5)	3	1.410	0.703
Level 2	18(27.7)	47(72.3)			
Level 3	21(30.9)	47(69.1)			
Level 4	13(21.7)	47(78.3)			
Laptop					
Level 1	106(76.8)	32(23.2)	3	0.991	0.803
Level 2	49(75.4)	16(24.6)			
Level 3	51(75.0)	17(25.0)			
Level 4	49(81.7)	11(18.3)			
Cell phone with internet					
Level 1	84(60.9)	54(39.1)	3	10.883	**0.012**
Level 2	40(61.5)	25(38.5)			
Level 3	29(42.6)	39(57.4)			
Level 4	42(70.0)	18(30.0)			
Cell phone without internet					
Level 1	22(15.9)	116(84.1)	3	3.419	0.331
Level 2	11(16.9)	54(83.1)			
Level 3	14(20.6)	54(79.4)			
Level 4	16(26.7)	44(73.3)			
Smartphone					
Level 1	58(42.0)	80(58.0)	3	4.100	0.251
Level 2	27(41.5)	38(58.5)			
Level 3	37(54.4)	31(45.6)			
Level 4	31(51.7)	29(48.3)			
Tablet					
Level 1	23(16.7)	115(83.3)	3	6.392	0.094
Level 2	11(16.9)	54(83.1)			
Level 3	14(20.6)	54(79.4)			
Level 4	19(31.7)	41(68.3)			

4.5.4. Gender of Participants and Frequency of Use of Digital Devices

Table 4.7 shows the comparison of frequency of use of digital devices between male and female participants. A significant difference was found in the frequency of use of the laptop computer between male and female participants as determined by one-way ANOVA ($F = 4.756$, $p= 0.030$). More male participants reported using the laptop more than 3 times in a day (60.1%) compared to their female counterparts, while more female participants reported using the laptop twice a day (73.7%) compared to males.

Table 4. 7: Gender of Participant and Frequency of Use of Digital Devices

Digital Device Used	Number of times in a Day	Gender		F	P-Value
		Male	Female		
Desktop	Never	128(51.4)	121(48.6)	0.026	0.872
	Once	34(63.0)	20(37.0)		
	Twice	1(50)	1(50)		
	Thrice	1(50)	1(50)		
	>three	11(45.8)	13(54.2)		
Laptop computer	Never	41(51.3)	39(48.8)	4.756	**0.030**
	Once	8(30.8)	18(69.2)		
	Twice	5(26.3)	14(73.7)		
	Thrice	8(44.4)	10(55.6)		
	>three	113(60.1)	75(39.9)		
Cell phone with internet	Never	72(56.3)	56(443.8)	0.866	0.353
	Once	7(50.0)	7(50.0)		
	Twice	1(50.0)	1(50.0)		
	Thrice	4(57.1)	3(42.9)		
	>three	91(50.6)	89(49.4)		
Cell phone without internet	Never	149(52.7)	134(47.3)	0.226	0.635
	Once	3(42.9)	4(57.1)		
	Twice	0(0.0)	2(100)		
	Thrice	23(59.0)	16(41.0)		
	>three	175(52.9)	156(47.1)		
Smartphone (iPad, Blackberry)	Never	94(52.5)	85(47.5)	0.177	0.674
	Once	5(41.7)	7(58.3)		
	Twice	2(40.0)	3(60.0)		
	Thrice	1(100)	0(0)		
	>three	73(54.5)	61(45.5)		
Tablet	Never	147(52.7)	132(47.3)	0.001	0.980
	Once	4(57.1)	3(42.9)		
	Twice	2(66.7)	1(33.3)		
	>three	22(52.4)	20(47.6)		

4.5.5 Participants Gender and Frequency of Activities on Internet

A one way ANOVA was conducted to compare the difference between participants' gender and the frequency of activities they engage in on the internet in a week. There was a statistically significant difference in the frequency of use of the internet for instant messaging between male and female participants ($F= 7.896$, $p = 0.005$), with more males using the internet for instant messaging more often in a week compared to females, see Table 4.8.

Table 4. 8: Gender of Participants and Frequency of Activities on Internet in a Week

Activity on internet	Number of times in a week	Gender		F	P-Value
		Male	Female		
Reading/ watching news	Never Once Twice Thrice Everyday	7(4.0) 3(1.7) 0 52(29.7) 113(64.6)	2(1.3) 2(1.3) 4(2.6) 41(26.3) 107(68.6	1.309	0.253
Instant messaging	Never Once Twice Everyday	7(4.0) 49(28.0) 2(1.1) 117(66.9)	5(3.2) 68(43.6) 4(2.6) 79(50.6)	7.896	**0.005**
Chatting	Never Once Twice Thrice Everyday	48(27.4) 2(1.1) 2(1.1) 8(4.6) 115(65.7)	47(30.1) 2(1.3) 2(1.3) 8(5.1) 97(62.2)	0.370	0.543
Accessing online journals	Never Once Twice Thrice Everyday	82(46.9) 25(14.3) 16(9.1) 13(7.4) 39(22.3)	67(42.9) 18(11.5) 15(9.6) 20(12.8) 36(23.1)	0.934	0.335
Social networking	Never Once Twice Thrice Everyday	99(56.6) 25(14.3) 44(25.1) 6(3.4) 1(0.6)	79(50.6) 30(19.2) 43(27.6) 3(1.9) 1(0.6)	0.274	0.601
E-mailing	Never Once Twice Thrice Everyday	24(13.7) 25(14.3) 10(5.7) 21(12.0) 95(54.3)	23(14.7) 23(14.7) 26(16.7) 1811.5) 66(42.3)	2.563	0.110
Downloading music or videos	Never Once Twice Thrice Everyday	118(67.4) 4(2.3) 2(1.1) 15(8.6) 36(20.6)	101(64.7) 4(2.6) 15(9.6) 7(4.5) 29(18.6)	0.26	0.871

4.5. 6 Participants Religion and Frequency of Activities on the Internet

A comparison of the frequency of activities on the internet per week with participants religion using one-way ANOVA showed a statistically significant difference in the frequency of internet use for social networking among participants from different religions (F= 2.441, p= 0.047), see Table 4.9. Tuckey's post hoc test indicated that Muslim participants use the internet for social networking significantly less often compared to Protestant, Catholic and Adventist participants.

Table 4. 9: Participants Religion and Frequency of Activities on the Internet

Activity	Number of times in a week	Religion				F	P-Value
		Catholic	Protestant	Muslim	Adventist		
Reading/ watching news	Never Once Twice Thrice >three	0 1(1.6) 0 22(35.5) 39(62.9)	8(3.9) 2(1.0) 3(1.5) 55(27.1) 135(66.5)	0 1(6.7) 1(6.7) 2(13.3) 11(73.3)	1(2.1) 1(2.1) 0 14(27.7) 33(68.1)	0.147	0.964
Instant messaging	Never Once Twice >three	1(1.6) 24(38.7) 1(1.6) 36(58.1)	9(4.4) 67(33.3) 4(2.0) 123(60.6)	0 6(40.0) 1(6.7) 8(53.3)	2(4.3) 20(42.6) 0 27(53.2)	0.586	0.673
Chatting	Never Once Twice Thrice >three	22(35.5) 1(1.6) 1(1.6) 5(8.1) 33(53.2)	53(26.1) 1(0.5) 3(1.5) 9(4.4) 137(67.5)	2(13.3) 0 0 1(6.7) 12(80.0)	17(36.2) 2(4.3) 0 1(2.1) 29(57.4)	1.935	0.104
Accessing online journals	Never Once Thrice >three Every day	32(51.6) 6(9.7) 7(11.3) 11(11.3) 10(16.1)	88(43.3) 27(13.3) 16(7.9) 22(10.8) 50(24.6)	8(53.3) 2(13.3) 1(6.7) 1(6.7) 3(20.0)	20(42.6) 7(14.9) 7(14.9) 3(6.4) 11(21.3)	0.651	0.626
Social networking	Never Once Twice Thrice >three	32(51.6) 10(16.1) 18(29.0) 2(3.2) 0	102(50.2) 36(17.7) 60(29.6) 3(1.5) 2(1.0)	14(93.3) 1(6.7) 0 0 0	28(57.4) 8(14.9) 9(19.1) 4(8.5) 0	2.441	**0.047**
E –mailing	Never Once Twice >three	9(14.5) 12(19.4)8(12.9) 5(8.1) 28(45.2)	32(15.8) 26(12.8) 18(8.9) 29(14.3) 98(48.3)	3(20.0) 2(13.3) 3(20.0) 1(6..7) 6(40.0)	3(16.4) 7(14.9) 7(14.9) 48.5) 28(55.3)	0.666	0.616
Downloading music or videos	Never Once Twice >three	38(61.3) 2(3.2) 2(3.2) 6(9.7) 4(22.6)	134(66.6) 6(3.03) 12(5.9) 12(5.9) 39(19.2)	8(53.3 0 1(6.7) 4(26.7) 2(13.3)	38(76.6) 0 2(4.3) 0 9(19.1)	*0.877*	0.478

4.5.7 Participants Activities on Social Media and Gender

Table 4.10 illustrates the comparison of participants' gender and activities ever engaged in on social media sites. The study findings show that there was a significant relationship between gender of participants and having a profile on a singles or dating site (F= 3.881, p = 0.050) and watching TV shows on line or MP3 player (F = 5.505, p = 0.020). More female participants reported that they had a profile on a dating site than their male counterparts. More male participants reported having ever watched television shows online than female participants

Table 4. 10: Gender of Participant and Activities Done on Social Media

Activity ever done on social media sites		Gender		F	P-Value
		Male	Female		
Viewing others profiles/pictures on social networking sites	Yes No	161(92.0) 14(8.0)	149(95.5) 7(4.5)	1.711	0.192
Have a profile on a dating or singles site	Yes No	21(12.0) 154(88.0)	31(19.9) 125(80.1)	3.881	**0.050**
View others profiles/pictures on dating /singles site	Yes No	42(24.0) 133((76.0)	52 (33.2) 104(66.7)	3.550	0.060
Have a personal blog	Yes No	39(22.3) 136 (77.6)	35 (22.4) 121(77.6)	0.001	0.974
Write / update a personal blog	Yes No	46(26.3) 129(73.7)	37(23.7) 119(76.3)	0.288	0.592
Regularly read others personal blogs	Yes No	104(59.4) 71(40.6)	85(54.5) 71(45.5)	0.819	0.366
Send / receive pictures or video on your cell phone	Yes No	119(68.0) 56(32.0)	108(69.2) 48(30.8)	0.058	0.810
Send / receive pictures or video on your computer	Yes No	89(50.9) 86(49.1)	76(48.7) 80(51.3)	0.150	0.699
Post photos or videos online	Yes No	71(40.6) 104(59.4)	71(45.5) 85(54.5)	0.819	0.366
Watch TV shows online or on your MP3 player	Yes No	101(57.7) 74(42.3)	70(44.9) 86(55.1)	5.505	**0.020**
Search for information on sexual health issues	Yes No	100(57.1) 75(48.1)	75(42.9) 81(51.9)	3.653	0.057

4.5.9 Participants Sexual Activity and Use of Digital Device

A one way ANOVA demonstrated that there was a statistically significant relationship between using the laptop computer and participant's sexual activity (ever engaged in sex). More participants who said they use the laptop computer had ever engaged in sex ($F= 5.108$, $p = 0.024$) compared to those who had never engaged in sex, while most of those who did not use the laptop had never engaged in sex, see Table 4.11.

Table 4. 11: Sexual Activity and Use of Digital Device

		Ever engaged in sex		F	P-Value
		Yes	No		
Desktop computer	Yes No	35(38.9) 120(49.8)	55(61.1) 121(50.2)	3.140	0.077
Laptop	Yes No	128(50.2) 27(35.5)	127(49.8) 49(64.5)	5.108	**0.024**
Cell phone with internet	Yes No	90(46.2) 65(47.8)	105(53.8) 71(52.2)	0.086	0.769
Cell phone without internet	Yes No	26(41.3) 129(48.1)	37(58.7) 139(51.9)	0.962	0.327
Smartphone	Yes No	75(49.0) 80(44.9)	78(51.0) 98(55.1)	0.547	0.460
Tablet	Yes No	32(47.8) 123(46.6)	35(52.2) 141(53.4)	0.029	0.864

4.5.10 Participants Sexual Activity and Activities on Digital Technologies and Social Media.

As illustrated in Table 4.12 there was a statistical significance between participants' activities on digital technologies and social media and whether they had ever had sex or not. More participants who said they had ever had sex also said they had ever sent a sexually suggestive message ($F = 15.504$, $p = <0.0001$), posted sexually suggestive message to someone ($F = 4.144$, $p = 0.043$), received a sexually suggestive message from someone ($F = 8.9$, $p =< 0.0001$), and shared a sexually suggestive message with someone ($F = 18.521$, $p = <0.0001$). In addition more participants who had ever engaged in sex also had a sexually suggestive message meant for someone shared with them ($F = 19.809$, $p<0.0001$), met a person in real life they only met from social media ($F = 19.634$, $p<0.0001$), accessed pornographic material online ($F = 21.464$, $p <0.0001$), and connected with others online for purposes of virtual or real sex ($F = 14.369$, $p = <0.0001$) compared to those who had never engaged in sex.

Table 4. 12: Participant's Sexual Activity and Activities done on Digital Technologies and Social Media.

Activities On Digital Device and Social Media		Sexual activity		F	P-Value
		Never had sex	Had sex		
Send a sexually suggestive message to someone	Yes No	31(22.89) 124(63.6)	105(77.2) 71(36.42)	15.504	<**0.0001**
Posted a sexually suggestive message to someone	Yes No	21(35.0) 134(49.4)	39(65.0) 137(50.6)	4.144	**0.043**
Received a sexually suggestive message from someone	Yes No	104(42.1) 51(60.7)	143(57.9) 33(39.3)	8.900	**0.003**
Shared a sexually suggestive message with someone	Yes No	26(28.3) 129(54.0)	66(71.7) 110(46.0)	18.521	<**0.0001**
Had a sexually suggestive message meant for someone shared with me	Yes No	40(29.2) 115(59.3)	97(70.8) 79(40.7)	19.809	<**0.0001**
Met a person in real life you only met from social media	Yes No	48(33.3) 107(57.2)	96(67.7) 80(42.8)	19.634	<**0.0001**
Accessed pornographic material online	Yes No	28(23.3) 127(60.2)	92(76.7) 84(39.8)	21.464	<**0.0001**
Connected with others online for purposes of virtual sex	Yes No	6(17.1) 149(50.3)	29(82.9) 147(49.7)	14.369	<**0.0001**
Visited explicit chat rooms	Yes No	11(31.4) 144(48.6)	24(68.6) 152(51.4)	3.747	0.540

4.5 .11 Effects of Participants Activities on Digital Devices and Social Media on Sexual Activity.

Attributable risk was calculated to determine the risk of sexual activity (ever had sex) among participants that may be attributed to participants activities on digital devices and social media. The results showed that the risk of having sex that can be attributed to sending sexually suggestive messages was 52.8%, followed by receiving sexually suggestive messages from someone (30.3%) and posting a sexually suggestive message to someone (22.2%), as shown in Table 4.13 below.

Table 4. 13: Attributable Risk Of sexual activity to Online Activities

Online Activity		Sexual activity		Attributable Risk	Attributable risk %
		Never had sex	Had sex		
Sent a sexually suggestive message to someone	Yes No	31 124	105 71	0.408	**52.8**
Posted a sexually suggestive message to someone	Yes No	21 134	39 137	0.144	**22.2**
Received a sexually suggestive message from someone	Yes No	104 51	143 33	0.170	**30.2**
Shared a sexually suggestive message with someone	Yes No	26 129	66 110	-0.257	-90.3
Had a sexually suggestive message meant for someone shared with me	Yes No	40 115	97 79	-0.301	-103
Met a person in real life you only met from social media	Yes No	48 107	96 80	-0.239	-71.6
Accessed pornographic material online	Yes No	28 127	92 84	-0.369	-157.9
Connected with others online for purposes of virtual sex	Yes No	6 149	29 147	-0.332	-193.6
Visited explicit chat rooms	Yes No	11 144	24 152	-0.172	-54.7

4.5.12 Gender of Participants and Reasons for Sending/Posting Suggestive Messages or Nude/Semi Nude Pictures/Videos of Self.

As illustrated in Table 4.14, one way ANOVA test demonstrated that there was a statistical significance between gender of participants and sending or posting suggestive messages or nude/semi nude pictures or videos of themselves to get a guy/girls attention (F=9.100, P= 0.003), because they were pressured to do so by a guy/girl (F=4.642, P= 0.032), as a sexy present for girlfriend or boyfriend (F=5.645, P=0.019), and to get positive feedback (F= 4.220, P = 0.041). Compared to female students, more male students said they had sent/posted suggestive messages or nude/seminude pictures of themselves to get a girls attention, because they were pressured, as a sexy present and to get positive feedback.

Table 4. 14: Gender of Participants and Reasons for Sending/posting Sexy Messages of Self

		Gender		F	P-Value
		Male	Female		
To get a guy/girls attention	Yes No	51(68.0) 124(48.4)	24(32.0) 132(51.6)	9.100	**0.003**
Pressured to send	Yes No	34(66.7) 141(50.4)	17(33.3) 139(49.6)	4.642	**0.032**
as a sexy present for boyfriend/girlfriend	Yes No	44(65.7) 131(49.6)	23(34.3) 133(50.4)	5.585	**0.019**
To feel sexy	Yes No	26(60.5) 149(51.7)	17(39.5) 139(48.3)	1.141	0.286
A a joke	Yes No	43(58.1) 132(51.4)	31(41.9) 125(48.6)	1.046	0.307
To get positive feedback	Yes No	36(65.5) 139(50.4)	19(34.5) 137(49.6)	4.220	**0.041**
To be fun/flirtatious	Yes No	56(57.1) 119(51.1)	42(42.9) 114(48.9)	1.017	0.314
To get noticed	Yes No	32(65.6) 142(50.7)	17(34.7) 139(49.3)	3.587	0.059
In response to one that was sent to me	Yes No	54(54.0) 121(52.4)	46(46.0) 110(47.6	0.073	0.787

4.5.13 Number of Sexual Partners in the Last 12 Months and Use of Digital Devices

As illustrated in Table 4.15, one way ANOVA showed that there was a statistical significance between use of the tablet computer and number of sexual partners participants had in the last 12 months before the study. Most participants who said they use the tablet computer also admitted to having 2 sexual partners in the last 12 months prior to the study.

Table 4. 15: Number of Sexual Partners in the Last 12 Months and Use of Digital Device

Device Used	No. of Partners	Yes	No	F	P-Value
Desktop computer	None One Two >Two	5(31.2) 31(37.3) 18(27.7) 1(8.3)	11(68.8) 52(62.7) 47(72.3) 11(91.7)	1.591	0.193
Laptop	None One Two >Two	11(68.8) 62(74.7) 47(72.3) 7(58.3)	5(31.2) 21(25.3) 18(27.7) 5(41.7)	0.493	0.687
Cell phone with internet	None One Two >Two	9(56.2) 53(63.9) 33(50.8) 10(83.3)	7(43.8) 30(36.1) 32(49.2) 2(16.7)	1.889	0.133
Cell phone without internet	None One Two >Two	3(18.8) 20(24.1) 10(15.4) 4(33.3)	13(81.2) 63(75.9) 55(84..6) 8(66.7)	0.948	0.419
Smartphone	None One Two >Two	9(56.2) 32(38.6) 30(46.2) 7(58.3)	7(43.8) 51(61.4) 35(53.8) 5(41.7)	1.023	0.384
Tablet	None One Two >Two	6(37.5) 11(13.3) 17(26.2) 1(8.3)	10(62.5) 72(86.7) 48(73.8) 11(91.7)	2.736	**0.045**

4.5.14 Number of sexual Partners and Participants Activities on Digital Technologies and Social Media

A one way ANOVA was conducted to compare the effect of activities on digital technologies and social media on number of sexual partners. As shown in table 4.16, a statistically significant relationship was observed between number of sexual partners and participants engagement in sending (F =3.364, p=0.020), posting (F =3.136, =0.027), receiving (F=3.886, P=0.010), and sharing (F=4.718, p=0.003) sexually suggestive messages from someone. Having a sexually suggestive message meant for someone shared (F=5.779, p=0.001), meeting a person in real life they only met on social media (F=5.126, -p=0.002) and accessing pornographic material online (F= 7.423, p= <0.0001) was also related to number of sexual partners. Most participants who had ever done these activities had more than 2 sexual partners in the last 12 months prior to the study, while the majority of those who had never done these activities had one sexual partner

Table 4. 16: Number of Sexual Partners and participants Activities on digital technologies and social media.

Activity		Number of Sexual partners				F	P-Value
		None	One	Two	>Two		
Send a sexually suggestive message to someone	Yes No	7(6.7) 9(12.7)	45(42.9) 38(53.5)	48(45.7) 17(23.9)	5(4.8) 7(9.9)	3.364	**0.020**
Posted a sexually suggestive message to someone	Yes No	3(7.7) 13(9.5)	11(28.2) 72(52.6)	22(56.4) 43(31.4)	3(7.7) 9(6.6)	3.136	**0.027**
Received a sexually suggestive message from someone	Yes No	15(10.5) 1(3.0)	59(41.3) 24(72.7)	59(49.3) 6(18.2)	10(7.0) 2(6.1)	3.886	**0.010**
Shared a sexually suggestive message with someone	Yes No	3(4.5) 13(11.8)	26(39.4) 57(51.8)	35(53.0) 30(27.3)	2(3.0) 10(9.1)	4.718	**0.003**
Had a sexually suggestive message meant for someone shared with me	Yes No	3(3.1) 13(16.5)	45(46.4) 38(48.1)	45(46.4) 20(25.3)	4(4.1) 8(10.1)	5.779	**0.001**
Met a person in real life you only met from social media	Yes No	5(5.2) 11(13.8)	38(39.6) 45(56.3)	47(49.0) 18(22.5)	6(6.3) 6(7.5)	5.126	**0.002**
Accessed pornographic material online	Yes No	3(3.3) 13(15.5)	37(40.2) 46(54.8)	47(51.1) 18(21.4)	5(5.4) 7(8.3)	7.423	**0.000**
Connected with others online for purposes of virtual sex	Yes No	3(10.3) 13(8.8)	10(34.5) 73(49.7)	16(55.2) 49(33.3)	0 12(8.2)	2.283	0.081
Visited explicit chat rooms	Yes No	0 16(10.5)	9(37.5) 74(48.7)	14(58.3) 51(33.6)	1(4.2) 11(7.2)	2.307	0.078

4.5.15. Effect of Use of Digital Devices on Number of Sexual Partners

Table 4.17 shows that the incidence of having more than one sexual partner that can be attributed to using the tablet is 18.6% and smart phone is 13.95%.

Table 4. 17: Attributable Risk of multiple sexual partners to Use of Digital Devices

	No. of Partners	Use of Device			
		Yes	No	Attributable Risk	Attributable risk %
Desktop computer	One or less Two and more	36 19	63 58	-0.134	-38.8
Laptop	One or less Two and more	73 54	26 23	-0.134	-38.8
Cell phone with internet	One or less Two and more	62 43	37 34	-0.157	-38.4
Cell phone without internet	One or less Two and more	23 14	79 63	-0.524	-284.3
Smartphone	One or less Two and more	41 37	58 40	0.066	**13.95**
Tablet	One or less Two and more	17 18	82 59	0.096	**18.6**

4.5.16. Consistency of Condom Use and Use of Digital Devices

Table 4.18 illustrates that there was a statistical significance between use of cell phone and consistent use of condoms in the last 12 months (F = 6.527, p = 0.002). Most participants who admitted using a condom with every sexual encounter in the last 12 months before the study also said they did not use the cell phone without internet.

Table 4. 18: Consistent Condom Use and Use of Digital Devices

		Device used			
	Condom used	Yes	No	F	P -Value
Desktop computer	Yes No Don't know	42(34.1) 13(27.7) 0	81(65.9) 34(72.3) 6(100)	1.750	0.177
Laptop	Yes No Don't know	88(71.5) 35(74.5) 4(66.7)	35(28.5) 12(25.5) 2(33.3)	0.117	0.890
Cell phone with internet	Yes No Don't know	77(62.6) 26(55.3) 2(33.3)	46(37.4) 21(44.7) 4(66.7)	1.266	0.285
Cell phone without internet	Yes No Don't know	19(15.4) 18(38.3) 0	104(84.6) 29(61.7) 6(100)	6.527	**0.002**
Smartphone	Yes No Don't know	51(41.5) 23(48.9) 4(66.7)	72(58.5) 24(51.1) 2(33.3)	1.008	0.367
Tablet	Yes No Don't know	25(20.3) 8(17.0) 2(33.3)	98(79.7) 39(83.0) 4(66.7)	0.463	0.630

4.5.17 Effect of Use of Digital devices on Use of Condoms

Table 4.19 shows the risk of not using condoms consistently (every sexual encounter in the last 12 months) that can be attributed to use of the different digital devices. The study results showed that the incidence of not using condoms consistently that can be attributed to use of laptop was 10.3%, cell phone without internet was 55.2%, and Smartphone was 19.6%.

Table 4. 19: Attributable risk of Inconsistent Condom Use to Use of Digital Devices

		Use of Device		Attributable Risk	Attributable risk %
	Condom used	Yes	No		
Desktop computer	Yes No	42 13	81 34	-0.059	-25.08
Laptop	Yes No	88 35	35 12	0.029	**10.3**
Cell phone with internet	Yes No	77 26	46 21	-0.061	-24.2
Cell phone without internet	Yes No	19 18	104 29	0.268	**55.2**
Smartphone	Yes No	51 23	72 24	0.061	**19.6**
Tablet	Yes No	25 8	98 39	-0.042	-17.6

4.6 Focus Group Discussion Results

A total of 4 focus group discussions with male and female students were conducted in each of the 4 schools of the College of Health Sciences. The groups were homogeneous for programme of study and 8 participants who were chosen purposively participated in each FGD. The following themes and subthemes emerged from the focus group discussions:

4.6.1 Types of Digital Devices Owned

Digital devices owned by participants include, cell phones with internet, smart phones, laptops, tablets Ipads and Macbooks. Participants said they do not own desktop computers but they sometimes use the ones in the college libraries and some use desktop computers from their homes.

4.6.2 Common Digital Devices used

Participants said they use the phone with internet, smart phones, laptops and tablets more compared to other devices.

> *"It depends on what you have, for example I have a phone with internet and a laptop but I mostly use the phone because it smaller and bundles are cheap. The laptop….. mostly for reading because I save all my notes there."* **Male participant No 6.**

> *"As for me I have a smartphone and a laptop computer. I use the phone more often than the computer because I have the phone with me all the time and I can do most of the things I do on the laptop using my phone…… except writing assignments of course…."* **Female participant No 20.**

4.6.3 Reasons for Preferring to Use Phones over Computers

Reasons that were given for preferring phones over computers for accessing the internet were that the phones are more portable, it is cheaper to browse the internet using the phone, and that it is easier to perform several activities at the same time (multitask) on the phone at the same time compared to the laptop.

The Cell Phone is Portable

The phones are preferred for accessing internet compared to the laptop or desktop computers because the cell phone is more portable hence more convenient as it can be used anywhere including when in the bus (in traffic jam). As one participant said:

> *"I use my phone more to access internet than my laptop because it is small as such it is more portable. I can use it anywhere anytime even when I am in the bus in traffic jam, I can access internet and chat with my friend on Facebook or WhatsApp" female participant No 22*

> *"It's easier to use the phone than the laptop, with the phone u can use it anytime and anywhere, in the bus, in class, even in the toilet".* **Female participant No. 22.**

The Cell Phone is Cheaper

Another reason for preferring the phone was that it is less expensive to browse the internet on the phone compared to the laptop using a modem as one participant said:

> *"There is no WIFI in the hostels and even here in school it is not always available, so it's easier to use the phone for internet than the laptop, because bundles on the phone are cheaper than with the modem."* **Female participant No. 16.**

> *Its cheaper to browse the net on the phone when you have data bundles because you can do lots of things on the net like listen to music, watch clips or chat with friends. On the computer you need more money to connect and download things… its expensive..* **Female participant No. 28**

The Cell Phone Allows Multitasking

Other reasons for preferring the phone and not the laptop computer were that internet connection is faster when using the phone compared to the laptop, they are able to multitask on the phone because they can be searching for information on internet and chat with friends on WhatsApp at the same time, and it is more private because nobody can know what you are doing on your phone compared to the laptop computer which has a wider screen.

"You can also multitask on the phone for example chatting on WhatsApp, facebook and even texting at the same time." **Male participant No. 15.**

4.6.3 Frequency of Use and Time Spent Using Digital Devices

The majority of participants said they spend most of their free time using internet on the phones, with a reported time range of 4 to 12 hours per day. The laptop is mostly just used for class work and reading. In all group discussions participants said they mostly use the laptop after class in the library or in the evening when they want to read.

Almost all FGD participants said they use the phone more frequently throughout the day even when in class if they have a chance. As one participant said;

"I am on my phone WhatsApping with my friends all the time. You kno.., sometimes the friends that you are with physically are busy with their own things, they don't want to chat so the only thing to is chat with those that are available online". **Female participant No. 28.**

"In a day I use the internet for an average of 7 hours, because for example if am not chatting with my friends then am searching for answers to something either on Google, or checking out the gossip about my friends on Facebook, so I use my phone almost all the time.**" Female participant No. 7.**

4.6.4 Activities on Digital Devices and Social Media Sites

Participants said they do a lot of activities with their devices such as communicating with friends, doing academic work, following current news, entertainment and social networking. Discussion participants mentioned Facebook, Twitter, Google+, Google search, Ball.com, You Tube, and as the sites they mostly visit on internet.

Communicating with Friends

Participants said they use their devices to communicate with friends through WhatsApp, Viber, Skype, text messages and calling,

"It *depends.., I use the phone mostly for communicating, like chatting on WhatsApp, or FB. These days I don't call a lot.., unless it's very important that I talk to someone, otherwise we just communicate on WhatsApp."***Female participant No 3**.

Academic work

Participants said they use their device for academic work such as reading notes and writing assignments on the laptop, watching tutorials on the internet using the phone or the laptop computers and searching for information on the internet foe assignments.

"The laptop we mostly use to write assignments and watch tutorials on YouTube." **Male participant No. 11**

"I sometimes use my phone to search for information on assignments given in class because the internet is faster than the WIFI on campus" **Female participant No.7**

Following Current News

Following what friends are up to on twitter and Facebook, reading news on current issues such as celebrity news, politics and crime, reading other peoples blogs are some of the activities that were mentioned by FGD participants

"I usually log on to twitter or Facebook read what my friends have posted or the comments they are making." **Female participant No. 25**

"Use my laptop to follow what's trending on internet e.g. world cup things. Also to search for information on different things on Google". **Male participant No 14.**

Entertainment

FGD participants said they use their devices for entertainment such as downloading and listening to music and watching videos on you tube.

"I use my laptop to download videos clips, music….., **Male participant No 14**

I use my phone to listen to music almost all the time whether on the bus or walking on the road…, **Famale participant No. 4**

Some people use their laptops or phones to watch movies especially pornographic videos… **female participants No. 23**

Social Networking

Most young people use the internet to find new friends. Focus group participants said, the practice of posting pictures and videos of self online is common among young people as they try to get noticed in order to make new friends.

"Girls mostly post pictures of themselves on FB so that guys can notice them, ... they want to get hooked. Guys go online to hook up with girls, while girls go to get hooked." **Male participant No. 18.**

On the same topic most participants said that it is not very common for people who have only met online to meet in real life unless they already knew each other in the past because most young people do not use their real name and identity when creating profiles on internet sites.

"I have heard that some people make friends online with people from other countries and then meet and start a relationship but that is not common here…. You might start communicating with someone you already know in real life on FB just as an ice breaker… you know…. Then you move on to become lovers" **Male participant No. 14.**

4.6.5 Exposure to Sexual Content and Activities

Sending and Sharing Sexy Messages and Content

Sending, posting and sharing of sexually suggestive messages, picture and videos are other activities that are common among young people. Focus group participants said it is very common for people their age to send or share sexually suggestive messages or nude/seminude pictures or videos on the internet especially using WhatsApp on their phones. In all the discussions participants said that males are the ones who like sharing or posting messages to other people.

"Most of the times people forward messages with pictures or videos that are explicit to each other, so when you receive you also forward to your friends just to have fun." **Famale participant No. 12.**

"*People like sending sexy messages to each other especially on WhatsApp but most of the videos are downloaded from internet …"* **Male participant No. 19.**

Some of the reasons given for doing this were to show off to their friends that they have a girlfriend for example and as a security measure.

"Sometimes guys share sexually suggestive pictures for example of their girlfriends with others is to show off to their friends" **Female participant No. 22.**

"Sometimes you might share your girlfriends with your friends as a security measure so that everybody knows that she is yours" **Male participant No. 14.**

Participants also said that it is very common for male participants to ask their girlfriends or friends they just know online to send sexy pictures, as one participant said:

some guys are very straight, you start communicating with them and within no time at all they will ask you straight, without beating about the bush that I want to see your …eh..yes.. (nude picture)". **Female participant No. 2.**

Accessing Pornographic Material

Participants also said that another common activity young people engage in on the internet is accessing pornographic materials such as videos, pictures, and books.

*"There are some guys who are so much into pornography they just keep downloading porn pictures or movies on their phones all the time … its like they are addicted."***Female participant No. 26**

4.6.5 Participant's Perceptions on Use of Digital Technologies by Young People Their Age

Focus group participants generally agreed that the sexual pictures and videos that people access on line affect their behaviors in real life, especially people who watch pornographic videos and pictures. Participants said that some young people become addicted to pornography while some even end up committing crimes such as rape because of watching too much sexual content.

> *"Some guys are so much into pornography so that they become addicted as such they can not have proper relationships with girls …"* **Male participant No 15.**

> *"I know of a guy who is almost always watching pornography on his phone….. sometimes if you get his phone you just find pictures of naked girls…. He is ever watching such things on his phone."* **Male participant No. 8**

On a positive note some participants said that the sexual content that is accessed online also plays a part in teaching young people about sexual matters because there is no forum where they can get facts about sexuality freely.

> *"I think the internet and social media have their positive side, because we are able to learn a lot about sexual issues which parents or teachers do not teach us, because in most families sex topics are taboo, you can't talk about them, but when we Google on the internet we get all the answers"'* **Male participant No. 1.**

CHAPTER FIVE: DISCUSSION

The purpose of this study was to explore the effects of use of digital technologies and social media on sexual behaviors among the youth. A total of eighty 331 students from the College of health sciences at the University of Nairobi participated in the study and responded to questions related to the types of digital devices they own and use, the frequency of use of the digital devices and social media, the activities on digital devices and social media they engage in and their sexual behaviors..

A total of 331 students consented and participated in this study. The majority of students in the study were single, and most of them were residing in the students hostels (74.7%), while 10.3% were living alone and 13.9% were living with their parents or guardians. This shows that most of the students were living away from home as such away from the direct influence of their parents or guardians.

5.2 Patterns of Use of Digital Technologies and Social Media

5.2.1 Ownership and Use of Digital Devices

The most common digital device that students in the study owned and used was the laptop, followed by the cell phone with internet and smart phones. These are devices that can also be used to access internet. The desktop computer, tablet and cell phone without internet were not very popular among the participants in terms of both ownership and use. This was also collaborated by FGD results whereby almost all participants across all FGDs said they owned laptop computer and a cell phone with internet or a smart phone and a few said they had a tablet while none said they had a cell phone without internet. This shows that the majority of students at the college own and use digital technology devices which can be used to access internet. This is similar to findings of a study by Okinda (2012) which found that the majority of university students owned a personal laptop computer or had access to computers provided in the university libraries. However though the cell phone without internet was not very popular among the students in terms of both ownership and use, the study found that there was a significant relationship was between being female and owning a cell phone without internet as most of those who said they own a cell phone without internet were females. This could be because male youth

prefer devices that they can use to access internet compared to females, just as findings of a study that was done in Turkey among high school students aged 12 to 18 years showed that a large proportion of the high school students owned a computer (71.4%) and mobile phones (80.2%) that they were using to access internet (97.9%) with males students having a higher (6% higher) ownership than females (Topcu and Erdur-Baker & Capa-Aydin, 2008). This is also similar to findings of a survey among American adults aged 18 years and above which found that more males (80%) than females (76%) were using the internet (Zickuhr and Smith 2012). In addition ownership and use of cell phones with internet was shown to be more among students in their 4th level/year of study across all programmes. This may be because senior students prefer to access internet on their phones, probably because they are portable and easier to use as was explained by the FGD participants who said that they prefer using cell phones with internet because they are portable and cheaper to use for accessing internet compared to computers. The American survey by Zickuhr and Smith (2012) also showed that internet use increased with educational attainment as 94% of college graduates were using internet compared to 88% of those with some college experience.

5.2.2 Frequency of Use of Digital Devices

The frequency with which the digital devices are used can also contribute to the type of content and activities the youth engage in or are exposed to and how it affects them. Devices that were most frequently used by students are the laptop, cell phone with internet and smart phone, with female participants using laptops more frequently than male participants. Focus group results also showed that students use cell phones with internet and smart phones more often compared to other devices. This could be explained by the ease of access of the devices and type of activities the participants are able to do on the devices. As the study revealed, most students in the study said they own laptops, cell phones with internet and smart phones. These devices are mobile and allow users to do more activities such as calling, texting, and accessing internet. This could be the reason they are used more often by the students compared to other devices, just like a survey of South East Asian consumers found that ownership of mobile devices for accessing internet was high among participants compared to stationary devices as 78% of the study participants owned internet capable phones compared to 31% who owned desktop computers (The Neilsen Company 2011). In addition most students who participated in the study said on average they

spend more than 5 hours in a day using their digital devices. This is similar to results of a study that was done in the United States which reported that the average adolescent (ages 12 to 18) was reported to spend 6 to 7 hours a day using digital media such as computers or TV (Brown 2008). A comparison between males and females also revealed that more male participants spend more than 5 hours using their devices compared to their female counterparts. Similarly other studies have also shown that males use digital devices more frequently compared to females, for example, although the frequency of use was not reported, a study by Ucanok et al. (2009) in Turkey also found that the youth in the study spent more than 5 hours in a day on internet, with males spending more time than females (Ucanok et al., 2009). Another study from Turkey also found that more male students (41.1%) stated that they use their devices to access internet everyday compared to female students (34.1%) (Topcu and Erdur-Baker & Capa-Aydin, 2008).

The youth spend most of their time on the internet doing different activities such as communicating, entertainment, information gathering and persuasion and self presentation (Martino, Collins and Shaw 2012). Some of these activities can influence their behaviors including sexual behaviors. It was revealed in this study that instant messaging followed by reading or watching news, chatting and downloading music or videos were most frequently done activities by the students who took part in the study. This was consistent with findings from the focus group discussions which showed that students use the internet to communicate with friends, read current news on celebrities and politics, follow what their friends are doing on Facebook and Twitter, and download music and videos among other things. Livingstone et al. (2011) reported that apart from doing academic work, significant proportions of the youth spend their time doing other things on internet such as watching music clips (49%), social networking (48%), reading and watching news (40%) and downloading music or movies (40%). The current study also established a significant relationship between instant messaging and gender of participants as more male participants were found to use the internet for instant messaging on a daily basis compared to females. FGD findings also showed that students spend most of their free time on internet chatting with friends on Facebook and WhatsApp. This indicates that communication is a common activity that the students use their devices for. Similar results were reported from an exploratory study by UNICEF that was done in Indonesia which found that more males (60%) were using social networking sites such as facebook for communication than females (UNICEF, Beger, Hoveyda, and Sinha, 2012). It was also revealed in this study that

compared to students from other religions, more Moslem students never used the internet for social networking. This could be because of the conservative nature of the Moslem religion.

5.2.4. Exposure to Sexual Content and Activities on Digital Devices and Social Media

The social media plays a big role in the sexual socialization of the youth (L'Engle et al 2006). Facebook is one of the most common social networking sites (SNS) as evidenced by results of the study which showed that almost all the students (93.4%) had a profile on Facebook, though less than half said they visit the profile every day. This means that although most students have Facebook profiles not all of them are frequently active on the site.

Peer influence, self- presentation, and relationship formation are some of the processes that take place when the youth socialize online. The social distance created online can lead to frank and helpful discussions of sexual health issues or it may lead to inappropriate or ill-advised disclosure of intimate information or feelings (Martino, Collins, and Shaw, 2012). Findings of this study showed that few students from the college use the social media for self presentation and relationship formation as fewer than half of the study participants reported ever posting videos or photos online or using a dating or singles site. Interestingly the results show that more females admitted having a profile on a dating or singles site than males, and more female students who were enrolled in the BSc in Dental Surgery programme had ever viewed other peoples profiles on a dating or singles site compared to their male counterparts. This could be because females are less forward in formation of relationships hence they find it easier to use the internet to meet new people. Often young people find that creating an online relationship seems easier than creating face-to-face relationships, because they can be bolder with online friends they don't know in real life, and not be reprimanded, as they might be in face-to-face communication among those they know (InterMedia, Voices of the Youth CITIZENS, and UNICEF 2013). On the other hand viewing other people's profiles on SNS, sending and receiving pictures or videos on their phones were the common activities among participants in the study. These are activities that can expose the participants to sexual content and lead to risky sexual behaviors, as it was reported in a study by Ward, Day and Epstein (2006) that exposure to sexual content in the media was associated with increase in sexual risk behaviors among youth such as earlier sexual initiation, more sexual partners, and higher risk of pregnancy or STIs.

Searching for information on sexual health issues was also common among participants in the study. This implies that just like other youth prefer and find it easier to learn about sexuality from the media, students from the college of health sciences also access information on sexual issues from the media including the internet which although it offers an accessible source of information on sexuality and has liberated the youth from dependence on parents, schools, or other resources of sexuality information, presents new problems by offering few clues as to which sexual behaviors are appropriate, respectful, and safe (Brown 2008). The majority of students who participated in the study said they receive sexually suggestive messages or pictures, while about half send such messages. Most participants said they receive or send such messages from their girlfriends or boyfriends. While some said they send to people they want to hook up with. This shows that participants in the study are exposed to sexual content and activities on their digital devices and social media. More male participants compared to females said they had sent/posted suggestive messages or nude/seminude pictures of themselves to get a girls attention, because they were pressured, as a sexy present and to get positive feedback. This is different from what FGD participants said that males are the ones who usually request or initiate the exchange of semi nude pictures from their girlfriends or girls they would like to date and not females. In regards to sexual activity, a significant relationship was observed between ever having sex and sending, receiving and sharing sexually suggestive messages, whereby participants who did these activities on digital technologies and social media also had ever engaged in sex. The attributable risk percentage also showed that the effects of sending sexually suggestive messages using digital technologies and social media on participants sexual activity was more that 50%, while receiving and sharing sexually suggestive messages may also affect participants sexual activity by 22.2% and 30.2% respectively. However it was not possible to establish from the study results whether the online activities are the ones that lead to the sexual activity or vice versa.

Young people see social media platforms as incredible resources for making new connections and new friends (InterMedia,Voices of the Youth CITIZENS, UNICEF 2013). About half of the participants in the study said they had met a person in real life they only met from social media. This was also expressed by participants in the FGDs who mentioned making new friends and relationships as one of the motivations for using social media. The Kenya study on use and impact of digital and social media among adolescents also found that older and more proficient

users of the internet among young people could go as far as meeting with some of the previously unknown friends and romantic partners they had met online, as 42 out of 152 young people who participated in the study had met someone in real life whom they only knew online, through social media or through online youth organizations.

Though not a common activity some participants also said they had accessed pornographic materials online, connected with others for purposes of virtual or real sex and visited chat rooms for sex on internet. Similarly FGD participants also said watching pornographic movies and pictures on digital devices and social media is common among young people of their age and people who view sexual content such as pornographic videos or pictures on their devices are more likely to engage in sexual activities in order to try out what they see on the video. This is similar to findings of a national survey in the USA which found that most adolescents had internet access at home and 70% of them reported being exposed to internet pornography (Brown, 2008). Another study of 813 university students from across the United States, also found that 87 percent of the men and 31 percent of the women in the study reported seeking out pornography (Carroll, Padilla-Walker, Nelson, et al., 2008).

About one third of the participants in the study said they had never sent a suggestive message or a seminude or nude picture or video of themselves. Reasons given for concern about sending or posting sexy pictures of themselves on the internet, were that it could hurt their reputation, some said because they might regret it later, and because it might make people think they are promiscuous in real life. A notable proportion was also concerned because it could disappoint their family and it could hurt their family's reputation. This shows that apart from considering what their friends and other people might think about them parental or family influence also plays a part in determining the activities of the youth on internet.

5.3. Effects of Using Digital Technologies and Social Media on Sexual Behaviors

5.3.1. Sexual Activity

More than half of students who participated in the study had ever engaged in sex and almost half of them mostly males had their first sexual encounter before the age of 16 years. Masatu at al. (2009) in their study of the youth in Tanzania defined having sex before the age of 16 as a risky sexual behavior. Early sexual debut puts the youth at a higher risk of problems such as early and

unwanted pregnancies and STIs including HIV and AIDS because at that age they are not mature enough to make decisions about their reproductive life. Most participants said they had sex the first time because they wanted to experiment while very few said they were modeling from digital devices and social media. This shows that participants do not perceive their sexual actions as being influenced by the content and activities that they engage in on their digital devices and social media. A significant relationship was observed between use of the laptop computer and sexual activity, with most participants who said they had ever engaged in sex also saying they use the laptop computer. In addition the results also showed that there was a relationship between accessing pornographic materials using digital devices and social media and participants sexual activity, as more participants who had ever had sex also had accessed pornographic materials. This is in line with what was suggested by Brown, Keller and Stern (2009) that prior sexual experience and motivations can influence the type of activities that young people engage in on the internet, with those that are sexually active preferring sexual content including pornography and those accessing sexual content also being the most likely to have sexual relationships. Similarly a study by Brown and Newcomer (1991), found that junior high school students who watched television with more sexual content were more likely to have initiated sexual activity than those who watched less sexual media content (Brown, 2008). However accessing pornographic materials was shown to have a very small effect on participants sexual activity as the incidence of having sex that can be attributed to watching pornographic materials was very low at negative 157.9%.

5.3.2 Number of Sexual Partners

Having multiple partners was common among sexually active participants in the study as the majority of participants who had ever had sex had been sexually active in the 12 months prior to the study with almost half of them saying they had 2 or more sexual partners. This is similar to findings of a study that was conducted at the Federal University of Parana among students enrolled in the department of Health Sciences and the department of Biological and Health Sciences at the State University of Parana in Brazil, which found that more than half of the 572 students who were recruited in the study were sexually active, and that being university student in a Health Science course did not ensure safe sexual behavior as most of the students were practicing unsafe sex (Moser, Reggiani and Urbanetz, 2007). A significant relationship was

observed between number of sexual partners and participants activities of sending, posting, receiving, and sharing sexually suggestive messages from someone, meeting a person in real life they only met on social media and accessing pornographic material online. Most participants who had ever done these activities had more than 2 sexual partners in the last 12 months prior to the study, while the majority of those who had never done these activities had one sexual partner. This suggests that exposure to sexual content on the digital devices and social media has an influence of participants sexual risk behaviors. On the other hand the attributable risk of having multiple sexual partners due to use of digital devices was very low for all the devices except for tablet computers at 18.6% and smartphones 13.9%. This shows that among participants who were using these devices and had multiple sexual partners less than one fifth may have been affected by using the device.

The practice of casual sex was not very common among the students who participated in the study as the majority of those who were sexually active had sex with their boyfriends/girlfriends or fiancée/fiance, while only about one tenth had sex with a casual acquaintance.

5.3.3 Condom Use

Most sexually active students who participated in the study were not practicing safe sex as close to half of the students who had ever had sex reported that they did not use a condom the last time they had sex and fifty three point four percent said they did not use a condom every time they had sex in the last 12 months. This shows that quite a large proportion of the students are practicing unsafe sex, especially considering the fact that the study also revealed that almost half of the participants reported having more than one sexual partner in the last 12 months. The KDHS of 2008/09 reported that a large proportion of the youth ages 15 to 19 were engaged in higher-risk sex, because out of those who had sexual intercourse in the last 12 months prior to the survey, only 40% of the young women and 55% of the young men who had sex in the last 12 months prior to the survey used a condom during their last higher-risk sexual encounter (KDHS, 2008/09). Similarly results of a study that was conducted among adolescents in Thika district in Kenya also found that there was low use of condoms among sexually active secondary school students (Kola, 2010). In relation to use of digital devices a significant relationship was observed between use of cell phones without internet and consistent use of condoms as most participants who used condoms with every sexual encounter in the last 12 months before the study did not

use cell phones without internet. Similarly among those who did not use condoms consistently in the 12 months prior to the study the majority also said they did not use cell phones without internet. On the other hand, the incidence of not using condoms that can be attributed to use of the cell phone without internet was 55.2%, meaning that condom use can be improved by 55.2% among participants who were using cell phones without internet if they stopped using the cell phones. This therefore means that the youth can have risky sexual behaviors despite not being able to access the internet on the phone. This might probably be due to lack of access to information on sexual issues which can be accessed from the internet. Use of smart phones and laptops was also attributed to the incidence of inconsistent use of condoms among participants, with attributable risk percent of 19.9% for smartphones and 10.3% for laptops. This could be because of the sexual content that participant's access on the digital devices and social media such as movies, and TV shows which in most cases contains sexual content but does not depict the risk or consequences of the sexual activities or promote safe sex practices such as use of condoms. According to Brown (2008), the media portrays sex as a fun, carefree, and a common activity that does not warrant concerns, cautions, contraception, or consequences, and this may cultivate similar beliefs and influence sexual behaviors among the youth.

5.4 Conclusion

The results of this study reveal that use of digital technologies and social media is very common among undergraduate students at the College of Health Sciences. The digital devices that are commonly owned and used by undergraduate students at the college include the laptop computers, smartphones and cell phones with internet, and male students are the ones who use them more often compared to females. The commonly used social media sites were Facebook and WhatsApp, with instant messaging, downloading music and videos being some of the common activities done on them. Gender and level of study had an influence of use of digital technologies and social media with males being the most prolific users compared to females.

Most students who took part in the study had ever engaged in sex, and almost half had their first sexual encounter before the age of 16 years. However risky sexual behaviors such as having multiple sexual partners and not using condoms consistently were common among the sexually active participants. Use of laptops, cell phones without internet and smart phones and tablets was

shown to have an effect on participant's sexual behaviors such as having multiple sexual partners and inconsistent use of condoms.

The findings further disclosed that participants are exposed to sexually suggestive content and activities on the digital technologies and social media through the sending, receiving and sharing of sexually suggestive messages using the digital devices and social media, and accessing pornographic materials online and these activities influence their sexual activity.

5.5 Recommendations

1. There is a need for the college management to consider using the internet as one of the modes of getting safe sexual and reproductive health information to the students.
2. Sexual and reproductive health programmes for the youth should include media based interventions using digital technologies and social media as vehicles of getting information on sexual and reproductive health issues to the youth because the most of youth own and use these technologies and social media to access information and network.
3. There is a need to continuously educate and make the youth aware of the risks of some online activities such as accessing pornographic content, by developing and giving them digital safety messages, which should be balanced with an emphasis on the usefulness of the internet in areas such as education, research and commerce.
4. Programme planners should consider using the youth as peer educators to promote safer sex practices such as consistent use of condoms among the youth through the commonly used social networking sites.

REFERENCES

Ahn J. (2012). Teenagers and social network sites: Do offline inequalities predict the online networks? *First Monday* 17(1)

Atici B. and Bati U , (2010). New Media and Children: Internet Content Preferences of Primary School Children in Turkey. *International Journal of Emerging Technologies in Learning*. 5(4)

Brown, J. (Ed). (2008). Managing the media monster: The influence of media (from television to text messages) on teens sexual behavior and attitudes. Washington DC: National Campaign to Prevent Teen and Unplanned Pregnancy. [online] Available: http://wwwthenationalcampaign.org/resources/monster/MM_3.0.pdf [Accessed 18/12/13]

Brown, J.D., Keller, S. and Stern, S. (2009). Sex, sexuality and sexed. *The prevention Researcher*. 16(4):12-16.

Buhi, E.R., Delay, E.M., Fuhrman, H.J. et al. (2009). An observational study on how young people search for online sexual health information. *Journal of American College Health*. 58:101-111

Carroll, J.S., Padilla-Walker, L.M., Nelson, L.J., Olson, C.D., McNamara Barry, C., & Madsen, S.D. (2008). Generation XXX: pornography acceptance and use among emerging adults. Journal of Adoles- cent Research, 23(1), 6-30.

Center for Disease Control and Prevention (CDC). (2012). STD Trends in the United States, 2011: National Data for Chlamydia, Gonorrhea, and Syphilis. Atlanta: U.S. Department of Health and Human Services. [online] Available: http://www.cdc.gov/std/stats11/trends-2011.pdf [Accessed 14/12/13].

Common Sense Media. (2009). Is technology net- working changing childhood? A national poll. San Francisco: Common Sense Media. [online] Available at: www.commonsensemedia.org [Accessed 18/12/13]

Communications Commission of Kenya (CCK). (2012). Quarterly Sector Statistics Report, 2nd Quarter of the financial year 2011/2012. [online] Available: www.cck.org.ke. [Accessed 14/12/13]

Collins, R.L., Martino, S. and Shaw, R. (2010). Influence of new media on adolescents sexual health: Evidence and opportunities. RAND Health. Working Paper. [Online] Available: www.rand.org/health. [Accessed 08/01/14]

Divecha Z., Divney A., Ickovics J. et al. (2012). Tweeting about testing: Do low-income, parenting adolescents and young adults use new media technologies to communicate about sexual health?' Guttmache Institute. *Perspectives on Ssexual and Rreproducive Hhealth* 44 (3) [online] Available: http://www.guttmacher.org/archive/PSRH.jsp [Accessed 03/12/2013].

Fatusi, A. and Wang, W. (2009). Multiple sexual partnerships mediate the association between early sexual debut and sexually transmitted infection among adolescents and young adult males in Nigeria. *European Journal of Contraceptive Reproductive Health Care*. 14(2):134-43.

Gurman, T.A. and Underwood, C. (2008). Using media to address adolescent sexual health: Lessons learned abroad. *The National Campaign to Prevent Teen and Unplanned Pregnacies* [online] Available: http://wwwthenationalcampaign.org/resources/monster/MM_3.0.pdf [Accessed 18/12/13]

Guse K., Levine D., Martins S., et al (2012). Interventions using new digital media to improve adolescent sexual health: A systemic review. *Journal of Adolescent Health* 51(6):535-43

Healthy Teens Network. (2013). Fasts facts: Sexual and reproductive health needs of young men [online] Available: www.healthyteennetwork.org. [Accessed 20/12/13]

Hinduja, S. Patchin, J. (2007). Offline consequences of online victimization: School violence and delinquency. *Journal of School Violence*. 2007; 6(3): 89–112

Huock, C.D., Barker, D. Rizzo, C. et al. (2014). Sexting and sexual behavior in at risk adolescents. *Pediatrissc*. 133(2):1-7

InterMedia,Voices of the Youth CITIZENS, and UNICEF. (2013). A (private) public space: Examining the use and impact of digital and social media among adolescents in Kenya. Nairobi: InterMedia.

Ito M, Horst H, Bittani M. (2008). Living and learning with new media: Summary of findings from the digital youth project. Chicago: John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning. [online] Available: http://digitalyouth.ischool.berkeley.edu [Accessed 08/01/14]

Kachur, R., Mesnick, J., Liddon, N.et al (2013). Adolescents, technology and reducing risk for HIV, STDs and pregnancy. Atlanta: Centers for Disease Control and Prevention. [online] Available: www.cdc.gov [accessed 12/01/14]

Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: KNBS and ICF Macro.

Leinhart, A., Ling, R., Campbell, S. et al. (2008). Teens, video games and civics. Washington, DC: Pew Internet and American Life Project. [online] Available: http://pewinternet.org/reports/2010/Social-Media-and-Young.Adults.aspx. [Accessed 20/12/13]

Leinhart, A., Ling, R., Campbell, S. et al. (2010). Teens and mobile phones. Washington DC: Pew Internet &American Life Project.

Livingstone, S. (2008). Taking risky opportunities in youthful content creation: Teenagers' use of social networking sites for intimacy, privacy and self-expression. New Media Society vol. 10 (3):393 – 411.

L'Engle K. L. (2006). The mass media are an important context for adolescents' sexual behavior. *Journal of Adolescent Health* 38(3): 186-192

Livingstone, S, Haddon, L, Gorzig, A, et al , (2011). Risks and Safety on the Internet: The Perspective of European Children. London: *EU Kids Online*, London School of Economics.

Magu, D.G., Wanzala, P.W. Mutugi, M.W. et al (2012) Sexual risky behaviors among youth in Kenya. *Medicine Science*. 1(3): 177-87.

Masatu, M.C., Kazaura, M.R. Ndeki, S. et al. (2009). Predictors of risky sexual behavior among adolescents. *AIDS Behavior*. 13(1):94-9.

Moser, A.M., Reggiani, C. and Urbanet, Z.A (2007). Risky sexual behaviors among University students in health science courses. Pubmed

National AIDS and STI Control Program (NASCOP). (2011). Sentinel surveillance for HIV and Syphilis infection among pregnant women from antenatal clinics in Kenya. NASCOP. [online] Available: www.nascop.or.ke [Accessed 20/12/13]

O'Hara R., Gibbons, F.X., Gerrard, M., et al. (2012). Greater exposure to sexual content in popular movies predicts earlier sexual debut and increased sexual risk taking. *Psychological Science* 1:23(9):984 -93

O'Keeffe, G. S., Clarke-Pearson K., and Council on Communications and Media (2011). Clinical Report: The Impact of Social Media on Children, Adolescents, and Families. *American Academy of Pediatrics* 127(4):800-804.

Okinda, T.I. (2012). Internet uses and motivations among college students in Kenya: A uses and gratificatios perspective. German: LAP LAMBERT Academic publishing.

Othero, D.M., Aduma, P. and Opil, C.O. (2009). Knowledge attitudes and sexual practices of university students for advancing peer HIV education. East African Medical Journal. 86(1):11-16

Rich M. (2008). Virtual sexuality: The influence of entertainment media on sexual attitudes and behavior.

The Joint United Nations programme on HIV and AIDS (UNAIDS). (2013). Joint United Nations programme on HIV/AIDS report on the global AIDS epidemic. [Online] Available: www.unaids.org. [Accessed 08/01/14].

The Nielsen Company. (2012). The Digital Media Habits and Attitudes of Southeast Asian Consumers. [Online] Available: http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2011-Reports/South-East-Asia-Digital- Consumer. [Accessed 22 July 2014].

Topcu, C., Erdur-Baker, O., & Capa-Aydin, Y. (2008). Examination of cyberbullying experiences among Turkish students from different school types. *Cyber Psychology & Behavior,* 11 (6), 643-648.

Uçanok, Z., Burnukara, P. and Sertkaya, D. (2009). A descriptive study on opportunities of adolescentsadolescent's information and communication technologies and cyberbullying. Turkey: Hacettepe University.

United Nations Department of Economic and Social Affairs (UNDESA). (2013) United Nations definition of the youth. [Online] Available: http://undesadspd.org/Youth.aspx [Accessed 12/01/14].

United Nations Children's Fund (UNICEF). (2012). Preventing HIV infection among adolescents and young people: state of the world's children. UNICEF Eastern and Southern Africa. [online]. Available www.unicef.org/esaro [Accessed 14/01/14].

United Nations Children's Fund (UNICEF) New York, Beger, G., Hoveyda, P.K. and Sinha A. (2012). Indonesian Youth Online An Exploratory Study of the Indonesian Digital Landscape. [online]. Available: http:www.univef.org/ [Accessed 14/01/14].

Ward, L., Day, K., and Epstein, M. (2006). Uncommonly good: exploring how mass media may be a positive influence on young women's sexual health and development. *New Directions for Child and Adolescent Development,* 2006(112), 57-70.

World Health Organization (WHO). (2014). Maternal newborn child and adolescent health. [Online].Available:http://www.who.int/maternal_child_adolescent/documents/pregnancy/en/index.html. [Accessed 20/12/13].

World Health Organization (WHO). (2011). Reproductive, maternal and child health definitions and indicators in family planning, maternal & child health, and reproductive health: Used in the WHO Regional office for Europe. [online] Available: http://www.euro.who.int [Accessed 20/12/13].

Appendix I: INFORMED CONSENT FORM.

University of Nairobi

School of Nursing Sciences

Effects of Digital Technologies and Social Media on Sexual Behaviors among Youth at the College of Health Sciences University of Nairobi in Kenya.

Researcher: Madalo Gloria Kalero Kuchawo

PURPOSE

Hello. I am a masters student at the University of Nairobi, School of Nursing Sciences. I would very much appreciate your participation in this study. The aim of this study is to explore the effects of digital technologies and social media on sexual behaviors of the youth. This information will help in the planning of reproductive health services for the youth.

You have been invited to take part in the study because you qualify to participate as it targets youth from the college of health sciences at University of Nairobi.

Should you decide to participate, here are no financial benefits or compensation for participating in the study.

PROCEDURE

You will be given a structured questionnaire for you to answer questions concerning use of new digital media.

RISKS

There are no physical risks involved in the study and it will not involve any invasive procedures. Your time spent in responding to the questionnaire will be greatly appreciated.

BENEFITS

There may not be any direct benefits for you as an individual participant, but the information you provide will help us to understand better issues surrounding use of new digital media by the youth and how it affects sexual behavior.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary, and you have the right to withdraw from participating in the study at any time without being penalized. However, I hope that you will participate in this study since your views are very important.

CONFIDENTIALITY AND ANONYMITY

Whatever information you provide will be kept confidential and will not be shared with anyone other than the researcher and the research supervisor. Serial numbers and not names will be used on the questionnaires

If you have questions or concerns about content of this study or your rights as a participant please contact the following people:

Madalo G.K. Kuchawo,
University of Nairobi,
School of Nursing Sciences,
Cell: 0733294227
Email: mgk@uonib.ac.ke

or

The chairperson
KNH/UoN- Ethics and Reseach Committee
Proffesor A.N. Guantai
Tel: 7263009
Fax: 725272
Email: uonknh_erc@uonbi.ac.ke

CONFIRMATION OF CONSENT

I have fully understood the objectives of this research and hereby sign as a show of willingness to voluntarily participate in this study.

Name: _____ Signature:_____ Date:_____

Witness: _____ Signature:_____ Date:_____

Appendix II: QUESTIONNAIRE FOR YOUTH

Effect of Digital Technologies and Social Media on Sexual Behaviors among Youth at the College of Health Sciences University of Nairobi in Kenya.

Questionnaire number: _____ Participant serial number: _____

Date:_____ School:_____

Instructions:

Please answer the following questions in the space provided or by marking with a tick (√) the appropriate option in the box provided. DO NOT indicate your name or any information that can identify you as an individual.

SECTION A: DEMOGRAPHIC DATA

1. Gender a. Male [] b. female []
2. Which programme are you enrolled in?
    a. Bachelor of medicine and surgery [] b. BSc.Nursing []
    c. BSc. Biochemistry [] d. Bachelor of Pharmacy []
    e. BSc. Medical Laboratory sciences [] f. Bachelor of Dental Surgery []
3. Level of study
    a. Level 1 [] b. Level [] c. Level 3 []
    d. Level 4 []
4. Age (in completed years) _____
5. Religion
    a. Catholic [] b. Protestant [] c. Moslem [] d. Adventist []
    d. Other specify_____
6. Relationship status?
    a. Single [] b. In a serious dating relationship []
    c. Enganged to be married [] d. Married [] e. divorced []
    e. Others specify_____
7. Residence
    a. Live alone [] b. Live with parents/guardian [] c. Live in Hostel []
    d. Live with boyfriend [] e. live with girlfriend []

f. Other specify_____

SECTION B: PATTERNS OF USE OF DIGITAL TECHNOLOGY AND SOCIAL MEDIA

8. Which of the following digital devices, do you own? **(Please mark all that apply.)**
   a. Desktop Computer [] b. Laptop computer [] c. Cell phone with internet []
   d. Cell phone without internet [] e. Smartphone (iPad, Blackberry, etc.) []
   f. Tablet [] g. other specify _____ h. None of these []

9. Which of the following devices do you use?
   b. Desktop Computer [] b. Laptop computer [] c. Cell phone with internet []
   e. Cell phone without internet [] e. Smartphone (iPad, Blackberry, etc.) []
   f. Tablet [] g. None of these [] H. others specify_____

10. In a day how often do you use your digital media device?

	never	once	twice	3 times	More than 3 times
Desktop Computer					
Laptop computer					
Cell phone with internet					
Cell phone without internet					
Smartphone (iPad, Blackberry, etc.)					
Tablet					
Other device (please specify)					

11. On average how much time do you spend using your digital media technology/device?
   a. Less than 30 minutes [] b. 30 minutes to 1 hour [] c. 2 -3 hours []
   d. 4 - 5 hours [] e. More than 5 hours. []

12. How often do you use the internet for the following?

	Never	Once a week	Twice times a week	3 times a week	Every day

a. Reading /watching News						
b. Instant messaging						
c. Chatting						
d. Accessing online journals						
e. Social networking						
f. Emailing						
g. Downloading music or videos						
h. Any other activity (please specify) _____						

13. Do you have a profile on a social networking site? (eg. facebook, My space)?
    a. Yes [] b. No []

14. If yes which one?
    a. Facebook [] b. Myspace []
    b. Other specify_____

15. How many times do you visit the social networking site you have identified above?
    a. Never [] b. Less than once a week [] c. Once a week []
    b. Most days [] e. Everyday []

16. Which of the following activities have you ever enganged in? (**Please mark all that apply)**.

	Yes	No
a. View others' profiles/pictures on a social-networking site?		
b. Have a profile on a dating or singles site (eg. match, cupid, badoo, or Twoo)?		
c. View others' profiles/pictures on a dating/singles site?		
d. Have a personal blog?		
e. Write/update a personal blog?		
f. Regularly read others' personal blogs?		
g. Send/receive pictures or video on your cell phone?		
h. Send/receive pictures or video on a computer?		
i. Post photos or videos online (like on you tube)		
j. Watch TV shows online or on your MP3 Player		
k. Search for information on sexual health issues (such as contraception, STIs) on line		

SECTION C: EXPOSURE TO SEXUAL CONTENT AND ACTIVITIES ON DIGITAL TECHNOLOGIES AND SOCIAL MEDIA

Note: Throughout this study, it is IMPORTANT that you understand what I mean so that I will be able interpret your answers correctly. Please keep the following in mind as you read and answer the following questions. In this section of the questionnaire:

I. **Sexy pictures/video** means sexually suggestive, semi-nude, or nude personal pictures/video taken of oneself (alone or by a friend) – and not those found on the internet, received from a stranger (like spam), etc.

II. **Sexy messages means** sexually suggestive written personal texts, emails, IMs, etc., and not those you might receive from a stranger (like spam).

17. How common would you say each of the following is among people of your age?

	Not Common At All	Not Very Common	Common	Fairly Common	Very Common
a. Sending sexy messages to someone else					
b. Sharing sexy messages with people other than the one(s) they were meant for					
c. sending of sexy pictures/video of oneself to someone else					
d. Posting sexy pictures/video of oneself online					
e. Sharing sexy pictures/video with people other than the one(s) they were meant for					
f. Any other (please specify					

18. What do you think are the reasons that male/female young people send/post sexy messages or pictures/video of themselves? **(Please mark all that apply).**

a. To get or keep a girl's/guy's attention []
b. A girl/guy pressured them to send it []
c. As a "sexy" present for a girlfriend/boyfriend []
d. To feel sexy []
e. To get a girl/guy to like them []
f. Pressure from friends []
g. To get positive feedback []
h. To be fun/ flirtatious []
i. To get noticed []
j. In response to one he/she received []
k. Other: _____

l. None of these / don't know []

19. Which of the following, if any, have you personally ever done on digital technology or social media? **(Please mark all that apply).**
    a. Sent a sexually suggestive message to someone (email, IM, text, etc.) []
    b. Posted a sexually suggestive message to someone's online profile (eg. on myspace, facebook, etc.) []
    c. Received a sexually suggestive message from someone (email, IM, text, etc. []
    d. Shared a sexually suggestive message with someone other than the one(s) it was originally meant for []
    e. Had a sexually suggestive message (originally meant to be private) shared with me []
    f. Met a person in real life you only met from social media []
    g. Accessed pornographic material online []
    h. Connected with others online for purposes of virtual or real sex []
    i. Visited explicit chat rooms (chat rooms for sex) []
    j. Other (please specify)_____
    k. none of these []

20. If you have sent/posted suggestive messages or nude/semi-nude pictures/videos (of yourself) to whom did you send? **(Please think about any/all of those you've ever sent/posted and mark all that apply).**
    a. Boyfriend / girlfriend []
    b. Someone I had a crush on []
    c. Someone I dated or hooked up with []
    d. Someone I just met []
    e. Someone I wanted to date or hook up with []
    f. One or more good friends []
    g. Someone I only knew online []
    h. Other: _____

21. What are the reasons that you've sent/posted suggestive messages or nude/semi-nude pictures/videos (of yourself)? **(Please think about any/all of those you've ever sent/posted and mark all that apply).**
    a. To get a guy/girl's attention []
    b. Pressured to send it []
    c. as a "sexy" present for a boyfriend/girlfriend []
    d. to feel sexy []
    e. As a joke []
    f. To get positive feedback []
    g. To be fun/ flirtatious []

h. To get noticed []
i. In response to one that was sent to me []
j. Other: _____
k. Don't know []

22. If you have you received suggestive messages or nude/semi-nude pictures/videos, who sent them to you? **(Please think about any/all of those you've ever received and mark all that apply).**
    a. Boyfriend / girlfriend []
    b. Someone I had a crush on []
    c. Someone I dated or hooked up with []
    d. Someone I just met []
    e. Someone who wanted to date or hook up with me []
    f. Someone I only knew online []
    g. Other: _____

23. What are the reasons you would be concerned about sending or posting sexy messages or pictures/video of yourself? **(Please mark all that apply).**
    a. Already had a bad experience []
    b. Could disappoint family []
    c. Could disappoint friends []
    d. Could hurt my relationship or chances with someone I like []
    e. Could hurt my reputation []
    f. Could hurt my family's reputation []
    g. Could get in trouble with the law []
    h. Could get in trouble at school []
    i. Potential employer might see []
    j. Might regret it later []
    k. Might make people think I'm promiscuous in real life []

24. How old were you when you had your first sexual encounter?
    a. Age in years _____ b. Never had sex []

25. The first time you had sex what prompted you to start having sex?
    a. Pressure from friends []
    b. Pressure from boyfriend/girlfriend []
    c. Modeling from digital media content []
    d. Wanted to experiment []
    e. Wanted to show commitment to partner []
    f. Never had sex []

26. In the past 12 months how many sexual partners have you had?

a. None [] b. One [] b. Two [] c. More than two []

27. The last time you had sexual intercourse was a condom used?

a. Yes [] b. No [] c. Don't remember/not sure

d. Have never had sex []

28. What was your relationship to the person with whom you had sex?

a. Husband [] b. Boyfriend [] c. Fiancée/fiancé []

d. Live in partner [] e. Casual acquaintance [] f. Paying client [] g. N/A [] h. Other specify _____

29. How long have you had/did you have a relationship with this person?

a. _____ Days b. _____ Weeks c. _____ Months d. ____ Years.

e. N/A []

30. If you marked b or c to question 36 above, the last time you had sex with the second/third partner was a condom used?

a. Yes [] b. No [] c. Don't know/Don't remember []

N/A []

31. Did you use a condom every time you had sex in the past 12 months?

a. Yes [] b. No [] c. N/A []

32. Do you think sending or accessing sexual content from digital and social media encourages young people to engange in risky sexual behaviors

a. Yes [] b. No [] c. Don't know []

This is the end of the questionnaire. Thank you for taking your time to respond to the questions.

Appendix III: PARTICIPANT CONSENT FORM FOR FOCUS GROUP DISCUSSION.

Introduction

Hello. Welcome to the focus group discussion. My name is Madalo Kuchawo, I am a Masters student at the University of Nairobi, School of Nursing Sciences. I am conducting a study on '**Effects of Digital Technologies and Social Media on Sexual Behavior among the Youth at College of Health Sciences University of Nairobi in Kenya'** and would appreciate your participation. My colleague is _____ and she will be taking notes during our discussion. I will also use a digital recorder to record the discussion.
The purpose of this discussion is for us to gain understanding of your perceptions on digital technologies and social media use and its influence on sexual behaviors among the youth. There are no right or wrong answers, we want to hear from everyone in the group, when you have any point you would like to make do not hesitate to speak up. During the discussion one person should speak at a time, we should respect each other's opinion, and speak respectfully.

For the purpose of confidentiality, please only introduce yourself by your first name or you may use an alias that you want us to call you by. I will not refer to any of you by your name in the reports I prepare. The information will be kept strictly confidential and used only for academic purposes.

The discussion will take approximately 45 minutes to complete. Whatever information you provide will be kept strictly confidential.

Participation in this study is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this discussion since your views are important.

At this time, do you want to ask me anything about the study?

If you have questions or concerns about content of this study or your rights as a participant please contact the following people:

Madalo G.K. Kuchawo,
University of Nairobi,
School of Nursing Sciences,
Cell: 0733294227
Email: mgk@uonib.ac.ke

or

The Chairperson
KNH/UoN- Ethics and Reseach Committee
Proffesor A.N. Guantai
Tel: 7263009
Fax: 725272
Email: uonknh_erc@uonbi.ac.ke

CONFIRMATION OF CONSENT

I have fully understood the objectives of this research and hereby sign as a show of willingness to voluntarily participate in this study.

Name: _____ Signature:_____ Date:_____

Witness: _____ Signature:_____ Date:_____

Appendix IV: FOCUS GROUP DISCUSSION GUIDE

Effects of Digital Technologies and Social Media on Sexual Behavior of the Youth at College of Health Sciences University of Nairobi in Kenya.

What type of digital device do you own or have access to? And what do you mainly use them for

Probe: Phone with internet, laptop computer, desktop computer, tablet.
SMS, calls, MMS, accessing the Internet

How often and how much time do you spend using your phone/computer in day?

Probes:

- *When you use the internet on a mobile phone/computer what sites do you use?*
- *What are your favorite internet sites? Why?*
  - *News/ entertainment/ keep in touch with friends, family/ socializing/ academic work/ information/ keep up to date with sports/ celebrity news and gossip*

Between the phone and the computers? Which devices do you mostly use for accessing the internet and why?

- *Probes:*
  - *Why do you prefer using a mobile phone/computer to access the internet*
  - *What do you think are the advantages/disadvantages of accessing the Internet via mobile phone/computer?*
  - *How long have you been using the Internet on your phone/computer?*

What do you think most people your age use the internet and social media for?

Probe

- *News/ entertainment/ keep in touch with friends, family/ socializing/ academic work/ information/ keep up to date with sports/ celebrity news and gossip*

People do a lot of different things online/on the Internet using devices like computers, tablets and mobiles phones e.g like finding about friends, making new friends, chatting, sending emails and messages.

Which activities do you do? And why?

Probe:

- *Socializing, keeping up with friends/family, finding out current news, sharing information, making new friends, adding people you know/have never met to your sites, etc.*
- *For fun, exciting, interesting, confidence-building, empowering, etc.*

How common do you think the practice of sending/sharing sexually suggestive messages or nude/seminude pictures or videos on the internet or via phones among people of your age? What do you think about this activity?

Probe:

- *Why do people do it*
- *Between boys and girls who do it most?*
- *What do you think of this activity? The people who do it?*

Do you think the sexual activities/pictures or videos that people see/access on line affect their behaviors in real life.

Probe:

- *How does it influence positively or negatively?*
- *Sexual behaviors, permissivenessDoes frequency of use contribute?*

To wrap up, on the whole do you think the good things about digital technology and social media outweigh the bad things? Why or why not?

This is the end of the discussion. Thank you so much for participating in this discussion.

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
(254-020) 2726300 Ext 44355

KNH/UON-ERC
Email: uonknh_erc@uonbi.ac.ke
Website: www.uonbi.ac.ke

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/157 Link:www.uonbi.ac.ke/activities/KNHUoN 20th May 2014

Madalo Gloria Kalero Kuchawo
School of Nursing Sciences
College of Health Sciences
University of Nairobi

Dear Gloria

RESEARCH PROPOSAL: EFFCTS OF DIGITAL TECHNOLOGIES AND SOCIAL MEDIA ON SEXUALBEHAVIOR AMONG THE YOUTH AT THE COLLEGE OF HEALTH SCIENCES, UNIVERSITY OFNAIROBI (P83/02/2014)

This is to inform you that the KNH/UoN-Ethics & Research Committee (KNH/UoN-ERC) has reviewed and **approved** your above proposal. The approval periods are 20th May 2014 to 19th May 2015.

This approval is subject to compliance with the following requirements:

a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
f) Clearance for export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
g) Submission of an *executive summary* report within 90 days upon completion of the study
This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

For more details consult the KNH/UoN ERC website **www.uonbi.ac.ke/activities/KNHUoN.**

Yours sincerely

PROF. M. L. CHINDIA
SECRETARY, KNH/UON-ERC

c.c. The Principal, College of Health Sciences, UoN
The Deputy Director CS, KNH
The Chairperson, KNH/UoN-ERC
The Assistant Director, Health Information, KNH
The Director, School of Nursing Sciences, UoN
Supervisors: Dr. Waithira Mirie, Ms. Lucy Kivuti-Bitok

Appendix VI: PERMISSION LETTER FROM COLLEGE OF HEALTH SCIENCES.

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES

Telephone: 2725698 DL
Telegrams: Varsity Nairobi
Fax: 2720509
Email: principal-chs@uonbi.ac.ke

OFFICE OF THE PRINCIPAL
Kenyatta National Hospital
P.O. Box 19676 -00202
Nairobi, Kenya

UON/CHS/1/1

June 6, 2014

Madalo G.K Kuchawo
C/o School of Nursing

Dear Sir/Madam

APPROVAL TO CONDUCT A STUDY ENTITLED 'EFFECTS OF DIGITAL TECHNOLOGIES AND SOCIAL MEDIA ON SEXUAL BEHAVIOURS AMONG THE YOUTH AT COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF NAIROBI'

Reference is made to your letter dated May 26, 2014 in which you requested for permission to collect data from undergraduate students from the Schools of Nursing, Medicine, Dental Sciences and Pharmacy to enable you undertake the above mentioned study.

This is to inform you that the Principal has approved your request, thus you are free to embark on your study.

Thank you

MR. JAMES M. IRERI
FOR: COLLEGE REGISTRAR, CHS

jmi/...