

Global Journal of **Health Science** (GJHS)

SEXTING AND RISKY SEXUAL BEHAVIOUR AMONG STUDENTS IN MACHAKOS UNIVERSITY, MACHAKOS COUNTY.KENYA

Musyimi Elizabeth Mukonyo, Dr. Judy Mugo and Dr. Priscilla
Kabue



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^{1*}Musyimi Elizabeth Mukonyo

Post Graduate Student: Department of Community Health and Epidemiology
Kenyatta University

Corresponding Author's E-mail: musyimiliz@yahoo.com

²Dr. Judy Mugo

Lecturer: Department of Population, Reproductive Health and Community Resource
Management, Kenyatta University

³Dr. Priscilla Kabue

Senior lecturer: Department of Community Health Nursing. Kenyatta University

Abstract

Purpose: The purpose of this study was to investigate sexting practice among students and identify the risky sexual behaviors associated with sexting among students in Machakos University, Machakos County, Kenya.

Methodology: The study adopted a descriptive cross-sectional study design. The target sample was 347 students aged 18-24 years in Machakos university. Convenience sampling was used for quantitative data and purposive sampling for qualitative data as well as the study area. Interviewer-administered questionnaires were utilized and in-depth interview used for the qualitative data collection. The IBM SPSS version 26.0 was used for data analysis. Thematic analysis was used to analyze the qualitative data and triangulated with quantitative findings. Results was presented in tables, graphs and pie charts. Chi square test was done to identify variables associated with sexting and odds ratio to measure the association between sexting and risky sexual behavior.

Findings: Sexting (sending of sexually suggestive image/photo) was found to be prevalent among the student at 57% and 48% being two-way sexters. Male respondents engaged more into sexting as compared to female respondents at 67% and 33% respectively. 23.0% sexted to keep or get a boy/girlfriend and 14% due to pleasure from their peers. Gender, Age, Level of study and relationship status were all significantly associated with sexting ($P=0.000$, $P=0.027$, $P=0.002$ and $P=0.022$ respectively). Risky sexual behaviors among students included early sexual intercourse 74%, but 54% had not used protection. Sexting and risky sexual behavior were found to be associated because most of the respondents who engaged in sexting were eight times more like to engage in early sexual intercourse, and the perception of sexters was that if one was sexting they were six times likely to have sex with the person they sexted, and so the null hypothesis that there is no relationship between sexting and risky sexual behavior was rejected and the alternative hypothesis adopted.

Unique contribution to theory, practice and policy: Adoption of Multi sectoral to develop policies, and design youth programs with a wide range of issues relating to sex and sexuality and how to safely navigate the internet and form healthy relationships both on and offline, which include issues such as sexting with young people from a young age.

Key words: *Sexting, Risky sexual behavior, sexually suggestive /explicit*

1.0 INTRODUCTION

Globally, young people have fast adopted to Internet and social platforms for socializing using the new technology of camera enabled devices, particularly because of its capacity to support peer interaction and friendship, combined with its potential for connectivity and friendship building (Kosenko, Luurs, & Binder, 2017). This linked setting has changed the social context in which their associations with others are shaped and kept alive and in no time they discover sexuality due to the unrestricted connections (Berchtold., Surís., & Akre, 2017).

The evolution of new technology has made it possible for students to access Internet-enabled devices, such as smartphones, tablets, and social communication sites such as Facebook, Tweeting, Instant Messaging, Instagram, Skype, Face time, which provides them a level of comfort and lack of restraint to sexual contents and has enabled them to be no longer passive consumers of information and knowledge, but rather provided them with new avenues with which to explore their sexuality (Jonsson, 2015). The new devices, applications, and electronic innovations are also used by this population as means of personal expression and self-discovery, and also adaption of behaviors such as sexting which has become common recently among this digital generation (Abraham, 2015).

The term sexting emerged in the media in early 2000s, a hybrid created by collapsing the term 'sex' and 'texting' to describe a new form of technology-mediated behavior involving the exchange of explicit messages via Short Message Systems or SMS, but technology rapidly evolved allowing access to a range of digital devices with the capacity to store and transfer large amounts of data in varied electronic formats, hence increased the sharing of explicit content has evolved to refer sexting as the digital recording of nude or sexually suggestive or explicit images and their distribution by mobile phone messaging or through social networking platforms (Netsafe, 2017). Even though the definition of sexting is common with the media and public, young people themselves do not typically use the term, preferring instead to use terms such as 'naked selfies', 'nudies' and 'banana pics' to describe the practice; so although the term sexting is deployed here, its problematic nature is also acknowledged (Lee, Crofts, McGovern, & Milivojevic, 2015).

Sexting behavior among youths in Kenya have escalated due to the availability of cheap internet and unrestricted online content and cheap smart phones (Stephen, Nyagah, Kaithuru, & Munywoki, 2017). This unrestricted sexual material affords the youth the opportunity to browse through existing sexual materials; create, distribute, and exchange feedback on sex related content; and engage in real-time, virtual sexual interactions with other people almost anywhere (Doornwaard, Boer, Vanwesenbeeck, van Nijnatten, ter Bogt, & van den Ei, 2017). Majority of stake holders in education and public health, may have down play this communication may to be a simple exchange of amorous photographs between young people. However, with sexting the technology has the potential of digital permanence, which introduces new challenges to the field of public health (Abraham, 2015).

Sexting encompasses a wide range of practices, motivations and health risky behaviors and young people who engage in sexting are more likely to engage in risky physical sexual activities, and more likely to seek the fulfillment of the aroused desires shortly after exchanging sexual messages (Olatunde & Balogun, 2017). Recent studies by Allyson, (2017), established that sexting is associated with a number of sexual behaviors including unprotected sex, sex with multiple partners, substance use, casual coital and non coital hookups, and sexual assault among college women and also nonconsensual sexual encounters

because men and women have different beliefs and motives for sexting and differentially interpret sext messages (Dir, 2017).

1.1 Problem Statement

Sexting is a relatively new phenomenon and the Statistics about the behavior are extremely varied but generally indicate that sexting is pretty widespread among young people (Agnew, 2018). sexting is a topic of concern to the public, parents, healthcare professionals, educators, and law enforcement because the numerous studies on the behavior has referred sexting to not just a single activity, but to a range of activities which may be motivated by sexual pleasure (Abraham, 2015).

The escalation of Sexting behavior among youths in Kenya has been attributed to influx of cheap camera enabled smartphones and access to cheap internet and unrestricted online content (Stephen, Nyagah, Kaithuru, & Munywoki, 2017). Similarly, UNICEF report indicated that globally, 71 percent of youths aged 15-24 were online compared with 48 percent of the total population (UNICEF, 2017). A study in Kenya among secondary school students in Nairobi County showed that 98 per cent of the students are into sexting, with 62 per cent of daily sexters having multiple sex partners (Gathura, 2017). Although young people describe sexting as a harmless behavior and a normal way of communicating intimacy and as a way of expressing their sexuality and as an alternative to more explicit physical sexual acts, Research on the subject has found that relationships exist between sexting and high-risk sexual behavior, such as nonconsensual pornography subjection, masturbation, drug and alcohol use, coercion, extortion, early debut and multiple sex partners among youths who engage in sexting. Young people who engage in sexting were reported to be more likely to engage in physical sexual activities to seek the fulfilment of the aroused desires shortly after exchanging sexual messages with their sexual partners (Olatunde & Balogun, 2017).

Considering the media attention on sexting, and the potential public health implications, it is surprising that sexting practice and its potential long term effects on college students has not received much attention in Kenya. With scant and unclear empirical data, policy makers and health care professionals are handicapped by insufficient information about the nature and consequences of sexting. It is from this knowledge that the researcher found it important to explore sexting practice among college students at Machakos University and identify the risky sexual behaviors associated with sexting.

2.0 LITERATURE REVIEW

The purpose of this study was to investigate sexting and risky sexual behavior among college students. This chapter provides a comprehensive review of the literature regarding sexting and its association with risky sexual behavior in this population. Relevant literature examined key main areas: prevalence of sexting behavior among college students, reasons for sexting practice, and the related risky sexual behaviors among the students.

Globally, sexting behavior among young people has not been researched extensively with only a small number of surveys done that have not only used differing definitions of sexting, but have also deployed diverse methodologies in recruiting the respondents. As a result, what is known about the practice and prevalence of sexting varies widely (Lee, Crofts, McGovern, & Milivojevic, 2015). The earliest known studies and interest in the potential links between sexting and risky sexual behavior among scholars began with the publication of the results of the Sex and Tech survey (2008) commissioned by the National Campaign to Prevent Teen

and Unplanned Pregnancy and Cosmogirl.com. The study revealed that both teenagers and young adults sent or received sexually suggestive messages and nude or seminude photos of themselves, and that the act of sexting made dating or hooking up with that person more likely (Kosenko, Luurs, & Binder, 2017). Subsequent studies established that youth may engage in sexting due to their difficulties with managing emotions, and that youths who reported more intense and labile emotions and less effective regulation of these emotions reported more problem behaviors and more sexual partners (Houck, Barker, Rizzo, Hancock, Norton, & Brown, 2014). Further studies by Friedman *et.al*, (2017), revealed that policy makers and health care professionals have failed to give much attention to sexting and its potential long-term effects of sexting on young people particularly because of the impulsive nature of sexting and the belief that the behavior is harmless (Friedman, MD, Sorrentino, MD, & Friedman, MD, PhD, 2017).

The recent years has seen several researches done on sexting behavior but despite all these surveys, one would be hard pressed to derive a reliable estimate of the prevalence of sexting even among the most popular targets of the research, adolescents and young adults. This is due to methodological: Specifically, the heterogeneity among studies in how sexting has been operationalized and how the results are reported (Strassberg, Rullo, & Mackaronis, 2014). The studies also used different definitions for sexting including “nude photos of breasts or genitals” (Strassberg *et al.*, 2013; Temple *et al.*, 2012), Henderson (2011) used “semi-nude” “almost nude,” “nearly nude” Lenhart, (2009), Benotsch *et al.* (2013) and Dir. (2009), used “sexually suggestive” “sexually provocative” and simply “sexual images” respectively and many other terms by researchers and participants in various studies. Given this diversity of defining sexting, it is no surprise that it is virtually impossible to arrive at a consensus for the prevalence of these behaviors (Scholes-Balog, Francke, & Hemphill, 2016).

In Kenya, a study done to assess the patterns of use and effects of using digital technologies and social media on sexual behaviors among the youth in the University of Nairobi, revealed a high prevalence of sexting as forty-one percent of the student had Send sexually suggestive messages (Kuchawo, 2014). Literature review of articles done in sexting revealed that young people sent sext to flirt with peers and also viewed sexting as a safe experimental phase for developing and maintaining their romantic relationships., This is both due to the perceived safety of sexting platforms and a way of avoiding the risks associated with having sex (Anastassiou, 2017).

CDC (2010) defined Risky sexual behavior as the behavior that increases one’s risk of contracting sexually transmitted infections and experiencing unintended pregnancies. The behaviors include having sex at an early age, having multiple sexual partners, having sex while under the influence of alcohol or drugs, and unprotected sexual behaviors (Centre for Disease Control, 2010). A systematic analysis of all articles touching on sexting and its association with risky sexual behaviors from 2011 -2015 showed that sexually active individuals are twice as likely to send nude self- images as compared to their non-sexually active counterparts (Kosenko, Luurs, & Binder, 2017). Further studies also revealed that there is a relationship between sexting and risky behavior among the Youth as most of the sexters were found to use substances of abuse and with low esteem. However, not all youth who sext engage in problematic behavior for some practices sexting as way of abstaining but at the same time keep a health relationship (Ybarra & Mitchell, 2014). Studies in Kenya by Asatsa *et al.*, (2017), found out that various sexual behaviors such as masturbation, having

multiple sex partners and pornography as some of the risky behaviors are associated with sexting (Stephen, Nyagah, Kaithuru, & Munywoki, 2017).

2.1 Theoretical application

The study adopted Diffusion of Innovation (DOI) Theory, developed by E.M. Rogers in 1962. The theory originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire and perform a new behavior).

The key to adoption is that the person must perceive the innovation as new. Five main factors that influence adoption of an innovation include; Relative advantage - the degree to which an innovation is seen as better than the idea, program or product it replaces, Complexity is the perceptions of difficulty the innovation is to understand and/ or use, Compatibility – how consistent the innovation is with the values, experiences and needs of the potential adopters. Trialability- the extent to which an innovation can be tested or experimented with before a commitment to adopt is made. Observability the extent to which an innovation provides tangible results (Wayne W. LaMorte, 2016). It is through this that diffusion is possible. The diffusion of innovations theory has served as a framework for explaining the spread of new practices, ideas and behavior and is frequently used in several branches of public health (Valente, 2003). Researchers have drawn upon Rogers' theory to understand the adoption of cell phone use as well as digital sexual health communication (Markham Shaw & Chatterjee, 2014). The theory is applicable to the topic of sexting, as the practice meets Roger's definition of innovation. The social dynamics and pressures that the university environment presents lead them to accept the practice. The perceived sexual liberty, recklessness, and pleasure seeking that thrive in the college population are motivating factors that contribute to the adoption of the behavior. The diffusion of innovations theory is proved suitable to the issue of sexting because it helps explain the process that leads individual decision-making and adoption around the new concept and identifies the specific roles external considerations and social systems play in the adoption of the practice.

3.0 MATERIALS AND METHODS

A cross-sectional descriptive design was used to understand the practice of sexting, prevalence, reasons for sexting and the association between sexting and risky sexual behaviors. The study was conducted at Machakos University which is in Machakos County, Kenya. The study population comprised of students aged 18-24 years who were full time day students at the Machakos University. The inclusion criteria included Students of Machakos University aged between 18 and 24 years who delivered an informed consent and full time students of Machakos university. Students of Machakos University aged between 18 and 24 years who met the inclusion criteria but were either unwell or mentally unsound at the time the time of conducting the study were excluded.

The study used non-probability sampling method to sample the study participants and study area. Machakos university was purposively sampled because it was the only public university in Machakos county whose main campus was in Machakos county. Convenience sampling was used to sample the respondents for quantitative data from all the schools in Machakos

university. Only respondents who consented were included in the study. For in depth interview, purposive sampling of respondents was done, students who were in second, third and fourth year were targeted regardless of the school they belonged to. The study adopted Fischer's et al 1998 formula to determine the sample size. The total sample size arrived at for study was (n=347).

Quantitative data were collected by use of self-administered questionnaires which was adopted from different literatures and modified accordingly. A semi structured questionnaire was used for the in-depth interview which consisted of similar ideas with the questionnaire. To ensure consistency the student instrument was pretested on 10% of sample at The South Eastern Kenya University Campus in Makeni County.

The investigator obtained the Approval of the research from Kenyatta University graduate, an ethical clearance certificate from the Kenyatta University Ethical Review Committee(KU-ERC). Research permit was pursued from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher applied for authorization to carry out research from Machakos University, office of the Vice Chancellor, Department of Research, Innovation and Linkages. The informed consent was obtained from the respondents of the survey before filling the questionnaires and participation in the in-depth interviews.

For analysis, quantitative data was checked for completeness cleaned, labeled, coded, entered into excel and analyzed using SPSS (statistical package for social science) version 26.0. Descriptive statistics such as proportions, frequency and percentage was used to assess respondents' characteristics. Chi square test was done to identify variables independently associated with sexting. Odds ratio along with 95% confidence level was done to estimate the direction of association and to test the hypothesis and the level of statistical significance was declared at p- value less than 0.05. The qualitative data were transcribed, typed in word, and analyzed using thematic analysis and triangulated with quantitative findings. Thematic areas from the qualitative data were identified, coded, and significant quotes were also noted in the text. Results was presented in tables, graphs and pie charts.

3.1 Measures:

Social demographic characteristics was measured using gender, age, level of study, religion, relationship status and source of income of the respondents

Sexting prevalence was accessed using Have you ever sexted (i.e., sent a sexually suggestive nude or nearly nude photo or video to someone else) using your cellphone? Have you ever received a sexually suggestive nude or nearly nude photo or video from someone? To whom did you sent a sext to, from whom did you receive sexts? to how many people did you sent a sext to, from how many people did you receive sexts?

Motivation to sexting was measured using the question If you have ever sent a sext (i.e., sent a sexually suggestive nude or nearly nude photo or video to someone else) what motivated you or what were your reasons for sexting?

Risky sexual behavior and association between sexting and risky sexual behavior: participants were asked: Have you ever had sexual intercourse (vaginal, oral, or anal)? The last time you had sexual intercourse; did you or your partner use a condom? When was your first sexual debut? Regarding the relationship between sexting and having sex with someone, which of the following do you think is truest for most people? (Sexting leads to having sex, having sex leads to sexting, Sexting and having sex are pretty much unrelated) and If you

have participated in sexting.do you think it led to having sex with the person you sexted or who sexted you?

4.0 FINDINGS

4.1 Response Rate

Table 1 give a summary of response rate. The researcher issued 347 questionnaires, After Coding and checking for completeness 305 were duly filled, representing 87.9%. Twenty-nine questionnaires were incomplete and therefore were excluded representing 8.4%. Further 13 of questionnaires were rejected because respondents did not fill in but instead returned when blank. Therefore, the final sample size adopted for the study was 305

Table 1. Response rate

	Frequency	Percentage
Questionnaires given	347	100.0
Questionnaires returned and completed	305	87.9
Questionnaires returned with missing data	29	8.4
Questionnaire returned but not filled	13	3.7

4.2 Socio-Demographic Characteristics of Respondents

Table 2: shows the descriptive socio demographic characteristics of the entire sample (n=305), which include, gender, age, level of study, religion, relationship status and source of income.as illustrated the male respondents were majority at 57.0% (n=174) and the age that recorded majority respondents was 20years (n=65). Christians faith were the majority at 81.0% (n=247) and Second years recorded highest respondents rate 34.4%(n=105). Additionally, 68.2% (n=208) of the respondents were single and greater majority of all the respondents had no source of income at 76.7% (n=234).

Table 2: Social demographic characteristics of the respondents (n=305)

Demographic Variables	Frequency (305)	Percentage(%)
Gender:		
Female	131	43.0
Male	174	57.0
Age		
18	25	8.2
19	50	16.4
20	65	21.3
21	51	16.7
22	36	11.8
23	46	15.1
24	32	10.5
Religion		
Christian	247	81.0
Muslim	39	12.8
Any other	19	6.2
Level of study		
First year	81	26.6
Second year	105	34.4
Third year	69	22.6
Fourth year	50	16.4
Relationship status:		
Single (not in any relationship)	208	68.2
Married	25	8.2
Engaged	36	11.8
Cohabiting	36	11.8
Source of income		
Yes	234	76.7
No	71	23.3

4.2 Sexting behavior/practice

Table 3: demonstrates the sexting practice. Fifty-seven percent (n=174) had sent a sexts, with majority, 31.8% (n=97) sent to boyfriend/ girlfriend. Majority of the sexters 23.9% (n=73) had sent to one person. Those who reported had received a sext were 57.4%, of these, majority 27.9% (n=89) had received from only one person.

Qualitative results from in-depth interviews indicated that sexting was a common practice among university students. They indicated that it was going by different names. like ‘porn’, ‘blues’, ‘pornography’ and others. Majority had received and others sent back or initiated the exercise themselves.

“Yes I have received those nude photos from my boyfriend, first I was shocked and afraid, I asked him what that meant and he said it was the new form of romantic chat and that everyone was doing it”. (female respondent,21years)

“Yes I sent a ‘porn’ to a girl I was interested in because I didn’t know how to approach her. I thought after she saw the image she would understand my intentions” (male respondent,23years)

*“Yes I sent a sexual image to my partner to entice her into sex and she sent back, it felt nice”
 (male respondent, 24 years)*

Table 3: Sexting behavior/practice

		<i>Frequency</i>	<i>Percentage</i>
<i>Have ever Sent a sext</i>	Yes	174	57.0
	No	131	43.0
<i>Have you ever received a sext</i>	Yes	175	57.4
	No	130	42.6
<i>To whom have you ever Sent a sext to</i>	Have never sent a sext	131	43.0
	Boyfriend/Girlfriend	97	31.8
	Sexual sex Partner(s)	32	10.5
	Someone i just met	18	5.9
	Someone i only knew online	24	7.9
	Other	3	1.0
<i>To how many people have you sent a sext to</i>	Did not sent a sext in the last 12 months	164	53.9
	1 person	73	23.9
	2-5 Persons	41	13.4
	More than 5	26	8.6
<i>From how many people have you received a sext</i>	Didn't receive a sext from anyone in the last 12 months	137	45.2
	1 Person	85	28.1
	2-5 Persons	60	19.8
	More than 5	21	6.9

4.2.1 Relationship between sexting and social demographic characteristic

Table 4 shows relationship between sexting behavior and demographic characteristics. The proportions of participants within each age who had sent texts ranged widely, with highest being the 22 years and 23 year olds at 67% within each age. Age of the student was significant ($P=0.027$) in determining their involvement in sexting. Majority of the respondents who sent sexts were male (67.2%), Chi square test gave $P=0.000$ indicating that gender was significant in determining involvement in sexting. On relationship status of the respondents, the married, cohabiting and engaged recorded high rates of sexting compared to those not in relationship. Out of the 25 married, 20 (80%) were into sexting. Of the 36 cohabiting and engaged students, 24 (67%) and 23 (64%) respectively were involved in sexting. The relationship status of the respondent was significant in determining one involvement in sexting ($P=0.022$). Second years recorded highest sexting rate 75 (71%). The study found level of study was significant ($P=0.002$) in determining sexting among the students. 127 of the 234 who had a source of income were sexting being higher than those without income. Muslims were more into sexting with 25 out of the 39 respondent having participated in sexting at 61.5% as compared to those belonged to other religions. However, having income or not as well as belonging to a certain religion were insignificant in determining student's involvement in sexting with a P-value of 0.068 and 0.361 respectively.

Table 4: Relationship between sexting and social demographic characteristics

		Sexting		Total	Chi-square	P-Value
		Yes	No			
Age						
	18	11 (44%)	14 (56%)	25	14.296	0.027
	19	20 (40%)	30 (60%)	50		
	20	42 (65%)	23 (35%)	65		
	21	26 (51%)	25(49%)	51		
	22	24 (67%)	12(33%)	36		
	23	31 (67%)	15(33%)	46		
	24	21 (66%)	12(34%)	32		
Gender	Female	57 (44%)	74(56%)	131	18.052	0.000
	Male	117 (67%)	57(33%)	174		
Relationship status	Single	108 (52%)	100(48%)	208	9.656	0.022
	Married	20 (80%)	5(20%)	25		
	Engaged	23 (64%)	13(36%)	36		
	Cohabiting	24 (67%)	12(33%)	36		
Level of study	First year	37 (46%)	44(54%)	81	14.770	0.002
	Second year	75 (71%)	30(29%)	105		
	Third year	39 (57%)	30(43%)	69		
	Fourth year	23(44%)	27(54%)	50		
Any source of Income	Yes	127(54%)	106(46%)	234	3.326	0.068
	No	48(68%)	23(32%)	71		
Religion	Christian	137(55%)	110(45%)	247	2.038	0.361
	Muslim	25(64%)	14(36%)	39		
	Any other	13(68%)	6(32%)	19		

4.2.2: Relationship Between Gender and Two-Way Sexting (Sent/Receive or Receive/Sent)

Table 5: Illustrate the response of whether one had sent/received a sexually suggestive nude or nearly nude photo of video through their smartphones, a new variable emerged of those who sent and got a response and also those who received and responded, in other words two-way sexters. Of the 174 who had sent a sext,146 (83.9%) responded back with a sexually suggestive material. Ninety-five males (81.2%) of those who send sexts) received sexts, while fifty-one (89.5%) female respondents who had send sexts received a response.

Table 5: Association between Gender and two-way sexting (Sent/receive or receive/sent)

Gender	Sent sext	Received sext		Total	
		Yes	No		
Female	Sent sext	Yes	51	6	57
		No	16	58	74
		Total	67	64	131
	Total	108	66	174	
Male	Sent sext	Yes	95	22	117
		No	13	44	57
		Total	108	66	174
	Total	175	130	305	
		Yes	146	28	174
		No	29	102	131
	Total		175	130	305

4.3: Prevalence of sexting among the study participants

Figure1: Illustrates prevalence of sexting. Of the entire sample, 57% (n=174) of respondents reported having sent a sexually suggestive nude or nearly nude photo or video of themselves to someone else using a cellphone.

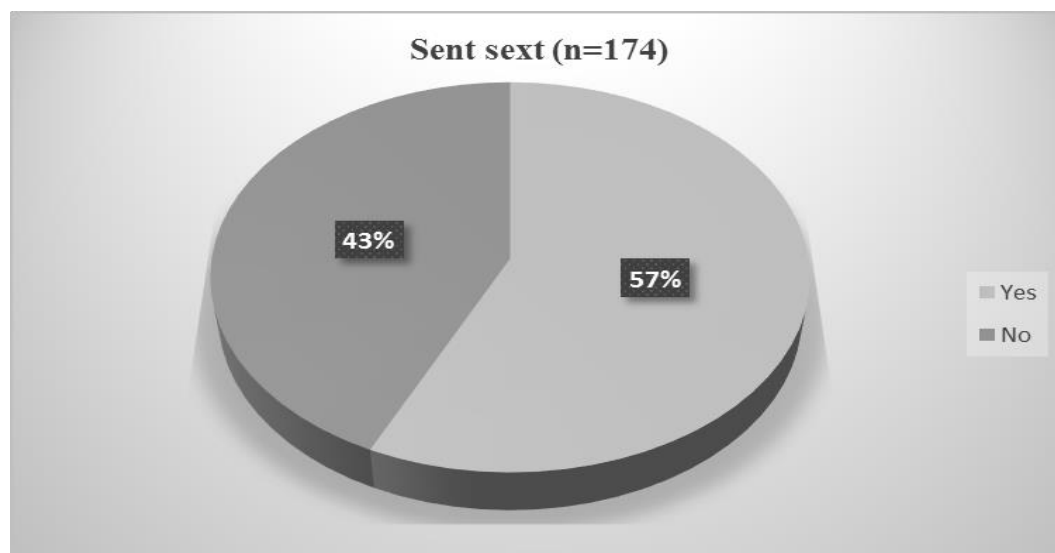


Figure 1: Respondents response to whether they had ever sent a sext

4.3.1: Prevalence of sexting by age of respondents

Sexting (sending of sexually suggestive nude or nearly nude image) was reported across all the ages, only age 18 and 19 recorded prevalence rate less than 50%. Respondents in age 22 recorded highest prevalence rate of 67% within that age. Age 24 recorded 66%, age 20 and 23 recorded 65% each and those in age 21 recorded 51%.

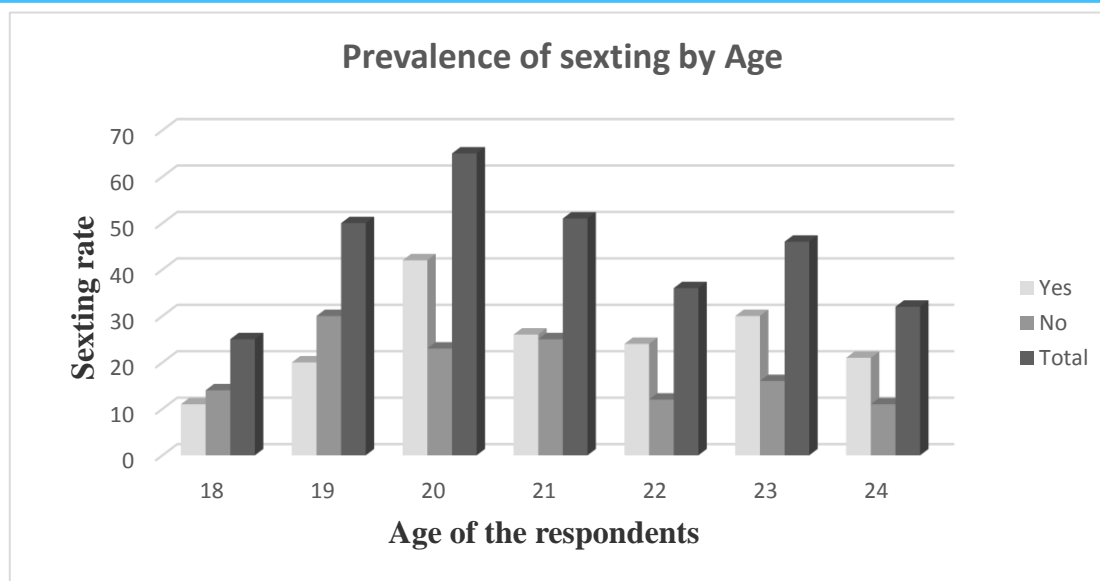


Figure 2: Prevalence of sexting by age of the respondents

4.3.2: Prevalence of two-way sexting by level of study (two-way sexters).

Table 6 present prevalence of two way sexters by level of study (those who sent a sexually suggestive image or video and got a response or who received and responded back as per level of study). A very high prevalence of two-way sexting (forward and receive response or receive sext and forward response) of 83.4% was reported for all levels of study. Fourth years had highest number of two way sexters. Of the 23 students who had sent sexts, 22 got a response, and of the 24 who had received a sext, 22 responded with only 2 failing to respond. A total of 22 fourth years reported to be two way sexters.

Table 6: Prevalence of sexting by level of study

Level of study			Sent sext		Total
			Yes	No	
First year	Received sext	Yes	30	10	40
		No	7	34	41
	Total		37	44	81
Second year	Received sext	Yes	61	5	66
		No	14	25	39
	Total		75	30	105
Third year	Received sext	Yes	33	12	45
		No	6	18	24
	Total		39	30	69
Fourth year	Received sext	Yes	22	2	24
		No	1	25	26
	Total		23	27	50
Total	Received sext	Yes	146	29	175
		No	28	102	130
Total		174	131	305	

4.4: Motivation/reasons for sexting

Presented in table 7 above is response to the question, if you have ever sent sexts, (i.e. sent a sexually suggestive nude or nearly nude photo or video of yourself to someone else), what motivated you or what were your reasons for sexting?

About 17.7% (n=54) majority, indicated they sexted to get or keep a guy/girls', Pressure from boyfriend or girlfriend was second at (10.8%, n=33), as a sexy gift to their boyfriend/girlfriends was third (5.9% n=18), 4.6% (n= 14) sent sexts to initiate sexual activity. Supporting these findings, the interviewees indicated that sexting was done to spice up relationships, out of peer influence, to solicit for friends and to fun and also to ask entice one to sexual intercourse and because everybody was doing it.

“Those who engage in sexting behavior gave various reasons but mostly is because they want to fit in and because they believe everyone is doing it” (female respondent, 24 years)

Table:7 Frequency distribution of what motivates participants into sexting practice(n=235)

Motivation to sext	Frequency	Percentage
Get or keep a guy/girls' attention	54	23.0
Boyfriend/Girlfriend pressured me to send it	33	14.0
As a sexy present for boyfriend/girlfriend	18	7.7
To feel sexy or confident	12	5.1
To initiate sexual activity	14	6.0
Pressure from friends	10	4.2
To get compliments	10	4.2
To be included/fit in	2	0.9
To be fun/flirty	12	5.1
Because i received one	6	2.6
I don't know	43	18.3
Others	21	8.9
Total	235	100

4.5: Risky sexual behavior

4.5.1: Participants response to whether they ever have had sexual intercourse

Figure 3 presents response to the question; have you ever had sexual intercourse either vaginal, oral or anal? (n=305). Majority 77.4% (n=236) of the respondents indicated they had intercourse, 23.5% (n=69) responded No to ever had sexual intercourse by the time of doing this research.

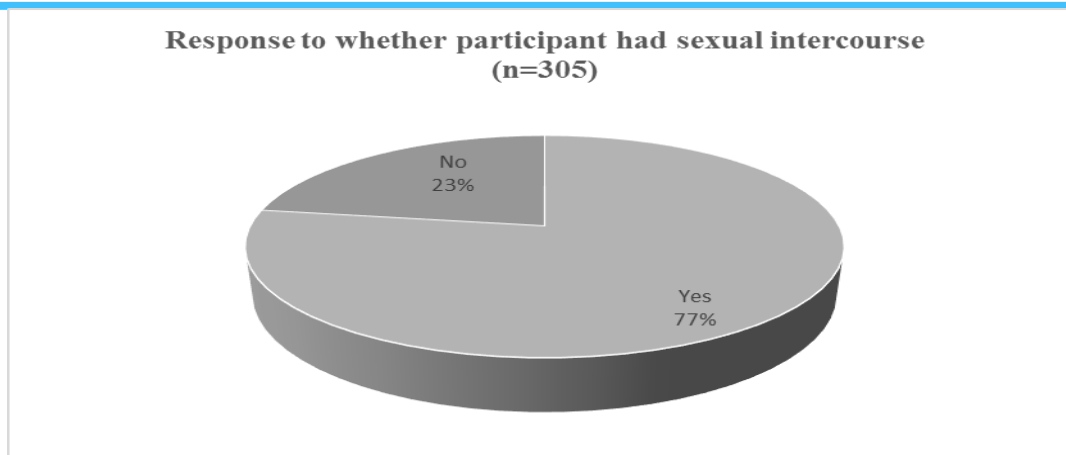


Figure 3: Participants response to ever had sexual intercourse (vaginal, oral, or anal?)

4.5.2: Participants response to use of protection in the last sexual intercourse

Figure 4 present response of 238 respondents to the question; the last time you had sexual intercourse, did you or your partner use protection? Majority of respondent 54.2% (n=121) had not used protection during last intercourse.

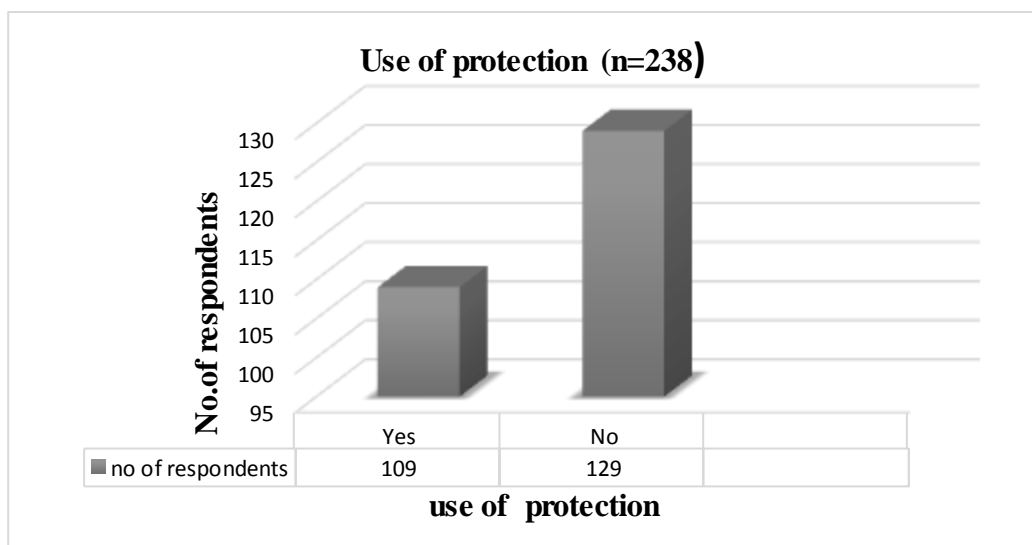


Figure 4: participants' response to use of protection during last sexual intercourse

4.5.3: Participants response to when they had first sexual debut

Figure 5 represents respondents' response to when they started sexual intercourse. 32.3% of the respondents had their first sexual experience in the previous year, 20.5% in the previous month, 12% in the previous week and 12.4% the previous day.

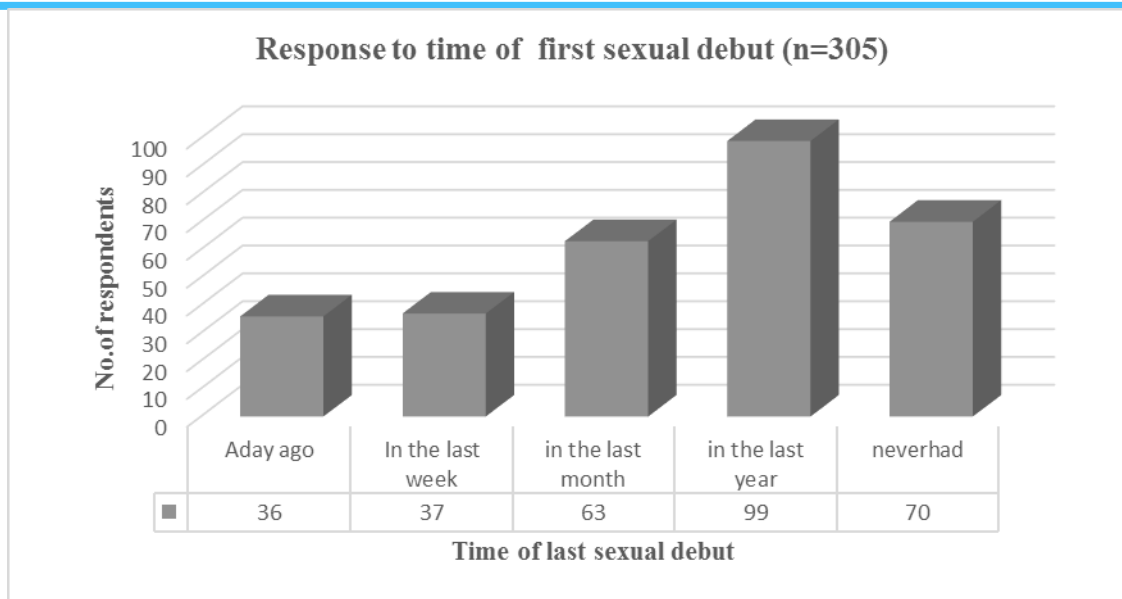


Figure 5: Response to when respondents had first sexual debut?

4.5.4: Participant response to whether sexting led to having sex with the person to whom sext was sent to or from whom sext was received.

Figure 6 presents response of 267 participants to the question if you participated in sexting, do you think it led to having sex with the person you sexted or who sexted you? 56 % (n=150) agreed to the statement by responding Yes while 44% (n=117) responded No to the question.

Respondents from the in-depth interview supplement these findings because majority said that the images triggered sexual feelings and emotions, it was a catalyst to sex and others said that after watching the videos one may be forced to engaged in sexual intercourse exposing themselves to sexual transmitted infections and pregnancy

“The images are so provocative, every part of you becomes weak and if not careful if the person who sent it visit, you may end up in bed” (male respondent,23years)

“The best thing to do is to delete the photos or videos immediately because they trigger your thoughts and start to imagine yourself in of the act” (female respondent,21years)

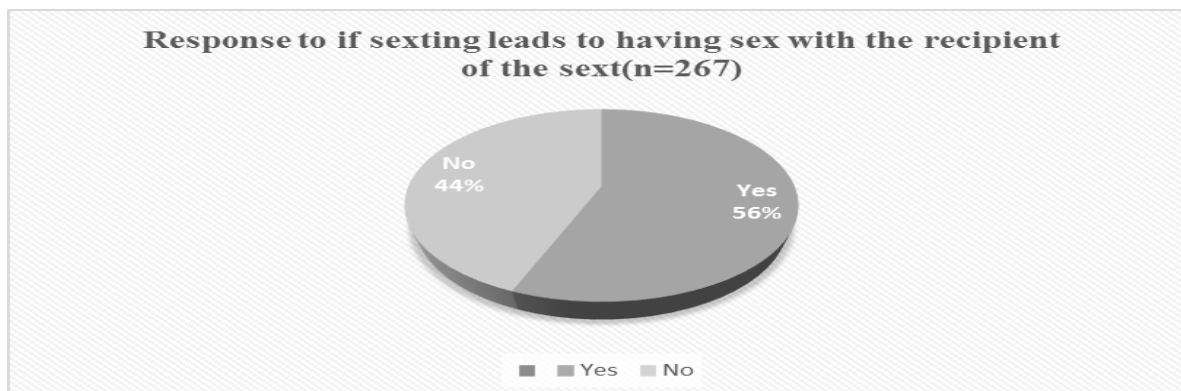


Figure 6: participant response to whether sexting leads to sexual intercourse with the person they sext

4.6: Relationship between sexting and risky sexual behavior

Table 8 demonstrates that there is a relationship between sexting and engaging in sexual intercourse. At 95% confidence interval, the sending of sexts gave a P-value of 0.000 and odds ratio of 8.271. Therefore, the likely hood of engaging in sexual intercourse if one was sexting was 8 times more likely than one who did not, which indicates a very strong relationship between sending sexts and engaging in sexual intercourse. However, there was no association ($P=0.236$, odds ratio 0.720) between sexting and use of protection. Having sexual intercourse with the recipient of sext also was found to be significantly associated ($P=.000$) and Odds ratio at 95% confidence level gave a value of 6.939 indicating that the likelihood of having sexual intercourse with the person who receive the sext was 6 times more likely than one who had not received a sext.

“The images create a picture of what the other person is saying. It is kind of silent communication and majority of those who engage in that kind of texts end up having sexual intercourse” (male respondent, 24years)

“The recipient understands very well the intentions of the sender, it is way of preparing the other person.it is the modern way of communication where images say it for you” (male respondent, 22years)

“It is very hard to explain, so many thoughts keep coming to mind, you get confused, feeling of shame and sometimes curiosity and if you have no self-control you will yarn to practice what you saw” (female respondent, 20years)

Table 8: Relationship between sexting and sexual behaviors

		Frequency	Percent	Chi square	P-Value	Odds ratio
Sexual Intercourse	Yes	236	77.4	49.176	.000	8.271
	No	69	22.6			
Use of protection	Yes	109	45.8	1.406	.236	0.720
	No	129	52.2			
Sexting leads to	Yes sex with the person	150	56.2	49.759	.000	6.939
	No	117	43.8			

4.7 Hypothesis testing

The null hypothesis of the study was; there is no association between sexting and risky sexual behavior among students in Machakos University. To test the hypothesis, sexting, which in this study was defined as the sending of sexually suggestive nude or nearly nude photos or videos, Chi Square was used to test the relationship between sexting and risky sexual behavior, and Odd ratio used to determine the degree of the association. sexting was found to be associated with risk sexual behavior as engaging in sexual intercourse given one was involved in sexting gave a Chi square value of 49.176, P-value of 0.000 and odds ratio of 8.271. The perception by respondents that sexting leads to sexual intercourse with the person to whom the sext was sent also gave a chi square a value of 49.759 and p-value of 0.000 indicating there is statistical significance between sexting and having sexual intercourse with the person who received the sex, Odds ratio at 95% confidence level gave a value of 6.939 indicating that the likelihood of having sexual intercourse with the person who receive the sext was 6 times more likely than one who had not received a sext. The information,

generally showed that sexting was associated with risky sexual behaviors, and therefore reject the null hypothesis that there is no relationship between sexting and risky sexual behaviors.

5.0: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The findings of the study demonstrate that sexting behavior is prevalent, at 57% among students of Machakos University which is consistent with Abraham, 2015, Ahiataku, 2016, Hudson & Marshall, 2016, Strassberg, 2014), but higher prevalence than that of Kuchawo (2014), study of 41% among the students of University of Nairobi, possibly due to advancement in technology, free internet connection provided by the institution and to availability of cheap internet enabled smartphones (Jonsson, 2015, Abraham, 2015 & Munywoki, 2017). Consistent with Matte, (2017) and Balogun *et.al.*, (2019), sexting practices predominant among the students incorporate sending, receiving, replying to sexually explicitly suggestive messages and making photos and videos that contain nudity or simulated sex acts. The present study is in support of previous studies that demonstrate that the practice is common among people in relationships suggesting sexting as a component of romantic relationships or courting practices between youth (Kathy & Donna, 2014, Olatunde & Balogun, 2017, Makgale & Plattner, 2017, Vishwajeet, 2019)

In line with the previous studies, sexting was voluntary and with one partner, majority of the respondents sent to boyfriend/girlfriend, sexual partner or someone they just met online that they were interested in dating. And while a significant number of respondents who had sent a sexts had sent it to between two and five, few had sent to more than five persons (Lee, Crofts, Mc, Govern & Milivojevic, 2015). Consistent with Makgale & Ilser, (2017), the study reported very small proportion of active sexters, which is positive because increase in the frequency of sexting often leads to increase in the number of sexual partners thus increasing the risk of negative outcomes. There were more receivers of sexts in this study as reported in earlier studies, (Madigan Sheri *et.al*, 2018), than senders although by a very small margin. Although respondents have received sexts, they are not categorized as sexters because sending (not receiving) sexts constitutes active participation in the practice, so a cross tabulation of sexters (senders and receivers) was done to get a prevalence of those who send and those who after receiving, are motivated to send a sext in return. Consistent with Gordon-Messer *et al.*, (2013), Makgale & Plattner, (2017), Gassó, Johnson and Montiel, (2019), a prevalence of 48% of two way sexters was derived. Previous studies (Gordon-Messer, 2013, Olatunde & Balogun, 2017) hypothesised that the frequency of receipt sext from one person was high than sent to one person and also high among those who between two and five persons, for receivers and senders respectively and attributed the outcome to multiple recipients from one sender or the possibility of respondents receiving sexts from other persons who did not qualify the inclusion criteria either by being younger or older. The present study supports the hypothesis,

Previous studies (Kathy & Donna, 2014, Abraham, 2015, Springston, Katie M., 2017) reported that female sext more than males have yielded mixed results related to prevalence of sexting in relation to gender, on the contrary the present study The current study found a large gender disparity in sexting, with over two times as many male students involved in sexting 67% compared to their female counterparts 33% making the male gender more prevalent in sexting in Machakos university, but consistent with Manoj Kumar Sharma, (2019), Olatunde & Balogun, (2017), who found that male students scored higher than females in sexting

behavior. A Pearson's Chi square test gave a value of 18.052 and *P-value* of 0.000 indicating that gender was statically significant in determining involvement in sexting. It is important to note that this study had considerably more male participants than female therefore, it is difficult to determine if this finding is due to this predominance or if it is consistent with the common trends among gender and sexting.

A significant number of previous studies on sexting practice found no statistical significance between sexting prevalence and age of the respondent (Ahiataku, (2014), Abraham, (2015), Makgale & Plattner (2017). However, this study found that there is a statistical significance between sexting prevalence and age of the respondents. The findings agree with other studies that sexting prevalence increases with age, with the lower ages of 18 and 19, recording sexting prevalence of less than 50%, however from age 20- 24 sexting increased from 51% to 67%. A cross tabulation to establish the highest prevalence in two - way sexters (send sext and get a response and receive and sent a response). Sexting (two-way sexting) prevalence increased with age as well. This was consistent with Berchtold, PhD., Suris, PhD., & Yara, (2017), Olatunde & Balogun, (2017) studies that associated sexting with increasing age of students. This may be due to their developmental stage into young adulthood and may also be reason why sexting is viewed by many as an expression of affection.

Consistent with Weisskirch, Drouin & Delevi, (2016), the relationship status of the students was also found to be significantly associated with sexting behavior. Respondents who reported to be married, engaged or cohabiting recorded a high prevalence of sexting. The study also found that people in romantic relationships whether of long or short duration were more likely to have sexted than those who did not have romantic partners. Also Sesar, Dodaj & Kordić, (2019), Choi, Mori, Ouytsel, Madigan & Temple, (2019) studies found that those not in relationships may jokingly exchange sexts with platonic friends, to function as a seeking behavior and help alleviate relationship or sexual anxiety

Previous studies reported different reasons or motivation for sexting among young people, ranging from curiosity and experimentation which may be triggered by peer pressure as results by Lenhart, (2009); Yeung, *et al.*, (2014) indicated. Moreover, Ybarra, PhD & Mitchell, Ph.D., (2014) studies established that young people do not presume any risk in sexting but as a way of growing relationship and experimental way to initiate romantic relationships or used in place of having sex. In line with their studies Vishwajeet, (2019) also reported that youth view sexting as a safe sex practice, where they feel that the risks of sexually transmitted diseases and pregnancy get eliminated without actually affecting sexual pleasure. The study also indicated that different age groups depict different reason for sexting. While those at the lower age sext to get the feeling of excitement and to break the monotony of their sexual life, middle age sext with real life partners or strangers where sexting works as foreplay to increase sexual excitement and mature youth sext to fulfil their sexual desires, similar finding were reported by Choi, Mori, Ouytsel, Madigan & Temple, (2019). Regarding reasons /motivation for sexting, majority of respondents in this study reported they engaged in sexting to Keep or get boys/girls attention with many other students reporting it was due to pressure from boyfriends or girlfriend, to initiate sexual activity was the third most given reason followed by to feel sexy or confident and to be fun/ flirt To sum it up as McGraw (2013), stated, the ubiquity of sexting may give rise to very specific expectations, "everybody's doing it" and thus everyone sexts to keep up with social norms. Although the finding of this study differ with findings of Hudson & Marshall (2016), Makgale & Plattner, (2017), and Prather & Vandiver (2014), on the dominant motivation for

sexting where they all identified to be fun/flirtatious with peers as the dominant motivation for engaging in sexting among participants, these motivations appear consistent with a system of mutual exchange where particular expectations are constructed (Lee, Crofts, McGovern & Milivojevic (2015), Indicating the normalcy youth perceive toward sexting as a means of communicating with peers. However, the study could not establish whether some students sexted as a way of avoiding risks involved in having sex, as established by Anastassiou (2017), and Vishwajeet, (2019) studies.

The U.S. Centers for Disease Control and Prevention (CDC) defines Risky Sexual Behavior as behavior that increases one's risk of contracting sexually transmitted infections and experiencing unintended pregnancies. In line with the CDC definition of risky sexual behavior, respondents were asked if they had engaged in sexual intercourse and Majority 74.6% of the respondents indicated they had intercourse, by the time of doing this research. About use of protection during intercourse, over fifty percent had not used protection with minority having used protection. Majority had already had their first sexual debut a year ago which means those 18years had start debut early, others responded in the previous month, a day before and week before the research respectively. The findings indicate sexual intercourse was common practice among the students and also that use of protection was not given the much needed importance by majority, thus exposing themselves to risk of unwanted pregnancies and STI transmission. Similarly, Sendekie & Worku, (2019) Mersha, (2018) found out that students started sexual debut before the age of 18, those who reported to have had sexual intercourse, majority had their first debut in previous year and although respondent reported use of protection, very few used it constantly and consistently.

Regarding relationship between sexting and risky sexual behavior, the study established that there is a significant association between the two. Chi square value of 49.176 and p-value of 0.000 indicate a significant association between sexting and having sexual intercourse. Odds ratio test at 95% confidence level gave a value of 8. 271. This meant that students engaging in sexting behavior were eight times more likely to result to sexual intercourse after viewing the videos or sexually explicit images than one who is not sexting. Similarly, Houck, *et al.*, (2014) found out that sexting (sexual sext with or without pictures), was associated with greater likelihood of engaging in a variety of sexual behaviors, including touching genitals, having a "friend with benefits," oral sex, or vaginal sex, and that teenagers who had sexted in the study were 5 times as likely to have had vaginal sex. Five times is lower than the current study findings but the can be attributed to advancement in technology. Further, McCoy, Madigan, & Mori, (2019) found that respondents who were into sexting were nearly four times more likely to be having sex than those that were not, and with multiple sexual partners and lack of contraception use. Their findings agree with the current study where respondents reported not using protection but that being the case, the study found no significant association between use of protection and sexting. The findings compare with. Temple PhD, *et al.*, (2012), Benotsch, Snipes, Martin, & Bull, (2013), Berchtold, Suris & Yara, (2017).

To further understand whether relationship exist between sexting and risky sexual behavior, the respondents gave their views about the relationship between sexting and having sex with someone, what they thought was true for most people, 47%, held the view that sexting leads to sex with the person who receives the sext. The next question examined the perception of sexting and its relation to sex at a personal level for respondents. When asked whether sexting led to having sex with the people they sexted, fifty-six percent of students responded that it did. Chi square test also found significant association between having sex with the

person who the sext was sent to. The Odds of a student engaging into sexual intercourse given they are sexting was found to be six times more compared to those not sexting. Similar findings on Perception were reported by Temple PhD, *et al.*, (2012), Abraham, (2015), Champion & Pedersen, (2015). Further, the studies stated that sexters were significantly more likely than non-sexters to state sexting leads to sexual activity with the sext recipient contrary to the notion that sexting is safe and, an alternative to a face to face contact or a way of avoiding risks associated with active sexuality. Because of the cross-sectional nature of the study, it was not possible to determine the temporal relationship between sexting and sexual behavior. However, it is possible that sexting may act as an initial sexual approach or as a way of introducing sex in the relationship. It could also be that sending a sexually explicit image invites sexual advances from an intimate partner or other peers.

Research by Singer, (2016) and Anju, (2015), support the theoretical application of the diffusion of innovation theory by Rogers adopted for this study, to show that perception of sexting as new idea by members of the social system(students) contributes to diffusion of the innovation(sexting) overtime. The USAID, (2017) added that the likelihood of an innovation/behavior being adopted depends on members of a social system(students), environmental barriers (like lack of phone or restriction which in the case the students have freedom because they own the gadgets and are assured of privacy) and facilitators (peers who encourage adoption), the communication system and the innovation's attributes. Lemos, Bell, & Hosek, (2015) concluded that behaviors/innovation will be adopted by members of a social system over time provided they believe there is an advantage to adopting it, it can be observed and easily executed, there are existing communication channels through which the change can be disseminated, and the behavior change is consistent with their social values and can be integrated into social norms (Rogers, 2003). Sexting channel of communication is a smartphone, the innovation is sexting and very short time is needed to reach the intended audience. The adoption of sexting has relative advantage over text message as it provides the recipient with virtual message for them to immediately interpret the intention of the sender and very likely respond, the behavior is not complex because they know how to create and upload photos and sent to the intended recipient. The behavior is compatible with the growing population and fits well into their social cycles as they are still inside developmental stage. In terms of trialability, there is no harm in taking a sexually suggestive photo and forwarding to someone and if there is risk involved it is very minimal. The observed outcomes are appealing because the recipient sends back a photo that satisfies sexual gratification of the sender hence due to curiosity and pressure to belong, many are pushed into adoption of the innovation which in this case is sexting practice, thus diffusion to members of the social system (students).

Conclusion

The study findings demonstrate that sexting is prevalent among Machakos university students, with every level of study involved. While some differences in prevalence were noted with respect to gender, age, and relationship, overall sexting prevalence of 57% among the students is a clear evidence that the practice is common among the students. The results found very small proportion of active sexters, with majority of sexters engaging in sexting voluntarily and with one partner. This is positive indicator because an increase in the frequency of sexting often leads to increase in the number of sexual partners thus increasing the risk of negative outcomes.

Motivations/reasons for sexting among the students depended on relationship status, those not in relationship participated to fun /flirt or to Keep or get boys/girls attention, while for those in relationship did out of pressure from boyfriends or girlfriend, to initiate sexual activity and others to maintain or enhance sexual relationships. More than half of the study participant already had sexual intercourse at the time of the study and most of them had not used any protection. Sexual debut was frequent among the students with some reporting they had their first just a day prior to the study and others the previous year meaning that those eighteen years had started sexual debut before they joined the university. These findings clearly show how students expose themselves to risk of unwanted pregnancies and STI transmission like HIV/AIDS either intentionally or for lack of knowledge or out of pressure to belong. Engagement in sexting in general was found to be significantly associated with risky sexual behavior. Those sexting were found to engage in sexual intercourse more likely than those not into sexting. Regarding Students perceptions about relationship between sexting and risky sexual behavior, they perceived that sexting leads to sex with the person they exchange sexual content with.

Recommendation

A Multi-sectoral approach by ministry of education, health, faith based organizations and non-governmental organizations should be adopted to design prevention programs that target all youths from age 10-24 years using techniques that adolescents at lower education level prefer, such as simple language, illustrated materials, and digital technologies because from the study finding sexting and risky sexual behaviors start earlier than the age of eighteen years, and this may be more effective to prevent the behavior. The ministry of higher education to design programs in consultation with the students centered around how the youths can utilize their smartphones, social platforms and availability of cheap internet to learn about the benefits and dangers of sexting, potential short and long term consequences associated with sexting.

Future research should include youths from the age of twelve years to be able to discover when the youths start sexting to help come up with programs that are appropriate for each age group and help curb the behavior at an early age.

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