EFFECTS OF SOCIAL-MEDIA-DELIVERED INTERVENTION ON EXPOSURE TO PORNOGRAPHY AND RISKY SEXUAL BEHAVIOURS AMONG STUDENTS OF SELECTED TERTIARY INSTITUTIONS IN OYO AND LAGOS STATES

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A Thesis in the Department of Health Promotion and Education,
Submitted to the Faculty of Public Health
in partial fulfilment of the requirements for the Degree of

DOCTOR OF PHILOSOPHY

of the

UNIVERSITY OF IBADAN

APRIL 2021

CERTIFICATION

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DEDICATION

Firstly, this research is dedicated to God, the Almighty. The one who had made way where there was no way. He only deserves all the glory.

Secondly, I dedicate it to all the young persons out there as almost all are either inadvertently or advertently exposed to sexually explicit materials on the internet/social media.

ACKNOWLEDGMENTS

To my supervisor, Professor Ademola Johnson Ajuwon, I wish to say a special "Thank You" to you. You were not just a supervisor to me, but a father and mentor. Sir, I appreciate your professional advice, guidance, financial contributions to the success of this research work and to my career success in general. My appreciation goes to theAg. HOD; Dr.Titiloye for his guidance, being always supportive and sacrificial rolesplayed as the departmental acting head.Also, to my outgone Ag. HOD, Dr. Oyewole;thank you for your guidance. I also want to appreciate my teachers and Professors in the department of health promotion and education (HPE); Oladimeji Oladepo and Oyedunni Arulogun. Also, special appreciation goes to other lecturers in the department; Late Dr. Fredrick Oshiname, Drs Yetunde John-Akinola, I.O Dipeolu, Mojisola Oluwasanu and Adeyimika Desmenu. I wish to appreciate other members of staff in the department of HPE; Mr A.J Imaledo, Mr. W.O Qaudri, Mr. Oyeyemiand Miss Bola.My appreciation also goes to Drs Adebowale and Akinyemi for their guidance on statistical analysis. I wish to appreciate all the Doctoral students especially my classmates and friends; Tayo, Demola and Ope.

My appreciation also goes to the school authority of The Polytechnic Ibadan and Yaba College of Technology Lagos for giving the permission to conduct the research in their institution. Also, to all my participants, from Polytechnic Ibadan and Yaba College of Technology Lagos, you guys were very wonderful. Thank you all.

My in-laws have been very wonderful. The Most Rev. OOC and Mrs Hannah Fafeyiwa, thank you for your encouragement, contributions and prayers. Also, to my sisters' and brother in-law, Jumoke, Damilola and Iyanu; I appreciate you all. This list would be complete without mentioning the Most Rev and Mrs Kehinde Stephen (RTD). Colossal appreciation goes to my family members. First to my Late Father, Jonathan Olusesan Olaleye, I will forever be grateful for your immensurable contributions to my success in life; both academic and musical career. To my loving mother, Mrs Christiana Ige Olaleye, andmy siblings and their spouses; Mr & Mrs Olawale Olaleye, Mr & Mrs Olakunle Olaleye, Mr and Mrs Tim.'Gbemigun, and Rev. & Mrs Olanrewaju Olaleye. I appreciate you all.

Lastly, to my hardworking, and caring wife Mrs Oluwatosin Kikelomo Olaleye, you have been a source of encouragement to me all the time especially on every stage of the doctoral programme. My children; G. Oluwadarasimi and P. Oluwadunmininu Olaleye. Thank you for your patience and understanding when I was away. You shall grow to fulfil destiny.

ABSTRACT

Exposure to pornography is fraught with health and social implications. A major source of this exposure is the Social Media (SM) platforms, which are widely used by young people. In Nigeria, there is inadequate information on the effects of SM-delivered-intervention in facilitating behavioural changeamong young persons. Previous interventions through these platforms among them have largely focused on career development. This study was conducted to investigate the effects of SM-delivered-educational intervention on exposure to pornography and RiskySexual Behaviours (RSB) among students of selected tertiary institutions in Oyo and Lagos States.

The quasi-experimental study was conducted in two purposively selected public polytechnics in Oyo and Lagos States which were allocated into Experimental Group (EG) and Control Group (CG), respectively. A four-stage simple random sampling technique was used to select 200 students (EG=101; CG=99) for interview at baseline, out of which 159 students (EG=81; CG=78) were interviewed at post-intervention. Baseline data collected with a validated self-administered questionnaire included: socio-demographic characteristics, lifetime and recent (last one month) Advertent Exposure to Pornography (AEP), a 20-point scale on Effects of Exposure to Pornography (EEP),12-point Self-efficacy to Prevent Intentional Exposure to Pornography (SePIEP) and 10-point RSB scales. Scores ≤9 and >9 were categorised as low and high SePIEP, respectively. Baseline findings were used to design and implement a four-month educational intervention using WhatsApp which was found to be the most commonly used SM platform. Post-intervention survey was conducted after one-month follow-up using the instrument earlier used at the baseline. Data were analysed using descriptive statistics, Chi-square and t-test at $\alpha_{0.05}$.

Respondents' ages were 21.3±2.7 and 21.4±2.7 years, while males included 61.4% and 70.7% in EG and CG, respectively. At baseline, lifetime AEP was 61.4% and 88.1% in EG and CG, respectively. Recent AEP significantly decreased in the EG from 53.2% to 25.9% between baseline and post-intervention but increased in CG from 36.6% to 47.2% with no significant difference. There was a significant increase in mean knowledge of EEP in EG from 12.9±3.8 to 15.6±4.7, while it remained the same in the CG comparing baseline (13.9±3.6) with post-intervention (13.9±4.4). The EG showed a significant increase in mean score of SePIEP from 9.7±2.8 to 11.5±1.4 while CG decreased from 10.0±2.1 to 9.9±2.0 at follow-up.High SePIEP was 66.3% (EG) and 65.6% (CG) at the baseline and this significantly increased to 93.8% in EG compared with 75.5% in CG at post-intervention. Experience of sexual intercourse in previous three months at the baseline was 57.9% and 47.2% in the EG and CG respectively, and at post-intervention, this significantly decreased to 16.7% in EG compared with 52.4% increase in CG. Mean score on RSB significantly decreased from 4.2±2.6 to 2.4±1.4 in EG while CG increased from 3.7±2.3 to 4.2±2.8, comparing baseline with post-intervention.

Social media-delivered-intervention was effective in reducing exposure to pornography and risky sexual behaviours among the respondents in the experimental group. Interventions using social media are therefore recommended for risky reproductive health issues of young persons in Lagos and Oyo States.

Keywords: Pornography, Risky sexual behaviour, WhatsApp, Young persons

Wordcount: 494

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

AIDS –Acquired Immune Deficiency Syndrome

CG - Control Group

CSO - Civil Society Organisation

EG – Experimental Group

FGD - Focus Group Discussion

HIV – Human Immunodeficiency Virus

HND – Higher National Diploma

ND – National Diploma

SEM – Sexually Explicit Materials

SPSS – Statistical Package for Social Science

STIs – Sexually Transmitted Infections

UI/UCH – University of Ibadan/University College Hospital

UNESCO - United Nations Educational, Scientific, and Cultural Organization

DEFINITION OF TERMS

Advertent exposure: Intentional exposure

Inadvertent exposure: Unintentional exposure

Mature minor: A young person who has not reached adulthood as defined by the laws of a particular jurisdiction but whose maturity is such that he/she can interact on an adult level for certain purposes

Minimal risk research: A research in which the probability and magnitude of possible harms implied by participation in the research is no greater than those encountered by participants in the aspects of their everyday life that relate to the research

Multiple sexual partners: Having more than one sexual partner within a specify period

Pornography: Any explicit material intended to create sexual arousal in the consumer/audience

Recent experience of sexual intercourse: defined as the experience of sexual intercourse in the three months preceding the study

Recent experience of sexual violence: defined as the experience of any form of sexual violence in the three months preceding the study

Recent exposure to pornography: defined as exposure to sexually explicit materials in the three months preceding the study

Risky sexual behaviour: defined as recently (last three months) engaged in sexual intercourse, none use of protection during last sexual intercourse and/or currently having multiple sexual partners

Safe sexual practice: Sexual practicethat do not involve the exchange of bodily fluids, including blood, sperm, vaginal secretions, and saliva, to avoid AIDS and other sexually transmitted diseases

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Use of social media has become popular during the last decade, attracting millions of users worldwide. Worldwide the most commonly used social networks are Facebook, YouTube and WhatsApp (Statista, 2019a), with WhatsApp being the most popular mobile messaging application (Statista, 2019a). Social media is now part of the "rapid worldwide digital development" transforming the lives of young people (Pfeiffer, Kleeb, Mbelwa and Ahorlu, 2014). As a result, many young people are changing the outlets where they search for news, information, business and entertainment (Boyd and Ellison, 2008). Through social media, youths receive information, meet online, communicate, and socialise by sharing, photographs, news, thoughts and ideas, or respond to natters and other contents with peers and others (Buhari and Ahmad, 2014). It is therefore not surprising that social media have become entrenched in young persons' lives, enabling them to socialize with their friends even when they are unable to gather in unmediated situations (Boyd, 2008).

The social media sites have several features which make them popular with young people. For example, in Facebook and Instagram, the users can create personal profiles, upload and share pictures and videos, also post messages that connect them with other users (Pempek, Yermolayeva and Calvert, 2008). The average time spent daily on social media has been recorded to have increased over the years from 90 minutes in 2012 to 136 minutes in 2018 (Statista, 2019a) with young people being the prominent users of these social media sites. This may be because young people derive several benefits from use of social media sites including receiving and sharing information and ideas, friendship, education and being connected with family and other loved ones (Adil, 2018).

In Africa, especially in Nigeria, social media sites are popular means of both interpersonal and public means of interaction especially among the youths (Eke, Omekwu and Odoh, 2014). Due to their explorative and curious nature, youth and teen

are prominent users of social media sites (Pew Research Centre, 2016). This is expected since the 'digital age' is generally believed to belong to the youth. The commonly used social media by youth in Nigeria include; Facebook, WhatsApp, Blackberry Messenger (BBM), Instagram, YouTube, Yahoo, 2go, Skype and Eskimi (Eke, Omekwu and Odoh, 2014)). However, studies have shown that the most popular and widely used social media in Nigeria are WhatsApp and Facebook (Schwartz, 2016; Buhari and Ahmad, 2014; Eke, Omekwu and Odoh, 2014).

WhatsApp Messenger is a "free messaging app (incorporated in 2009) available for iPhone and other smartphones". It uses the phone's Internet connection (4G/3G/2G/EDGE or Wi-Fi) to make voice and video calls, send text messages, documents, Portable Document Format (PDF) files, images, Graphic Interchange Format (GIF) files, videos, user location, audio files, phone contacts and voice notes to other users using standard cellular mobile numbers (WhatsApp Inc., 2016). In the first quarter of 2017, WhatsApp had a user base of over 1.2 billion, making it the most popular messaging application in the world followed by Facebook (Statistica, 2017). WhatsApp was officially launched for Personal Computer through a web client, under the name *WhatsApp Web* in late January 2015 (Statt, 2016).

Despite several benefits derived from the use of social media which include; communication and sharing of ideas, its use is fraught with many challenges such as risk of depression, time wastage, cyberbullying and harassment, hacking**,** fraud and scams, addiction and exposure to and sharing of sexually explicit materials especially among youths (Adil, 2018). Sexually Explicit Materials (SEM) also known as *Pornography* have been defined as explicit materials intended to create sexual arousal in the consumer (National Coalition to Prevent Child Sexual Abuse & Exploitation, 2011). It is defined as 'sexually explicit media that are primarily intended to sexually arouse the audience' (Malamuth and Impett, 2001). Also, according to Peter and Valkenburg (2007) they are materials that show 'genitals and sexual activities in unconcealed way'. Exposure to SEM is common among children and young people. This could be either online or offline, intentional and accidental(Ybarra and Mitchell, 2005).Young people encounter sexually explicit images while on the Internet, some watch *X-rated* videos and, like adults, they live in a culture increasingly saturated in

sexualised representations (Flood, 2009). Sexual curiosity is a normal characteristic of adolescence and some neuroscientists have argued that the brains of adolescents are more sensitive to highly stimulating reward responses. This could be due to the fact that the limbic systems mature much earlier than prefrontal cortices throughout adolescent years, creating a bias for emotionally salient stimuli over inhibitory control (Casey, Getza, and Galvan, 2008). In other words, it is more difficult for adolescent than adults to make safer, wiser judgments when presented with potentially dangerous but sexually rewarding possibilities (Rhodenizer, 2014).

The media through which young person are exposed to SEM are changing rapidly with mobile phones now playing a significant role so that young people can watch them in school and other public places as well as in the more private setting of the home or bedroom (Rothman, Kaczmarsky, Burke, Jansen, and Baughman, 2015). Youths currently use various types of sophisticated mobile phones which have unlimited access to social media where they 'add' strangers as friends or join groups on such platforms where they could be exposed to SEM (Mitchell, Finkelhor, and Wolak, 2003). There have been instances where social media accounts are hacked especially on Facebook and the hackers would post SEM on the 'wall' of the hacked account. Besides, the social media, youths also access pornographic videos and pictures on their mobile phones using the internet page. Mobile phone pornography in schools is now "widespread and very worrying" (The Christian Institute, 2009). Mobile pornography may also include sexting (sending or posting of sexually explicit photos, images and videos of oneself, text messages, or e-mails by using a cell phone or other mobile device). Beyond this, there is even an emerging trend towards technology use in the production and distribution of one's own pornography (Owens, Behun, Manning and Reid, 2012). The distribution may be done using file sharing mobile applications *such Bluetooth, Xender, Flashshare* or any other file sharing applications as well as the social media.

Young persons are viewing SEM both intentionally and accidentally at increasing rates (Mitchell, Wolak, and Finkelhor, 2007;Stanley, Barter, Wood, Aghtaie, Larkins, Lanau and Överlien, 2016).For example, a study conducted in Ibadan Nigeria among young person aged 10 – 24 years showed that 65.4% had ever stumbled on pornographic sites out of which 20.4% indicated they regularly stumble on such sites. Out of those who

have ever stumbled on such sites, 12.6% indicated they minimize the site and view them later (Arulogun, Ogbu and Dipeolu, 2016). In another survey conducted in United States of America by Wolak, Mitchell, and Finkelhor, (2007)fifteen percent of young persons' age 10 – 17 years reported intentional exposure to SEM a year preceding the study. Specifically, 15% reported intentional exposure to SEM (8% online and 7% offline-only seekers) while 25% reported unwanted exposure to SEM at least once in the previous year.

1.2 Statement of the Problem

According to Maltz and Maltz (2009), "pornography is moving from an individual and couples' problem to a public health concern capable of deeply harming the emotional, sexual and relationship wellbeing of millions of men, women and children" (Maltz and Maltz, 2009). Exposure to SEM, whether intentional or accidental is common among young people even children, with a range of notable and often troubling effects (Flood, 2009). Exposure to SEM may be disturbing or upsetting and sustains young people's adherence to sexist and unhealthy notions of sex and relationships (Flood, 2009). Effects of exposure to SEM include emotional disturbance (Flood, 2009), change in sexual behaviour (Arulogun et al., 2016), unrealistic attitudes about sex and misleading attitudes toward relationships (Tsitsika, Critselis, Kormas, Konstantoulaki, Constantopoulos, and Kafetzis, 2009), increased likelihood of accepting and engaging in sexually permissive behaviours (Lo and Wei, 2005), negative perception and increased likelihood that young people, regardless of gender, would view women as mere sex objects (Peter and Valkenburg, 2009; Rideout, 2001). Exposure to SEM could also lead to addiction which is characterized by compulsive and repeated use of SEM until it causes grave negative consequences to social, physical, mental, even financial well-being of one's live (Parashar and Varma, 2007).

Exposure to SEM has been reported to intensify "attitudes supportive of sexual coercion" and increases likelihood of engaging in coercive sexual practices among males while among females, it was reported to be associated with higher levels of reported sexual victimization (Ybarra, Strasburger and Mitchell 2014; Flood, 2009; Simons, Simons, Lei, and Sutton, 2012, Olaleye and Ajuwon 2012). Malamuth, Addison and Koss (2000) reported that those who watch pornography are about four times likely to have higher sexual aggressive behaviour than those who do not watch

it. For boys and young men, exposure to SEM may exacerbate violence-supportive social norms and encourage their participation in sexual abuse, also perpetration of sexual violence and abuse has been reported to be significantly associated with constant viewing of online SEM (Stanley et. al, 2016; Rothman and Adhia, 2015). For example, A United States based study conducted among adolescents showed that early exposure to SEM was associated with perpetration of sexual harassment (Brown and L'Engle, 2009). Also, a respondent in a study conducted among students of higher institution in Nigeria reported in an in-depth interview that he raped his girlfriend after watching pornography because he could no longer control himself (Olaleye and Ajuwon, 2012). Bonino, Ciairano, Rabaglietti and Cattelino's (2006) reported a significant association between viewing pornographic films and videos and active harassment and perpetration of forced sex. Correlations were also found between viewing pornographic films and videos and sexually harassment or rape, especially for young women and younger adolescents. The Bonino et. al., study (2006) was conducted before the proliferation of mobile phones hence the current situation could be worse as young persons now have greater access to mobiles phone and other related gadgets and consequently at a greater risk of exposure SEM.

Exposure to SEM predicts earlier initiation of sexual behaviours, including intercourse among adolescents (Ashby, Arcari, and Edmonson, 2006; Rideout, 2001; Collins et al., 2004) and promotes unprotected sexual intercourse (Rideout, 2001; Mahapatra and Saggurti, 2014). For example, Kraus and Russell (2008) found that both male and female adolescents (12 – 17 years) who viewed pornography reported younger first sexual experiences compared to those who were not exposed to it. Young persons could explore SEM to learn how to have sex, although SEM has been said to be a poor, and indeed dangerous sex educator and those who are exposed to it are more likely to have experienced oral sex and sexual intercourse at a younger age (Flood, 2009).Many adolescents first view pornography before engaging in sexual act due to the fact that it naturally brings about sexual arousal when watched (Muntaner-Mas, Vidal-Conti, Borràs, Ortega, and Palou, 2015). In his review, Flood (2009) argued that "pornography is particularly damaging for young people's attitudes and behaviour because its content is sexist and hostile towards women". A survey of Dutch adolescents found that the more youth viewed pornography, the more likely they were to believe that the majority of their peers had already engaged in sexual intercourse

(Peter and Valkenburg, 2009). Another study conducted among German adolescents found that exposure to SEM was correlated with higher estimates of peers' sexual activity for both boys and girls (Weber, Quiring, and Daschmann, 2012).

Youths are more exposed to SEM on the internet than any other place and this exposure is more prevalent among males (Mitchell et al., 2003; Stanley et al.,2016).Several studies have reiterated that males were more likely than females to view SEM for sexual excitement and masturbation, to watch it alone and in same-sex groups, and to watch more types of images (Cameron,Salazar,Bernhardt, Burgess-Whitman, Wingood, and DiClemente, 2005; Flood and Hamilton, 2003; Flood, 2007; Nosko, Wood, and Desmarais, 2007). Moreover, males are more likely than females to experience sexual arousal by SEM and to have supportive attitudes towards intentional exposure SEM (Wallmyr and Welin, 2006; Johansson and Hammarén, 2007; Sabina, Wolak, and Finkelhor, 2008).

1.3 Justification for the study

The rise in the number and use of smartphones, tablets and mobile apps is an important development in health and healthcare, particularly social apps that provide learning and collaboration opportunities to busy health professionals and peer-to-peer support and health education for the general public (KamelBoulos, Brewer, Karimkhani, Buller, and Dellavalle, 2014).The social media platform has been previously used to conduct interventional studies although most studies were conducted in developed countries and small (Kernot, Olds and Lewis, 2013, Muntaner-Mas et., 2015, Wadham, Green, Debattisa, Somerset and Sav, 2019).For example, Cheung, Chan, Lai, Chan, Wang, Li, Chan and Lam (2015) conducted a study to determine if social media could prevent smoking relapse in quitters who had recently stopped smoking.Findings showed that WhatsApp intervention was effective in reducing smoking relapse. To buttress the fact social media intervention studies are still limited, Gabarron and Wynn (2016) in their study on the review of use of social media for sexual health promotion, concluded that although online social media have been used in the sexual health promotion research field, the number of scientific studies is still relatively small.

Previous interventions have been shown to be effective in bringing about behavioural change, there is dearth of knowledge on the effects of social media intervention in reducing exposure to sexually explicit materials and consequently risky sexual

behaviour among young persons. In addition, much of the researches using digital media for behavioural change have largely utilised wed-based internet platform and short or multimedia messaging service (Wadham et al., 2019) and not social media applications. Recent social media intervention studies conducted in Nigeria have focused on nurses to support career development (Ajuwon, Pimmer, Odetola, Gröhbiel, Oluwasola, and Olaleye, 2018; Pimmer, Brühlmann, Odetola, Dipeolu, Gröhbiel and Ajuwon, 2018; Pimmer Brühlmann, Odetola, Oluwasola, Dipeolu, and Ajuwon, 2019)none have investigated the use of social media to facilitate behavioural change. Hence, the current study therefore addressed these gaps and leveraged on the opportunity of social media use to provide youths on campus in south west Nigeria with preventive messages on exposure to pornography and adoption safe sexual behaviours and therefore evaluate the effects of the intervention on them.

Lastly, Smartphone is becoming ubiquitous and youth make maximum use of it through access to social media apps; this study therefore leverages on this opportunity. This study is justified based on the following reasons. First, it will help to determine the feasibility of using social media to provide preventive health messages to youths. Second, it will help to determine if WhatsApp-delivered educational intervention can help to reduce exposure to pornography and prevent risky sexual behaviours among youths. Lastly, the outcome of the research can be used to develop social media health education programme among young persons in Nigeria.

1.4 Research Questions

1. What is the pattern of use of social media among youths in tertiary institutions students Oyo and Lagos states?
2. What are the sources and frequency of exposure to sexually explicit materials (SEMs) among students of tertiary institutions?
3. What is the level of knowledge of the respondents on the effects of exposure to SEM?
4. What is the attitude of the respondents toward sexually aggressive behaviour?
5. To what extent has the respondents experienced sexual violence?
6. What is the level of the respondents on HIV risk perception?
7. Is it feasible to deliver intervention using social media to prevent exposure to SEMs and promote safe sex practice among students of tertiary institutions?

8. What effects would social media-delivered intervention conducted among students of tertiary institutions have on their exposure to SEM, self-efficacy in preventing exposure to SEM and risky sexual behaviour?

1.5 Study objectives

1.5.1 General objective

The general objective was to investigate the effects of social media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states.

1.5.2 Specific objectives

The specific objectiveswere to:

1. Document the pattern of use of social media among youth in tertiary institutions in Oyo and Lagos states
2. Identify the sources and pattern of exposure to sexually explicit materials (SEMs) among students of tertiary institutions
3. Determine the level of knowledge of the respondents on the effects of exposure to SEM
4. Determine the attitude of the respondents toward sexually aggressive behaviour
5. Describe experiences of sexual violence among the respondents
6. Determine the respondents' level of HIV risk perception
7. Design and implement social media-delivered intervention to prevent exposure to SEMs and promote safe sex practices among students of tertiary institutions
8. Evaluate the effects of social media-delivered intervention on exposure to SEM, self-efficacy in preventing exposure to SEM and risky sexual behaviour among students of tertiary institutions

1.6 Hypotheses

There is no significant difference between the experimental and control groups at baseline and end-line with respect to respondents'

a. Knowledge of the effects of exposure to SEM
b. Recent advertent exposure to SEM
c. Self-efficacy to prevent intentional exposure to SEM
d. Attitude towards sexual aggressive behaviour
e. Risky sexual behaviour

CHAPTER TWO
LITERATURE REVIEW

2.1 Concept of Youth

The word 'youth' has been defined in varying manners. According to Nigeria National youth policy, concept of youths varies from culture to culture even society to society (Federal Ministry of Youth Development, 2009). Youth has been identified as "time of life when one is young, but often means the time between childhood and adulthood (maturity) (Merriam-Webster, 2020). According to United Nations Educational, Scientific, and Cultural Organization (UNESCO) "youth is best understood as a period of transition from the dependence of childhood to adulthood's independence and awareness of our interdependence as members of a community". Various multilateral agencies and countries have different age definition for youth. For example, the United Nation and World Health Organisation defined 'youth', as those persons between the ages of fifteen (15) and twenty-four (24) years while adolescent is defined as those between the ages of 10 and 19 years (WHO, 1989; UNESCO). The WHO also described youth as period of transition from childhood to adulthood, evident with many changes in the body, even mind and social relationships. The body experiences development both in size and reproductive capacity and then becomes more sexually defined. The mind also becomes developed to be more capable of abstract thinking, foresight, and internal control and acquires a greater awareness of the environment (WHO, 1989). From the above definitions, it can be inferred that the period of being a youth is an important milestone in life.

In sub-Saharan Africa, the term "youth" is characterised as people between 15 to 30 or 35 years of age. In Nigeria, according to the 2009 National Youth Policy, youth includes all members of the Federal Republic of Nigeria aged 18–35 (Federal Ministry of Youth Development, 2009).However, this was redefined in the 2019National Youth Policy as persons between age 15 and 29 years (Federal Ministry of Youth and Sports Development; 2019).With this definition in Nigeria, young people

are characterized by “energy, enthusiasm, ambition, creativity, and promise”. Youth in Nigeria are also faced

with high levels of socio-economic challenges. They represent the "most active, the most volatile, and yet the most vulnerable segment of the nation's population" (Federal Ministry of Youth Development, 2009). However, under Nigeria national youth service corps, only those who are less than age 30 are considered as youth and for the national service (NYSC Decree, 1993).

For the purpose of the current study, youth is defined as those aged 16 to 30 years. This is because the minimum age to gain admission into higher institution in Nigeria is 16 years (www.jamb.gov.ng/brochure.aspx) of age and only those who are below age 30 are considered for the national service in the country.

2.2 Social Media: Its nature

Social media has been defined as, "computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks" (Obar and Wildman, 2015). Social media is also a "group of mobile marketing applications that allow the creation, exchange and circulation of user-generated content" (Kaplan, 2012). According to Manning (2014) social media is a new form of media that involve interactive participation and therefore categorised as interactive age of media unlike the broadcast age of media. However, the word "Mobile Social Media" refers to the use of social media on mobile devices; the smartphones and tablet computers. Social media use web-based technologies, desktop computers and mobile technologies (e.g., smartphones and tablet computers) to create highly interactive platforms through which individuals, communities and organizations can share, co-create, discuss, and modify user-generated content or pre-made content posted online (Kietzmann and Kristopher, 2011). Forms of social media include the electronic mail (email), texters, blogs, message board, connection sites, social networking sites and, games and entertainment (Manning, 2014).

Social media fosters communication. One major advantage of social media is that it enables its users to stay connected with their friends and thus facilitating them to interact. It also fosters interaction on larger scale hence one individual could speak tomany and receive instant feedback (Manning, 2014). More than half of internet users (52%) use two or more of the social media sites (Facebook, Twitter, Instagram,

Pinterest) to communicate with their family or friends" (Duggan, Ellision, Lampe, Lenhartand and Madden, 2015). Social media are of different forms these include blogs, business networks, enterprise social networks, forum, microblogs, photo sharing, products/services review, social gaming, social networks, social bookmarking video sharing and virtual worlds (Aichner, and Jacob, 2015).

The most commonly used social networks around the world based as at January 2021 was Facebook with 2,740,000,000 users, followed by YouTube with 2,291,000,000 users and then WhatsApp with 2,000,000,000 users (Statistica, 2021a). Other commonly used social networks include Weixin/WeChat, Instagram and Tiktok (Statistica, 2021a).WhatsApp is currently the world leading global mobile messaging apps as at January 2021 (Statista, 2021b). Even as at 2016, WhatsApp has claimed 109 out of 187 countries around the world including Nigeria (Schwartz, 2016). In Nigeria, as at the third quarter of 2019, WhatsApp was the most used social media platform followed by Facebook (Statista, 2019b). WhatsApp is a social medium and networking services introduced in the year 2010. It is currently subsidiaries of Facebook, Inc., California, USA.

Social media have various functions which makes individual use it. Manning (2014) noted some functions of social media. It allows people to perform work functions; for example, people can interact with work colleagues via social media. It allows people to seek information or share ideas, offer opinions or consider the opinions of others, also individuals can find entertainment through social media.

Youth and teens are the prominent users of social media sites (Pew Research Centre, 2016). Notable reasons for use of social media among youths in Nigeria are to get connected with friends, watch SEM, watch movies, and discuss various issues like politics, economy and religious matters (Ezeah, Asogwa and Obiorah, 2013). The predominantly used social media among young person in Nigeria are Facebook and WhatsApp (Nathaniel and Adio, 2016; Olaleye, 2017) and were reportedly used for various purposes including sharing of information and engagement various risky behaviours (See Appendix I for usage pattern of social media by Nigerians). Social media was also reported to have the potential of contributing to women empowerment

as it aids their freedoms to participate in developmental activities **(**Abubakar and Dasuki, 2018).

2.3 Concept and content of sexually explicit materials

Sexually Explicit Material also called Pornography, according to Hyde (1964) "is the portrayal of sexual subject matter for sexual arousal". SEM may be presented in a variety of media such as books, magazines, postcards, painting, sculpture, drawing, animation, sound recording, writing, photographs, film, video, and video games (Hyde, 1964).

Sexually explicit materials can be categorised into two major categories in terms of their degree of sexual explicitness involved; Softcore and Hardcore (Flood and Hamilton, 2003). Softcore typically refers to nude or semi-nude pictures of male or female (but not photos of labia or erect penises) to descriptions or implicit pictures of sexual activity. 'Hardcore' refers to pictures of sexual activity in which a sexual act (anal or vaginal sexual intercourse or oral sex) is explicitly depicted, and erect penises, ejaculation or female labia are visible (Flood and Hamilton, 2003).

One of the most obvious features of SEM, whether in print, on video, or online, is that majority of images are of women or of male-female sexual activity. Women are 'continually repositioned, passively, as object, icon and fetish of male desire' (Segal, 1998). Majority of women photographed or filmed in pornography are young, slim and stereotypically attractive. Female models in pornography often have larger breasts, buttocks and more 'curves' than the models typically featured in mainstream women's magazines or fashion modelling (Flood and Hamilton, 2003). Sexually explicit videos and websites usually demonstrate and document a striking range of sexual practices, desires and sexual orientation(Flood and Hamilton, 2003). Persons viewing SEM may believe that the way "pornstar" (characters) perform sexually is a "normal" and appropriate portrayal sexual activity in the reality. When armed with these

expectations, such individual may desire or engage in socially unacceptable activities (Paolucci, Genuis and Violato, 1997).

2.3.1 Sexually explicit materials and its history

Representations of sexual nature are older than civilization as depictions such as the *Venus Figurines* (figure portraying a woman) and rock art (human-made markings placed on natural stone) have existed since prehistoric times (Richard, 2000). When large-scale excavations of Pompeii (ancient Roman town-city) commenced in the 1860s, most of the erotic art of the Romans came to light, shocking the Victorians who saw themselves as "the intellectual heirs of the Roman Empire". It was reported that they did not know what to do with the depictions of sexuality and endeavoured to hide them away from everyone but upper-class scholars. The moveable objects were locked away in the "Secret Museum" in Naples. The ones could not be removed were covered and cordoned off as to not "corrupt" the sensibilities of women, children, and the working classes.

Fanny Hill – "*Memoirs of a Woman of Pleasure"* [1748] (A novel) is regarded "the first original English prose pornography", and the first pornography to use the form of the novel (Foxon, 2000). It is an erotic novel authored John Cleland which was first published in England as "Memoirs of a Woman of Pleasure" (Lane, 2000). It is regarded as one of the most prosecuted and banned books in history and the authors were charged for "corrupting the King's subjects" (Browne and Browne, 2001).

Pornographic film production started almost immediately after the invention of the motion picture in 1895. Two of the earliest pioneers of pornographic film were EugènePirou and Albert Kirchner. The earliest surviving pornographic film was directed by Kirchner under the trade name "Léar" (Bottomore and McKernan, 1996). In 1969, "*Golden Age of Porn" (*Blue Movie by Andy Warhol) was the first adult erotic film to receive wide "theatrical release in the United States" (Canby, 1969).The scholarly study around pornography, notably in cultural studies, is limited, possibly due to the controversy about the subject in feminism this is because feminism view pornography as a form of violence against women. The first peer-reviewed academic journal on pornography study; *Porn Studies*, was published in 2014 (Madrigal, 2014).

2.3.2 Internet pornography

Internet pornography or simply *internet porn*is "sexually explicit content made available online in various formats including images, video files, video games and streaming video" (Wigmore, 2012). In the earlier years when access to internet was limited, distribution of SEM was limited not until lately when access to the became widespread (www.library.cityvision.edu).

The invention of the World Wide Web drastically increased both commercial and non-commercial distribution of pornography. Even, there is an increase in the number pornography websites providing photos, video clips and streaming mediaeven live webcam access that allowed more access to pornography (www.library.cityvision.edu). As at 2010, 4% of all websites were pornographic while the percentage of all web searches and mobile searches were 13% and 20% respectively (Buchholz, 2019). These pornography websites are frequently visited across various countries and as at 2017, pornography contributed to thirty percent of all data transferred across the internet (Kleinman, 2017).

Internet pornography is generally and widely watched in Nigeria. The monthly average number of searches for pornography in 2015 was 135,000. In December 2014 and 2015 the percentage of searches for pornography (compare to other searches) was higher in Nigeria than in the United States even though United State hosted 60% of all pornography websites (Richter, 2013). The reported Nigerian states with the greatest popularity for porn searches (from high to low) were; Enugu, Oyo, Ogun, Rivers, Lagos, Abia and Cross River (Plumptre, 2015). In addition, Nigeria ranked second globally for internet searches for gay pornography in 2013 (Plumptre, 2015). According to PM news (2014), Nigeria was also rated highest in visiting pornography sites and watch pornographic videos. Currently, many pornographic websites are already hosted in Nigeria which are either free or fee paid. Examples of such websites are www.naijaporntube.com, www.nollyporn.com, www.exoticnigeria.com, www.pornhub.com, www.mojonaija.com and much more.

2.3.3 Types of Sexually Explicit Material

According to Malamuth (1999), sexually explicit material are divided into different types this include 'violent pornography', 'non-violent pornography' and 'erotica'.Violent pornographyareimages that portray explicit violence of varying

degrees. It is perpetrated against an individual which is most of the time a female by another; usually a male.Non-violent pornographycontains explicit images that do not have violent content, although it may imply acts of submission or violence by the positioning of the models. They may also imply “unequal power relationships” by differential dress, costuming, positioning or by setting up the viewer as a voyeur. However,erotica is defined as sexual images that focus the depiction of mutually pleasurable sexual expression between people who have enough power to be there by positive choice. Erotica does not have sexist or violent connotations and its hinged on equal power dynamics between individuals and camera/photographer.

Various studies of the content of pornography distinguish between depictions that are nonviolent and consenting and those that are violent and non-consenting (Malamuth et al. 2000). In Monk-Turner and Purcell’s (1999) content analysis of 40 randomly sampled X-rated videos from a national chain, 17 per cent of vignettes across the videos contained themes of sexual violence (a female is shown restrained against her will or she is hit, slapped, kicked or her hair is pulled). Thirty-nine per cent of scenes showed themes of subordination such as, in the words of Monk-Turner and Purcell (1999), ‘male orders female to perform in a certain way. For example, female performs fellatio while on her knees or she initially refuses to participate in a sex act and later capitulates’.

2.3.4 Laws on Pornography

Legal issues on pornography vary widely across countries. For example, countries such as United Kingdom allow at least some form of pornography but do not allow “Extreme Pornography” Hence, softcore pornography is considered tame enough to be sold or shown in the public. However, hardcore pornography (extreme pornography) is usually regulated, example of which is the Criminal Justice and Immigration Act (2008) of the United Kingdom. Child pornography is illegal in almost all countries; especially the production and sale but to slightly lesser extent the possessionof it. Some countries also have restrictions on pornography portraying violence; examples are rape pornography, animal pornography. However, in Indonesia, all forms of pornography are prohibited. The Bill on pornography, “Bill against Pornography and

Porno-Action" (bill against pornography and pornographic acts) was passed into law in 2008.

The first that law criminalize pornography was the "English Obscene Publications Act 1857" which was enacted at the urging of the "Society for the Suppression of Vice" (Eskridge, 2002). The Act was applied to the United Kingdom and Ireland, it made the sale of explicit material a statutory offence. The American equivalent was the "Comstock Act of 1873" (Eskridge, 2002) which made it illegal to send any obscene, explicit materials through the mail. In US, federal laws against child pornography and obscenity have been passed and the laws have been found to be constitutional. Unfortunately, these laws are too seldom to be enforced (Family Research Council, 2014). In Nigeria, there yet to be any law against pornography in generally except Law against Child Pornography - "pornography that exploits children for sexual stimulation" (Claire and Ian 2007) – The Child Pornography Act published in the Cybercrimes Act, 2015(Federal Republic of Nigeria, 2015). It stated (in part):

> *"Any person who intentionally uses any computer system or network in or for; producing child pornography, offering or making available child pornography, distributing or transmitting child pornography, procuring child pornography for oneself or for another person, possessing child pornography in a computer system or on a computer - data storage medium: commits an offence under this Act" (Federal Republic of Nigeria, 2015).*

Also, the Internet Child Pornography Prevention Bill, 2019(Federal Republic of Nigeria, 2019) states that*:*

> *"No internet service provider must knowingly permit the use of its service for placing pornography on the internet"*
>
> *"No person must place child pornography on the internet for the purpose of communicating it to another person for viewing, reading, copying, or retrieval whether such access is open or restricted by any means"*

2.3.7 Exposure to SEM

Exposure to SEM may be either advertent (intentional) or inadvertent (accidental) (Flood and Hamilton, 2003). Deliberate exposure deals with planned and intentional seeking and viewing SEM while inadvertent exposure is usually unplanned always accidental.

Deliberate exposure to SEM

Advertent exposure to SEM on the internet according to Thornburgh and Lin (2002) involves; ssearching for or exploring sexually explicit words in a search engine and clicking on the returned links, receiving e-mail with sexually explicit content after subscribing to a mailing list which is already known to provide such content, deliberate exploration of website that user is known to contain sexually explicit content and, trading sexually explicit stories and images among friends and acquaintances through electronic media such as social media and online malls.

There are many reasons why youths intentional expose themselves to SEM and these reasons may vary by sex and age. Although arousal and masturbation are the main reasons, there has been a report of an increasing tendency to use it to "facilitate sexual relationships and less likelihood for curiosity motivated viewing with age" (Wallmyr and Welin, 2006). Wallmyr and Welin (2006) found that male youths between 15 to 25 primarily viewed pornography to get aroused and masturbate (48.8%). However, females view it out of curiosity (39.5%) or because 'it's just cool' (28.5%). In contrast, similarly aged females primarily viewed pornography out of curiosity (54.6%) and because 'it's cool' (19.1%). Curiosity remained an important factor cited by 20 to 25 years old females, reflecting the generally greater ages at which females engage with the media. Marked increases with age were evident in the percentage of females using pornography as a means of arousal prior to sexual activities or to vary their sex lives. By 20 to 25 years of age, females in the study were more likely to use it to vary their sex lives than were males. Study conducted by Gudrun and Catharina (2006) showed that males reported the most common reason for viewing pornography to be the facilitation of masturbation, while females reported viewing because they were curious.

Inadvertent Exposure to SEM

Inadvertent exposure to SEM on the internet according to Thornburgh and Lin (2002) involves;receiving unsolicited e-mail containing SEM or links to such materials, wrongly guessing the address of a website and thereby receiving inappropriate material as a result, searching for terms with both sexual and non-sexual meaning in a search engine and clicking on the links returned some of which may contain sexually orientated material. Also, mistyping a request for information or the address of a website and clicking on a link without really knowing what is to be expected at the site to which the link refers.

The prevalence of exposure to SEM among young adults aged 15-25 years old in Sweden was 98.9% in males and 73.5% in females. Females reported watching less pornography than males did while pornographic movie viewing increased with age. Also, females were more likely to watch pornography on cable television, while males were more likely to watch pornography on the Internet and cable television (Gudrun and Catharina, 2006). (See Appendix II for summary data on the prevalence of exposure to SEM among young people).

2.3.5 Exposure to sexually explicit materials as a gender issue

Studies have shown gender difference in the viewing frequency, context and gratifications derived from exposure to SEM (Carroll, Padilla-Walker, Nelson, Olson, Barry, and Madsen, 2008; Johansson and Hammere´n, 2007; Arulogun et al., 2016). In Germany, Seidel (2012) reported that the prevalence of inadvertent exposure to internet pornography was 71% (77% male and 21% female). Mattebo also (2014) revealed that boys have higher positive attitude towards viewing of SEM than girls. Males in this study exceeded females in almost every capacity of intentional exposure SEM, including current and past level of viewing, and an earlier age of first intentional exposure to SEM. This study also determined that young men were intentional exposed to seven out of eight types of SEM explored. Gender differences in contexts of intentional exposure also supported past research that has indicated women prefer relationally based SEM, whereas men explore SEM more frequently during “solitary sexual activity” (Ferree, 2003; Johansson and Hammere´n, 2007).

A study conducted among youths (age 18 – 30 years) in Denmark shows gender difference in the prevalence rates exposure to pornography; intentional exposure and

exposure patterns (Hald, 2006). Males were more exposed to pornography at a younger age compared the females, explore more pornography as measured by time and frequency, and watch pornography more frequently during sexual activity. Gender differences in the interpersonal context of use were also evident, with women exploring pornography more often with a regular sexual partner than men. In turn, men were found to be exposed to pornography more often on their own or with friends (non-sexual partners) than women. Preference for the type of SEM was found to vary between the sexes. Although both sexes prefer a wider range of hardcore pornography, but males prefer less softcore pornography than women. Gender differences in sexual behavioural factors with masturbation patterns; with males masturbate more than women. Furthermore, a recent study conducted among youths in Nigeria majority of whom were between age 20 – 24 years of age reported gender difference in the reaction to pornographic sites with more males reported glancing through the sites before closing (30.1% females vs 46.7% males) (Arulogun et al., 2016).

Although many studies have found some gender differences between males and females, these differences could be as result of under-reporting or overreporting among the female and male participants respectively and vice versa.

2.3.6 Effects of exposure to SEM

Generally, message conveyed by pornography are not in line with national public health goals and laws. Participants in a study by Mattebo (2014) explained that pornography gives 'Conflicting messages' about sexuality. The participants' stated that the message conveyed by pornography was not supporting the message conveyed by" national public health goals and laws". Hence, exposure to SEM could have debilitating health effects on the viewers. (See appendix II for Effects of exposure to SEM studies among young people)

Exposure to SEM has long been reported to have influence on the behaviour of youths. According to Commission on Obscenity and Pornography (1970) these include increase in aggressive, unlawful, and non-consensual acts, harmful sexual practices, depersonalization of sex; various harmful activities not directly related to sex, such as delinquency and crime, and changes in attitudes about sex (Commission on Obscenity and Pornography, 1970). Since youths are likely to practice or experiment what they

view in the sexually explicit videos, this as a return affects their sexual behaviour. For example, Arulogun et al, (2016) reported in their study that about a third reported they experienced negative behaviour change after exposure to SEM and about 20% practiced what was watched on the internet page.

Researches have indicated that frequent exposure to internet pornography, regardless of motivation, is related to positive attitudes towards casual sex and more sexual uncertainty (i.e., ambiguity surrounding the development of sexual attitudes and beliefs about sexual exploration (Peter and Valkenburg, 2008). Another authors (Lo and Wei, 2005) investigated the link between exposure to online SEM and sexual attitudes in Taiwanese adolescents and found that exposure was related to permissive sexual behaviours and positive attitudes towards uncommitted sexual acts. In the U.S., a similar study was conducted by Brown and L'Engle (2009) in which a longitudinal analysis was used to examine the outcomes of early online pornography exposure in adolescents. Early exposure for females predicted permissive sexual norms, engaging in oral sex and sexual intercourse by the age of 14 to 16 years old, as well as less progressive gender roles, which has been supported by other studies (Kraus and Russell, 2008).

Exposure to SEM has been linked to accelerated onset of sexual activity (Villani, 2000) to non-use of condoms during sex (Wingood, DiClemente, Harrington, Davies, Hook and Oh, 2001Rideout, 2001; Berchtold, Akre, Michaud and Suris, 2011;). In a study conducted in US among men who have sex with men; age 29 years, time used in watching SEM was significantly associated with unprotected penetrative anal sex acts (Eaton, Cain, Pope, Garcia, and Cherry, 2012). Young persons do explore SEM to learn how to have sex (Flood, 2009) thus leading to earlier initiation of sexual behaviours. In their study, Braithwaite, Givens, Jacob and Fincham (2015) reported that viewing pornography was associated with a higher likelihood of having had a penetrative 'hookup' (including oral sex or intercourse). Although association between pornography use and penetrative hook-ups was significantly stronger for women.

Exposure to SEM has been said to be a risk factor for STI and HIV transmission. A study conducted among men who sex with men in USA showed that time spent watching SEM was associated with decreased perception of risk for HIV infection (Eaton et al., 2012). Also, Mahapatra, and Saggurti, (2014) reported that exposure to

pornography is associated high HIV risk behaviour. Gina et al., (2001) also reported that those who were exposed to X-rated were about 2 times more like to test positive for chlamydia. In addition, Mahapatra and Saggurti (2014) showed in their study that participants who watch pornography were more like to engage in risky sexual behaviours and experience STI-like symptoms.

Exposure to SEM has effects on sexuality by affecting the sexual performance of the viewers. SEM viewers, according to Voon (2014) may also have problems with "premature ejaculation and erectile dysfunction" (Voon, Mole, Banca, Porter, Morris, Mitchell, Lapa, Karr, Harrison, Potenza and Irvine, 2014). This is because having spent so much time in "unnatural sexual experiences" materials such as paper, celluloid and cyberspace, they find it difficult to have sex with a real human being (Reisman, Sanitover, Layden, and Weaver, 2004). Pornography raises their expectation and demand for types and amounts of sexual experiences, however, it reduces their ability to experience "sex" (Reisman et al., 2004).

According to Zillmann (2000) and Manning (2005) exposure to SEM has been reported to have serious effects on marriage and individuals. These effects include; exaggerated perception of sexual activity in society, diminished trust between intimate couples, decreased marital intimacy and sexual satisfaction, infidelity, the abandonment of the hope of sexual monogamy, belief that promiscuity is the natural state, belief that abstinence and sexual inactivity are unhealthy, cynicism about love or the need for affection between sexual partners, lack of attraction to family and child-raising and increased marital distress, and risk of separation and divorce. Others are increased appetite for more graphic types of pornography and sexual activity associated with abusive, illegal or unsafe practices, devaluation of monogamy, marriage and child rearing, an increasing number of people struggling with compulsive and addictive sexual and belief that marriage is sexually confining.

Deliberate exposure to SEM has been said to be associated with aggression (sexual and non-sexual aggression) and attitudes supportive of violence (Wright, Tokunaga and Krau, 2015) although some studies have previously disputed this claim (Linz and Malamuth, 1993; Malamuth and Pitpitan, 2007). It was found out in a meta-analysis that male adolescent sex offenders reported higher exposure to sex or SEM than male adolescent non-sex offenders (Seto and Lalumiere, 2010). A meta-analysis study by

Allen, D'Alessio, and Emmers-Sommer's (1999) included adult sex offenders and assessed both intentional exposure and arousal to SEM. It was reported that sex offenders scored slightly higher than non-offenders across 13 studies that assessed some indicator of use. A larger difference was found across the 32 studies that assessed sexual arousal, with sex offenders showing more arousal to SEM than non-offenders. For non-sexual aggression, Allen, D'Alessio, and Brezgel (1995) meta-analysed 33 experiments and found that pornography exposure increased nonsexual aggression. Nonsexual aggression was operationalized as "intentional physical, material, or psychological aggression". Allen et al. (1995) meta-analysed 16 experiments and found that pornography exposure increased attitudes supportive of violence. Hald et al. (2010) meta-analysed nine survey studies and found that intentional exposure to SEM was associated with higher levels of attitudes supportive of violence. Also, Wright et al. (2015) in their meta-analysis study found out that deliberate exposure to SEM was associated with an increased likelihood of committing actual acts of sexual aggression (both physical and verbal aggression); the level of association was more among those who were exposed to violent SEM that those exposed to nonviolent SEM. They reported that the association between deliberate exposure to SEM and sexual aggression was not moderated by age group; be it adolescent or adult. Exposure to SEM, according to Paolucci et. al., (1997) could be associated with "risk of developing sexually deviant tendencies, committing sexual offenses, experiencing difficulties in one's intimate relationships, and accepting the rape myth". Examples of supportive of violence include interpersonal violence acceptance, rape myth acceptance, and tendencies for sexual harassment.

Other effects of exposure to SEM on youth are;wrong attitudes to sex which may affect the good intimate relationships, attitudinal support for sexual aggression particularly in the context of use of violent pornography, increased likelihood of sexually aggressive, coercive or harassing behaviour particularly in the context of high frequency intentional exposure to SEM, emotional disturbance associated with premature or inadvertent exposure to sexually explicit content and seeing non-mainstream sexual behaviours, inappropriate acceptance of non-mainstream sexual practices (Flood and Hamilton, 2003) and positive attitudes toward casual sex among young persons (Peter and Valkenburg, 2008).

However, contrary to the above views, some researchers have identified some befits of pornography. Rothman, Kaczmarsky, Burke, Jansen and Baughman (2015) argued that pornography serves as a source of sexual knowledge to the young persons. Watson and Smith (2012) reported that exposure to SEM may reduce sexual anxiety and dysfunction and encourage sexual expression and satisfaction. Also, Greenberg, Bruess, and Oswalt (2017) argued that censoring pornography would prevent women from getting information about sexuality and reproduction. However, the negative effects stated earlier largely outweigh these perceived positive effects.

2.4Sexual behaviour of youth

Majority of youth become sexually active during adolescent (WHO, 2011). Various studies have shown that young persons are sexually experienced and active. A study conducted among youths on campus showed that over half (56.1%) have had sexual intercourse with 19 years being the mean age of sexual debut (Olaleye and Ajuwon, 2011). Likewise, the study conducted by Amu (2014) among youths (mean age of 26 years) observing their compulsory national service in Osun State Southwestern Nigeria showed that 77.2% of the respondents had ever experienced sexual intercourse out of which 86.6% were sexually active. The median age at first sex among them was 20 years.Also, a study conducted among female undergraduates in Ibadan Nigeria revealed about half (50.5%) were sexually experienced with a mean age of sexual initiation of 18.5 years (Ogunwale, Oshiname and Ajuwon, 2012). As an implication, age at first sex is therefore a very significant indicator of both exposure to risk of pregnancy and sexually transmitted infections. Young people who initiate sex at an early age are at a higher risk of becoming pregnant or contracting a sexually transmitted infection than young people who delay commencement of sexual intercourse or activity generally (NPC, 2014). Study conducted among secondary school students with a mean age of 14.7 years showed that 15.2% had experienced sexual intercourse (Olaleye, 2017). The above showed the extent to which youths in Nigeria have engaged in sexual intercourse even from the adolescent stage and therefore the implication of unwanted pregnancy and being infected with sexually transmitted infection.

Another important aspect of youth sexual behaviour is involvement in risky sexual practices. According to WHO (2011), among young people, sex without any form of

protection is “the second largest contributor to health risk” relating to burden of disease due to low use of contraceptives and condoms among them. A study conducted among NYSC Corps members in southwestern Nigeria showed that many (42%) had multiple sexual partners, and some (19.2%) practiced transactional sex, while only 58.1% used condom at last sex (Amu, 2014). Another study conducted among serving youths also showed that 26.0% of male and 23.0% of female reported they had more than one regular sexual partners (Sunmola, Olley and Oso, 2007). Also 12.0% of males reported they had casual partners ranging from 1 to 6 while few (7.0%) women made comparable report. In addition, only 60.0% of men and 41.0% of women used a condom in the last sexual encounter (Sunmola et al., 2007). As an implication, there are more than 100 million cases of STIs among young people, also more than 21.5 million unsafe abortions around world and majority of which are among the youths. (WHO, 2008). Hence, Nigeria youths has a share in these burdens of cases of sexually transmitted infections due to their risky sexual behaviours.

2.5 Risky sexual behaviour of youth

Sexual intercourse and related risky behaviour are common among students on campus. Sexual risky behavior includes having more than one sexual partner, early sexual initiation, inconsistent use of condom, and having sex with commercial sex workers (Abebe, Tsion, and Netsanet; 2013.) Several studies on sexual behavior have been conducted among young people on campus in Africa. A University study in Ethiopia showed that 26.9% to 34.2% of students ever had sexual intercourse, 45.2% had more than one sexual partner and 59.4% had first sex at high school (Mulu, Yimer and Abera, 2014). In Cameroon many young people change sexual partners often, but condom use was low (Silva and Klein, 2011). In Nigerian University, of the 55% students who were sexually active, seventy per cent of the men used condoms during sex (Olley and, Rotimi, 2003). Another study conducted in Nigeria among polytechnic students showed that Fifty-six percent of respondents had experienced sexual intercourse; of this number 9.0% reported that their first sexual intercourse was due to rape (Olaleye and Ajuwon, 2011). In addition, a study conducted in southeast Nigeria showed that majority of the respondents (68.8%) are sexually active, most of whom were unmarried (82.1%). Also, a considerable number of the respondents (17.9%) multiple sexual partners inthe past one year while 26 (13.7%) had at least 6 sex partners in their period(Brian, Umeononihu, Echendu and Eke; 2016).

On campus, young peoples are engaged in high risk behaviors like smoking cigarettes, drinking alcohol, use of drugs, and gender-based violence. These behaviors in turn lead them to engage in sexual risk behaviors (Tu, Lou, Gao, Li, and Zabin. 2012). Additionally, the use of substances during sex may engage young peoples in risky sexual behaviors since it affects their judgment (Woolf-King, Rice, Truong, Woods, Jerome, and Carrico, 2013). Others factors responsible of for risky sexual behavior among students on campus included; quality of sex education by parents at early adolescence (Odii, Atama, Igwe, Idemili-Aronu and Onyeneho, 2020) engaging in romantic relationship (Adebayo 2020, Olaleye 2011).

2.6Use of social media for health intervention

Intrinsic potentials have been observedin the use of mobile and wireless technologies to support the achievement of health objectives through mHealth. This has therefore drastically transformed preventive medicine and health care service (WHO, 2011).According to World Health Organisation, combination of various factors has continued to enhance this change. These include; fast advances in mobile technologies' and applications, a rise in new opportunities for the integration of mobile health into existing eHealth services and preventive medicine, and the continued progress in coverage of mobile cellular networks (WHO, 2011). Some studies have explored this opportunity using mobile application and social media to determine how effective it is in providing health intervention such as health promotion and education. For example, Sucharitha and Sreeja (2017) evaluated feasibility and potential impact of 'WhatsApp' smart phone application education intervention on self-medication practices of medical and non-medical professional course students in Chennai, South India. The results showed that thereis no significant change in knowledge, attitude and practices of self-medication after intervention.

Greene, Choudhry, Kilabuk and Shrank used "wall posts" to diabetes Facebook sites to develop a campaign as a form of programme development.They found out thatFacebook provides a forum for reporting personal experiences, asking questions, and receiving direct feedback for people living with diabetes. Likewise, Scanfeld,

Scanfeld, and Larson (2010) analysed Twitter posts to identify inaccurate beliefs associated with use of antibiotics as a form of needs assessment. They concluded that social media sites offer means of health information sharing, although cases of misunderstanding or abuse were identified for some forms of antibiotics combinations.Napolitano, Hayes, Bennett, Ives and Foster (2013) in their study assessed whether a Facebook page plus texts and feedback lead to greater weight loss than a Facebook page only condition or a control. Findings showed that at 8 weeks of intervention, theFacebook Plus group had significantly greater weight loss than the Facebook group.

Studies have described the effectiveness of the social media in promoting healthy behaviour. For example, Cheung et al., (2015) showed that social media intervention was effective in reducing smoking relapse using group discussion and reminders via the WhatsApp and Facebook social group. However, WhatsApp was more effective.

Youths and adolescent have been noted to be social media savvy (Hur and Gupta, 2013, Centre for Addiction and Mental Health, 2018) and social media has been said to have dramatically altered the communication landscape among youths (Guse, Levine, Martins, Lira, Gaarde, Westmorland and Gilliam, 2012). As result of this, various social media interventions have been carried among them. Guse et al. (2012) described in their study that interventions among young persons used various platforms including the web, mobile phone and social networking sites and have successfully used to delay sexual debut, improve self-efficacy in the use of condom and abstinence attitudes, improve knowledge of pregnancy, HIV and other sexually transmitted infections. Also, Wadham et al., (2019) showed that digital media intervention has helped to increase knowledge of HIV prevention and other STI, and sexual health knowledge in general. However, they concluded that even though new media has the capacity to expand efficiencies and coverage of preventive health, use of the technology does not provide assurance of successful intervention. Hence, interventions using new digital media must be high-quality with evidence-based content while individual participant must be fully engaged.

Social media intervention is limited in Nigeria even among the youths. Although, recently studies have emerged in Nigeria which have shown the effectiveness of using

the social media in providing intervention among professional groups. For example, a study by Ajuwon and colleagues (2018) showed that social media intervention is feasible in providing supervision and learning in situations where there are limited opportunities for face-to-face interactions between teachers and students in outside placements, including teaching practice (Ajuwon et al, 2018). Another intervention study in Nigeria, though conducted among youths on campus showed that moderated WhatsApp groups had significantly higher knowledge with the control group, which was not subject of any treatment (Pimmer, Brühlmann, Odetola, Oluwasola. Dipeolu and Ajuwon, 2019).

In conclusion, social media intervention has been showed be effective, however it could be fraughted with various challenges including device ownership, internet access and subscription, time consumption, information overload, and interference with private life (Tang and Hew, 2017). Hence, in setting up effective social media intervention, the above challenges need to be tactically addressed and catered for.

2.7 Conceptual Framework

This study was guided by the theoretical models; Theory of Planned Behaviour and Social Cognitive Theory in understanding exposure to SEM and risky sexual practicesamong youths.

2.7.1 Theory of Planned Behaviour

This is a theory that predicts an individual's intention to engage in a behaviour at a specific time and place. The theory states that; individual behaviour is driven by behaviour intentions, where behaviour intentions are a function of three determinants: “an individual’s attitude/perception toward behaviour”, “subjective norms”, and “perceived behaviour control/self-efficacy” (Ajzen, 1991) (Figure 2.1).

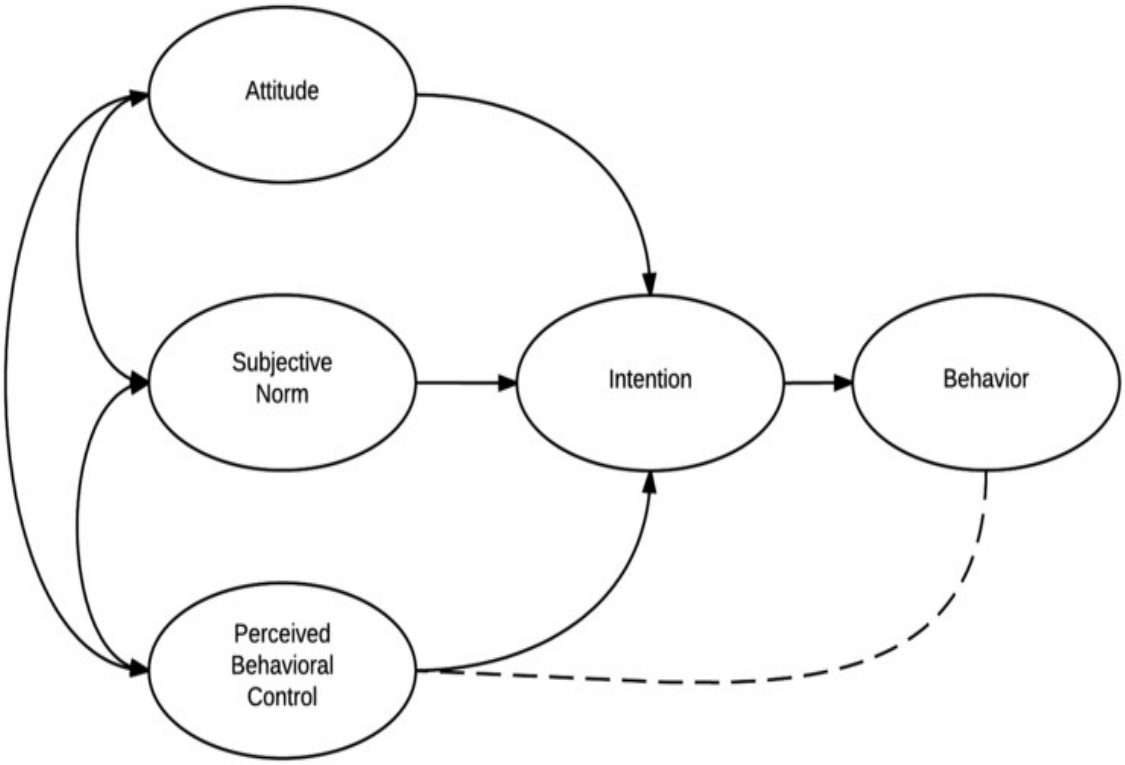


Figure 2.1: Theory of Planned Behaviour (Ajzen, 1991)

Application of Theory of Planned Behaviour

Application of Theory of Planned Behaviour to understand factors associated with exposure to SEM and risky sexual practice are presented on Fig. 2.2.

Behavioural Intention

Behavioural intention is an indication of an individual's readiness to perform a given behaviour. It is assumed to be an immediate antecedent of behaviour. It is based on attitude toward the behaviour, subjective norm, and perceived behavioural control, with each predictor weighted for its importance in relation to the behaviour and population of interest. The likelihood of engaging in such behaviour depends on how strong the intention is.

Attitude/perception toward behaviour

Attitude/perception toward behaviour refers to the extent to which one has 'positive or negative feelings" with reference to a behaviour. It majorly entails a consideration of the outcomes (effects of exposure to SEM and engaging in risky sexual practices) of performing the behaviour.

Subjective Norm

This refers to the belief about whether significant others think he or she will perform the behaviour. It relates to a person's perception of the social environment surrounding the behaviour. Subjective norms are an individual's perception of social pressure to take part or not take part in a behaviour. When a young person is receiving continuous stream of sexual information from SEM, the individual may believe it is a behaviour that is expected to occur. For example, group sex, sex without condom, violence during sexual intercourse.

Knowledge

Knowledge of effects of exposure to SEM & risky sexual practices has an influence on the attitude/perception towards the behaviour and affects the self-efficacy to prevent involving in such behaviour. Relevant questions included in this study are questions on knowledge of effects of exposure to sexual content.

Perceived Behavioural Control/self-efficacy

This refers to the individual's perception of the extent to which performance of the behaviour is easy or difficult. It increases when an individual perceives of having more

resources and confidence. Perceived self-efficacy of the respondents to prevent intentional exposure to SEM and engage in safe sex practice was explored. Relevant questions included in this study were questions on self-efficacy to prevent intentional exposure to sexual content and adopt safe sex practice (Questions 58).

Resultant Behaviour:This refers to performing the observed sexual behaviour observed in the sexual content exposed to. This is the final stage in the model, and it is because of the other stages highlighted above. Questions were asked if exposure to SEM has affected the sexual behaviour of the respondents.

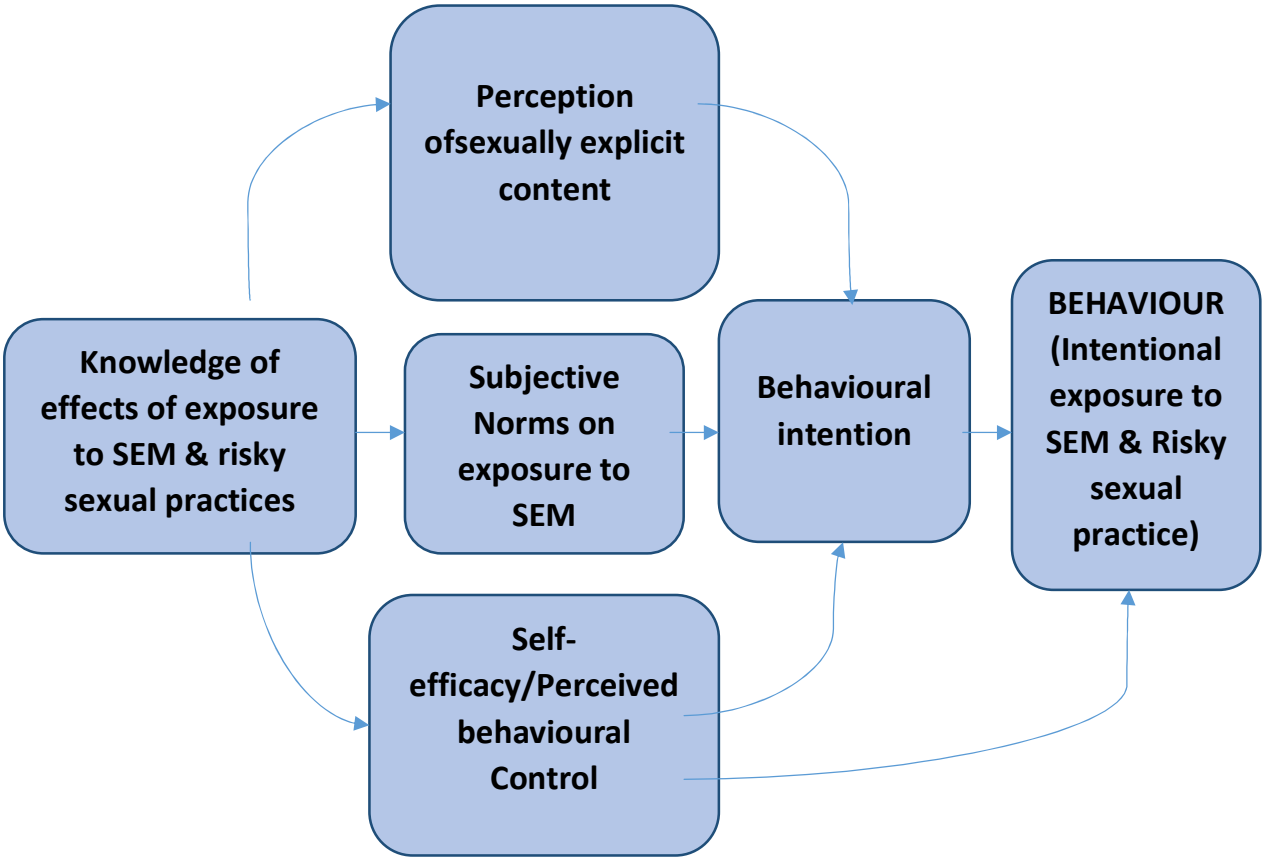


Figure 2.2: Application of Theory of Planned Behaviour to understand factors associated with exposure to SEM and risky sexual practice

2.7.2 Social Cognitive Theory

Social Cognitive Theory states that "when people observe a model performing a behaviour and the consequences of that behaviour, they remember the sequence of events and use this information to guide subsequent behaviours". Observing a model can also make the viewer to get involved in behaviour they learned through the observation (Bandura, 2001). According to Bandura (2001), "mass media play an influential role in the society". Hence understanding of thepsychosocial mechanisms through which symbolic communication influencehuman thought is very important. Whether one is being rewarded or punished for one's behaviour and the outcome of the behaviour, the observer may choose to replicate behaviour modelled. Social media is now an important source of models for people.

Social cognitive theory explains psychosocial functioning in terms of "triadic reciprocal causation" (Bandura, 1986) (Figure 2.3). The major concepts of the theory are explained by Bandura (2001) using a "schematization of triadic reciprocal causation". The schematic shows how the reproduction of an observed behaviour is influenced by the interaction of three determinants (See figure 2.3). They are:

1. Personal factors
2. Behavioural factors
3. Environmental factors

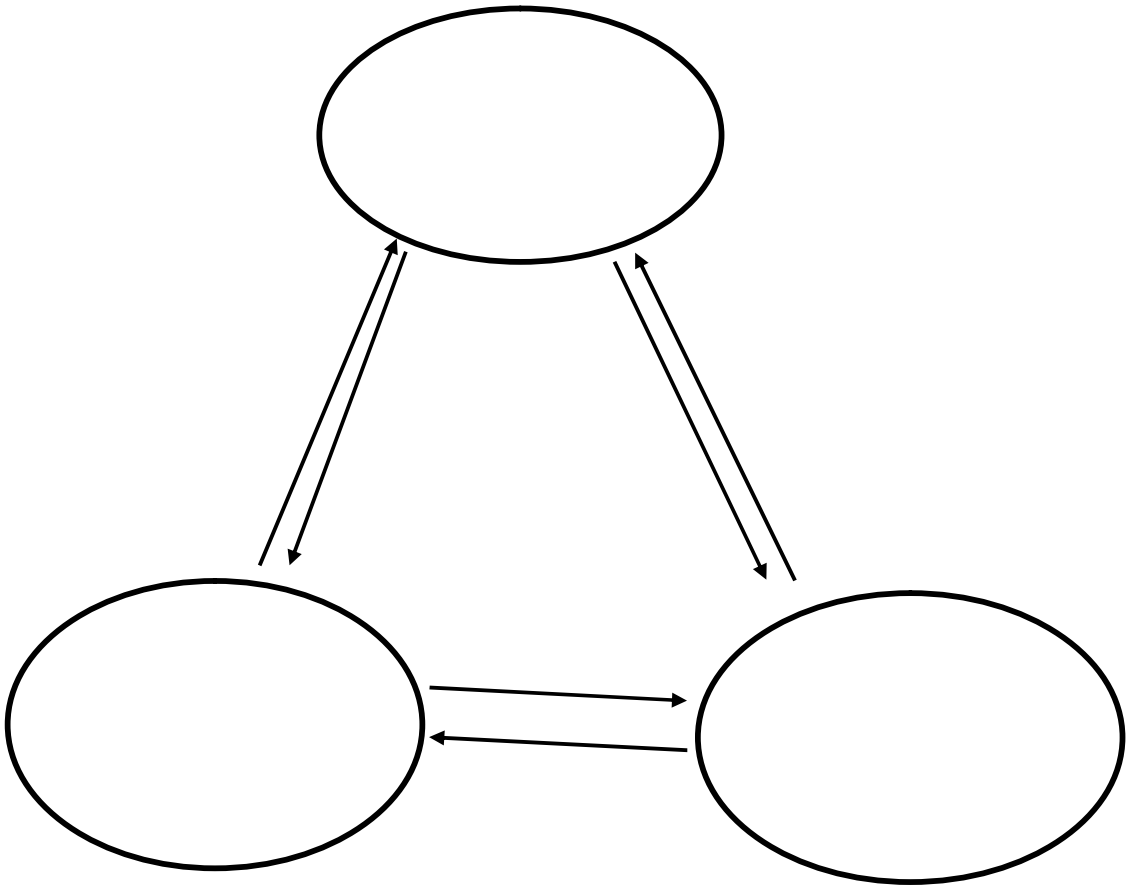


Figure 2.3: Schematization of triadic reciprocal causation in the causal model of social cognitive theory (Bandura, 2001)

Application of Social Cognitive Theory

The behaviour of engaging in pornography and/or risky sexual practicescan be determined by personal, environmental and behavioural factors.

Personal factors: This include knowledge on SEM and attitude towards SEM. Knowledge of the effects of exposure to SEM and attitudes towards determine if one would engage in the behaviour of intentional exposure to pornography and the possible resultant risky sexual practices. Having a good knowledge of the effects of exposure to SEM could serve as a preventive measure of for exposing SEM and engaging risky sexual behaviour.

Environmental factors: The environmental factors entail the types of media being exposed including the internet. The exposure shapes the attitude and subsequently behaviour since the negative behaviours and acts watched in the pornography could be modelled and practiced. Relevant questions included in this study were questions on frequency and sources of exposure to SEM (Questions 10 - 18).

Behavioural factors: The include the perceived self-efficacy of the respondents to prevent intentional exposure to SEM and engage in safe sex practice. Relevant questions included in this study were questions on self-efficacy to prevent intentional exposure to sexual content and adopt safe sex practice (Questions 58).

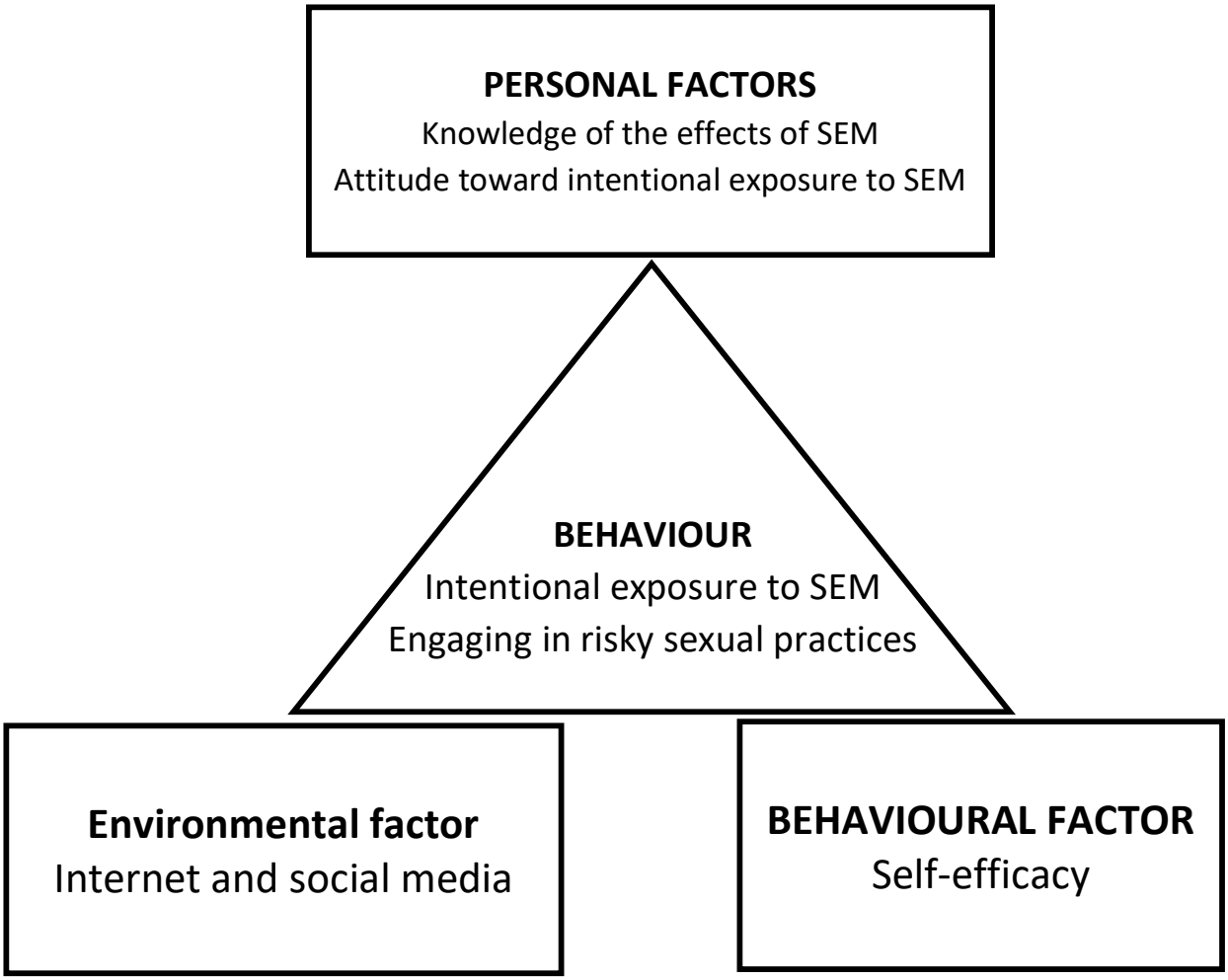


Figure 2.4: Application of Social Cognitive Theory to understanding factors associated with exposure to SEM and risky sexual practice

2.8 Summary of the literature review

Young people are prominent users of social media sites and one of the reasons for using these platforms is to watch SEM. Internet pornography is widely viewed in Nigeria and exposure may be either advertent or inadvertent. Exposure to SEM has debilitating health effects on the viewers including their sexual behaviour. Despite these, many pornographic websites are currently hosted in Nigeria since there is yet to be any law against pornography in generally except Law against Child Pornography. Lastly, there is no known report of any interventions focusing solely on prevention of exposure to SEM among youths in Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Study design

This was a quasi-experimental study conducted among students of tertiary institutions in two major cities in two states in southwest Nigeria; Ibadan in Oyo State and Lagos State. The two states, Lagos and Oyo are the most populous states in the southwest Nigeria. They also have high number of tertiary institutions and house the two oldest polytechnics in the region, hence their choice of selectionfor the study.

The study consisted of two groups; Experimental and Control Groups which was implemented in three main phases; baseline, intervention and, follow-up and end-line evaluation. The study was conducted in both The Polytechnic Ibadan and Yaba College of Technology in Oyo State and Lagos State respectively; the two major and oldest Polytechnics in southwestern Nigeria. The former served as the experimental group and the latter as control group. This was determined using therespondents' recentinadvertent exposure to pornography in the baseline survey. The Polytechnic Ibadan has the highest recent exposure hence its choice as the experimental group and Yaba College of Technology as the control group. The experimental group received intervention through WhatsApp group social medium for a period of 16 weeks. The control group did not receive any form of intervention (Table 3.1).See Figure 3.1 for flow chart on recruitment, intervention and data collection.

Table 3.1: Description of the study design

Group	Measurement		
	Pre-intervention Evaluation	**Intervention (16 Weeks)**	**Post-intervention Evaluation**
Experimental Group (EG)	O_1	X	O_3
Control Group (CG)	O2	∞	O_4

O_1 *= Baseline data collection in EG* ***O_3****= Post-intervention data collection in EG*
O_2 *= Baseline data collection in CG* ***O_4*** *= Post-intervention data collection in CG*
X *= Intervention* ∞= *No intervention*

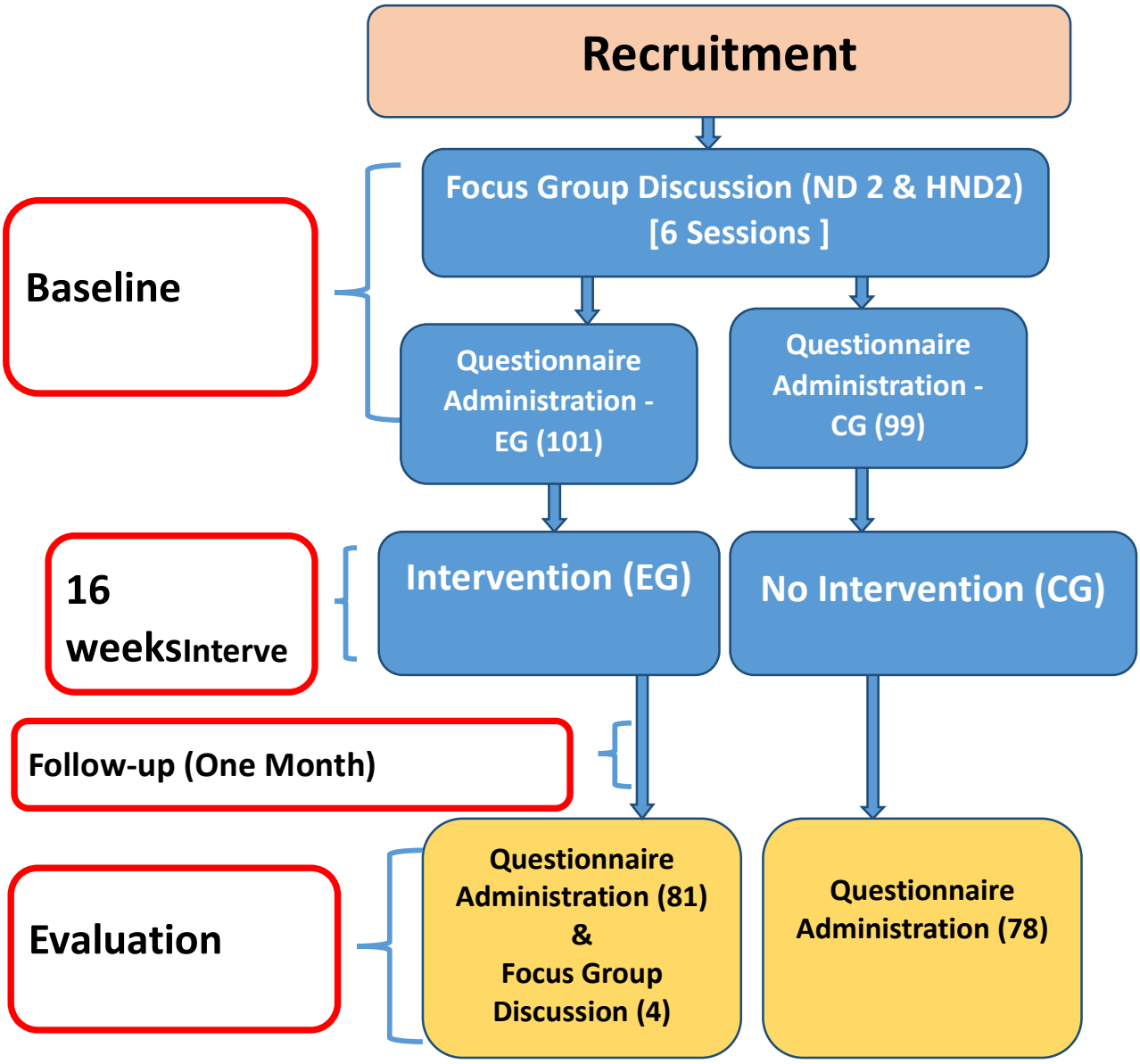


Figure 3.1: Flow chart on recruitment, intervention and data collection*(Source: Author)*

3.2 Description of study sites

The Polytechnic, Ibadan

Established in 1970, the Polytechnic was a successor to the erstwhile Technical College, Ibadan under the provisions of a principal Edict cited as the Polytechnic, Ibadan Edict 1970 (The Polytechnic, Ibadan, 2018). The primary function of the Polytechnic is to train and develop skills of students in applied science, engineering, environmental science and commerce. The Polytechnic runs mainly National Diploma (ND) and Higher National Diploma (HND) programmes each of which has a duration of 2 years. The institution currently has 5 faculties with about 12, 000 students.

Yaba College of Technology

Yaba College of Technology is in Lagos state which has 19 tertiary institutions. Out of these, there are two public Polytechnics; Yaba College of Technology and Lagos State Polytechnic.

The Yaba College of Technology popularly known as YABATECH was established in 1947 succeeding Yaba Higher College. It is in Yaba, a suburb on Lagos Mainland. YABATECH gained autonomous status in 1969 by virtue of Decree 23 thus granting it the mandate to provide full time and part-time courses of instruction and training in technology, applied science, commerce and management and in such other fields of applied learning which are relevant to development in the country in the areas of industrial and agricultural production and distribution; and for research in the development and adaptation of techniques (YABATECH, 2018).

As at year 2018, the institution has 9 schools (faculties), thirty-four academic departments with a total of sixty-four accredited programmes, which cut across the ND, HND and Post-HND Levels with a students' population of approximately 20,000. The campus is presently home to the Department of Agricultural Technology and Michael Otedola Information and Communication Centre.

3.3 Study population

These were the students of the two institutions (The Polytechnic Ibadan and YABATECH)registered during 2017/2018 session. The two schools run National Degree (ND) and Higher National Degree (HND) Programmes; ND 1 & NDII and HNDI & HND II respectively. Each of the degree programme (ND and HND) runs for

a minimum of 2 years. Participation was restricted to NDI and HNDI to ensure that none of the participants have graduated before the end of the project activities.

3.4.1 Inclusion Criteria

Only participants who fulfilled the following criteria were included in the study.

1. Be in either first year of national diploma or higher national diploma programme
2. Register as a full-time student.
3. Be in the age range of 16 – 30 years. (The age range was restricted to 16 – 30 years so that the findings could reflect what is obtainable among the youths)
4. Own a Smartphone.
5. Willing to participate in the study
6. Provide informed consent

3.4.2 Exclusion Criteria

Part-time students and students in the second year of ordinary national diploma or higher national diploma programmes were excluded. Part-time students were excluded because these set of students might be engaged in formal work which may affect their participation in the study compared with full-time students who were not engaged in any work. Also, second year students were excluded as they would have graduated before the completion of study. Exclusion also included students who were more than 30 years or less than 16 years, also those who did not possess Smartphone were excluded.

3.5 Sample size determination

The sample size was determined using formulae for comparison between two proportions given as:

$$n = \frac{1}{1-f} * \frac{(Z\alpha + \quad)^2 \, [P1\,(1-P1) + P2\,(1-P2)]}{(P1-P2)^2}$$ (Chochrane, 1953)

Where;

n = Minimum sample size

Zα = 1.65 – 0.05 level of level of Significance (One sided)

Zβ = 0.84 – 80% power

P1 = 0.65 – 65.4% (Prevalence of [unintentional] exposure to SEM among youth - Arulogun et al., 2016)

P2 = 0.45 – Anticipated 20% decrease in prevalence of exposure to SEM

f = 10% - Attrition rate

$$n = \frac{1}{1-0.1} * \frac{(1.65+0.84)^2\,[0.65\,(1-0.65) + 0.45\,(1-0.45)]}{(0.65-0.45)^2}$$

$$n = \frac{1}{0.9} * \frac{6.2[0.227 + 0.247]}{0.2^2}$$

$$n = \frac{1}{0.9} * \frac{2.938}{0.04}$$

$$n = \frac{1}{0.9} * \mathbf{73.45}$$

$$n = 81.61$$

$$n = 82$$

For both Groups; intervention and control, minimum of 74 participants were needed in each of the group. Adding an estimated 10% attrition rate, the sample size was increased to 82. A total of 200 participants were therefore recruited in the two groups; 99 participants from the control group and 101 from the intervention group to give space for more possible attrition.

3.6 Sampling procedure

A 4-stage sampling was adopted in selecting study participants in each of the institution. First, one faculty/school was selected from each of science and non-science-based faculties/schools in the institutions using simple random technique; lottery method. Second, out of the 2 faculties/schools selected, one department was randomly selected from each using simple random sampling; lottery method (See Appendix III for the number of science and non-science-based faculty/school in each institution and the number of departments in each faculty/school with name of the

department selected for the study in each institution). Third, from each of the department selected, one course of study was selected using simple random sampling for department where there are more than one course of study. Fourth, from each of the course of study selected, about 25 participants were selected among students of Ordinary National diploma (ND) and Higher National diploma (HND) (A total of 50 participants per department) using a simple random sampling technique. In any department where more than 25 participants met the inclusion criteria, a paper ballot was given to participants with only 25 "YES" and other "No" to achieve the sampling frame of 25 from each course department/course of study selected. Only those who pick the 'Yes' were recruited for the study.

3.7 Instruments for data collection

A mixed method approach which involvequantitative and qualitative data collection instruments were used for data collection; these include questionnaire (semi-structured) and Focus Group Discussion (FGD) guide (Endline and Baseline).The instruments were developed using information available from extensive review of literature and instruments used in previous related studies (Ajuwon, Fawole and Osungbade, 2011, Olaleye and Ajuwon, 2011; Olaleye and Ajuwon, 2012, Olaleye 2017). The instruments were subjected to review by the supervisor and other Lecturers in the field of study within the Faculty of Public Health in University of Ibadan.

Qualitative data instrument: Focus Group Discussion (FGD) guide

A focus group discussion guide (See Appendix IV) was developed and used for the qualitative data collection. The FGD guide was pre-tested among students of the Rufus Giwa Polytechnic, Owo, Ondo State, another institution in southwest Nigeria which share similar structure with the study sites in terms of being a residential institution. The FGD explored the local concepts on SEM and how they perceive intentional exposure to SEM. It also explored issues on SEM including sources, types, reason for intentional exposure, perceived effects on individuals and youths generally.

Quantitative data instrument: Questionnaire

A 111-items questionnaire (See Appendix V) was developed after comprehensive review of the literature. Findings from the FGD were used to fine-tune the pre-developed semi-structured questionnaire and used for quantitative data collection. The questionnaire was divided into section as follow:

Section A: The socio-demographic information

This section included variables such as sex, age, religion, ethic group, marital status, level of study and family background.

Section B: Use of Social media

This section contains questions on the use of social media. Respondents were requested to indicate the social media used, the frequency of using it and what they use if for.

Section C: Exposure to adult content

This section contains questions on exposure to sexually explicit materials**.** Participants were asked whether they have been advertently and/or inadvertent exposed to SEM in their lifetime (ever) and recently (in the last one month) including the source(s) of the exposure. They were also requested to indicate whether they currently watch SEM and frequency at which they watch it. Watching of SEM was asked separately because watching of SEM could result from either intentional or unintentional exposure to SEM. Other questions in this section included reasons for not watching SEM. Likewise, among those who currently watch it, they were requested to state their reasons for watching it, preference when watching, resultant behaviour and their feelings after watching it.

Section D: Perception on sexually explicit content

This section assessed respondents' perception on sexually explicit contents, and it contains 6 questions. They were requested to respond to statements using Likert scale format whether they 'agree', 'disagree' or were 'undecided' about each of the statements.

Section E: Effects of exposure to sexually explicit content

This section was created to enable the respondents do a self-assessment if exposure to sexually explicit content has affected them in any way. This consisted 5 questions with

Likert scale options 'agree', 'disagree' and 'undecided' about each of the statements. For example; *exposure to sex video/nude picture has affected my sexual behaviour*.

Section F: Knowledge of effects of exposure to sexual content

This section assessed the knowledge of the students on the effects of exposure to sexual content. The section contained 10 questions and respondents were requested to indicate whether the stated statements were true or false. Example of the questions is *"pornography affects the sexual performance of the viewers'*

Section G: Experience of sexual violence

This section asked about respondents' experience of sexual violence; lifetime and recent experience (last 3 months) and their relationship with the perpetrator. It consisted six-item questions in which the respondents were asked if anybody has done any of the sexual violent act listed to them this include; being sent unwanted unwanted nude pictures or sex film to in demand for sexual intercourse, being forced you to watch sex video/film, being forced to have sex. Hence, sexual violent acts explored ranged from non-penetrative forms of sexual violence to rape.

Section H: Perpetration of sexual violence

This section asked about respondents' perpetration of sexual violence; lifetime and recent experience (last 3 months) and their relationship with the survivor. This section asked about respondents' perpetration of sexual violence; lifetime and recent experience (last 3 months) and their relationship with their survivors. It consisted six-item questions in which the respondents were asked if they have done any of the sexual violent act listed to anybody. Violence acts explored ranged from non-penetrative forms of sexual violence to rape, this included being kissed somebody against his/her wish, being forced to perform sexual act against him/her wish, attempted rape etc.

Section I: Attitude towards sexual aggressive behaviour

Questions on attitude towards sexual aggressive behaviour was developed by adapting 7 questions from the 'Updated Illinois Rape Myth Acceptance Scale' (McMahon and Farmer, 2011). Hence, respondents were askedabout their opinion on the listed

statement whether they strongly agree, agree, being undecided, disagree or strongly agree. Example of the questions are; '*When guys rape, it is usually because of their strong desire for sex; it is really not their fault', 'If a girl doesn't physically fight back, it should not be considered rape' etc.*

Section J: HIV risk perception and prevention practice

This section was used to assess the risk-perception of the students on HIV infection and their preventive practice. The first 7 questions assessed respondents' perceived vulnerability towards HIV infection. The questions on prevention practice inquired if the respondents had taken HIV test. It further asked those who indicated they were yet to be screened if be willing to take the test if offered free.

Section K: Sexual behaviour

Questions in this section inquired about the respondents' sexual experience and involvement in risky sexual practices and behaviour that favours it.

Section L: Self-efficacy to prevent intentional exposure to sexual content adopt safe sex

The section on self-efficacy contains 7 questions which asked respondents about their level of confidence to perform some listed actions related to prevention of exposure to SEM and sexual abstinence. Example of such question is; *'how confident are you todelete all sex videos/nude pictures stored in your phone?'.* The participants were to indicate whether they were very confident, a little confident or not confident.

3.8Data collection method

Data were collected by the researcher who was assisted by research assistants; one male and two females who had a minimum qualification of first degree and experience in data collection for scientific research. They were provided with one day training on the research including the study objectives, data collection instruments and methods, sampling and ethical issues.

3.81 Qualitative Data Collection

A total of six FGD (See Figure 3.1) sessions were conducted in both intervention and control sites at the baseline. Only students in the second year (ND2 and HN2) from the sampled and selected departmentswere recruited to participate in the FGD because students in the second year of study were more experienced about issues on campus

than students in their first year.The FGD sessions were segregated by sex and recorded using electronic audio recorder after obtaining consent of the participants. Before the commencement of the discussion, participants were informed about the purpose of the research and were assured that their information would be used for research purpose only. Participants were segregated into male and female groups. The researcher moderated male FGD sessions with male research assistant who served as note-taker while female session was moderated by an experienced research assistant while the note was taken by another female research assistant. The number of the participants in the focus group discussion raged between seven and nine. The duration of the FGD sessions ranged between 20 and 40 minutes and were held in lecture room in the school after lectures for the day.

3.82Quantitative Data Collection

Students in the first year (ND1) were recruited for this based on the study's sampling technique. The questionnaire was self-completed under the supervision of three trained research assistants (one male and two females). The copies of the questionnaire were distributed to the selected students during lecture free periods or after lecture in the day. The assistants described the objectives of the study, explained the procedures involved, and offered guidance on how to complete the questionnaire.

The questionnaire wasimmediately collected from the participants. It was also checked if the participants properly complete all sessions. The questionnaire (baseline) was administered prior to the intervention (See Figure 3.1 flow chart on recruitment, intervention and data collection). The same questionnaire used for baseline was administered after the intervention as post-intervention evaluation. However, additional questions were included in the endline questionnaire to determine if the participants underwent any form of related intervention during 16 weeks of intervention.

3.9 Validation and reliability of the instrument

Validity: Several steps were taken to ensure the validity of the instrument. First, validity of the content was achieved through consultation of relevant literature and previous research works to develop relevant questions. Second, the instruments were

reviewed several times by the supervisor who had a wealth of the experience on this field for content and structure validity. Third, the instruments were pre-tested. The outcome of the pre-test was used to correct and modify questions which were not adequately/appropriately answered by the respondents.

Reliability: Cronbach's Alpha model technique was employed for the reliability of questionnaire. This was done by administering the questionnaire once to 10% equivalent (20 students) of the study participants at Rufus Giwa Polytechnic, Owo, Ondo State while the coefficient reliability was determined using SPSS computer software version 20. The pre-test showed a reliability coefficient of 0.94 for all the questions which was higher than acceptable correlation coefficient of 0.7 thus suggesting that the instrument is very reliable (See Table 3.2 for coefficient for each session).

Table 3.2: Reliability test result

Section	**Reliability coefficient**
Use of social media	0.8
Exposure to adult content	0.9
Perception on sexually explicit content	0.7
Effects of exposure to sexually explicit content	0.7
Knowledge of effects of exposure to sexual content	0.9
Experience of sexual violence	0.7
Perpetration of sexual violence	0.7
Attitude towards sexual aggressive behaviour	0.8
Risk perception & HIV prevention practice	0.7
Sexual behaviour	0.8
Self-efficacy to prevent intentional exposure to sexual content and adopt safe sex practice	0.7
Overall reliability	**0.94**

3.10 Description of Intervention

Planning the Intervention

The intervention was designed to employ the most frequently and actively used social media platform. The social media suggested by the participants during the pre-intervention FGD sessions was the WhatsApp. The major reason given by the participants for suggesting WhatsApp was its wide usage among students and the ease of its use. The WhatsApp was also found out to be the most frequently used social media from the pre-intervention quantitative data. Hence, WhatsApp was selected for the intervention.

At the point of the recruitment, WhatsApp phone contact of each of the participant was collected. These contacts were used to setup WhatsApp groups for the intervention. The researcher created two WhatsApp groups for the experimental group; one for the HND class and the second for the ND class with 51 and 50 participants respectively. This was to keep the group small to ensure easy coordination by the moderators. The researcher gave the group a brand name; "***Campus Health"***(*CampusHealth – ND and CampusHealth – HND*). Participants were given opportunity to give their opinion about the brand name after welcoming on the group. The name was considered acceptable to all the participants.

The intervention was carried out on the two WhatsApp group pages for a period of 16 weeks between 5th November 2018 to 18th February 2019 among the EG. The researcher and two other professionals who have experience in the use of WhatsApp application and facilitation of reproductive health programs among young persons moderated the groups. Ground rules were set right away from the inception of the intervention to ensure participants do not use the social media group page for other purpose or post messages/materials that do not comply with purpose of the intervention ***(See appendix VI for examples of the ground rules as posted on WhatsApp group page).***

Moderation Script

Results of the baseline (Questionnaire and FGD) were used as a guide to develop the contents of the intervention. The content of the intervention was developed in form of a Moderation Script, this helped to ensure systematic process of the intervention on the

WhatsApp group page. The moderation script was developed during a workshop which was held on October 1st, 2018. Two representatives of the recruited participants; a male and a female of the participants, one moderator, two Public Health professionals in the Faculty of Public Health and the researcher attended the workshop. The intervention content was drafted with the participants during the workshop which lasted for about 3 hours. It was divided into 16 weeks (Table 3.3). Contributions from all the participants during the workshop were used to modify and perfect the moderation script. The content also featured some topics on their career prospect.

Table3.3: Content of the 16-week intervention

Week	Start date	Topic
Week 1	05.11.2018	Welcome, Introduction, and ground-rules
Week 2	12.11.2018	Basic life skills
Week 3	19.11.2018	Sexual Risk Behaviours: Types, and Sexual orientation
Week 4	26.11.2018	Pornography: Meaning and terms, history, types, commonness
Week 5	03.12.2018	Benefits and effects of pornography and Pornography and sexual risk behaviours
Week 6	10.12.2018	Pornography addiction and Prevention of exposure to sexually explicit materials
Week 7	17.12.2018	HIV and AIDS, I: Meaning, route/mode of transmission and associated risky behaviours
Week 8	24.12.2018	Sexual aggressive behaviour on campus: Forms, causes, experience &Prevention
Week 9	31.12.2018	Career prospect (Preparation for examination)
Week 10	07.01.2019	Prevention of risky sexual behaviours and Building self-efficacy against exposure to SEM and towards safe sex practice
Week 11	14.01.2019	HIV and AIDS II: Prevention
Week 12	21.01.2019	Effects of Pornography on marriage, and pornography and religion
Week 13	28.01.2019	Pornography and sexual violence
Week 14	04.02.2019	Career progression and preparation for job after school
Week 15	11.02.2019	Laws on Pornography, Sexual orientation and Rape
Week 16	18.02.2019	Career prospect- What Next after school? and Reflection and Evaluation

The intervention was carried for 16 weeks with a four-week follow-up to facilitate knowledge gain and in-turn behavioural change. The intervention was limited to the planned number of weeks and participants were maximally engaged throughout the period. This was done to prevent any form of boredom on the page, hence attrition.

Intervention messages including relevant photos and videos were posted everyday usually in the evening time when participants were back from class. Participants were given opportunity to comment, provide response and share experience on the topic discussed. They were also given opportunity to ask questions relating to the posted messages and share experiences ***(See Appendices VI and VII for screenshots of posts on the WhatsApp group page)***

The intervention also featured weekly assessment (Quizzes) tagged "fastest finger". This was to ensure comprehension and active participation. Questions on the assessment was based on what have been learnt during the week. The fastest person that provided correct answer to the questions was provided with a reward of ₦500 airtime. The three "most active participants" (person with the highest number of contributions on the WhatsApp page) in the month were rewarded with ₦200 call credit card.

Promotion of HIV testing

Health outreach was also organised for the participants in the intervention group in conjunction with a Civil Society Organisation (CSO) within Ibadan metropolis. The purpose of the outreach was to provide HIV testing service for participants who were interested in carrying out HIV test. This was done in response to the demand for the test during the discussion on HIV preventive behaviours. The medical outreach was conducted in a place to the class of the students in each department which lasted between two – three days in each department.

3.11 Follow-up and post-intervention evaluation

At the completion of the 16 weeks intervention, respondents in the EG were followed-up for a period of 4 weeks before endline evaluation. The respondents, in the both experimental and control groups completed thesame questionnaire at the baseline. However, few questions were added to the post-intervention questionnaire in both groups to determine if participants were exposed to other interventions outside the research. Also, more questions were added to the EG alone to evaluate the process of the intervention (See appendix VIII). The questionnaire which was self-completed and administered during face-to-face interactions was supervised by trained research assistants. Additional questions were added to the baseline questions exploring if the participants attended any educational session/activity related to the intervention content within the last six months. For experimental group alone, participants were asked about the frequency of their activity on the *CampusHealth* WhatsApp group page and factors that may have affected their participation on the group page. Focus group discussion (See Appendix IX for the guide) were carried out among some participants in the intervention group to evaluate the process of the intervention and identify lessons learnt. The participants ranged from 7 – 10 people for each of the FGD conducted. FGD sessions were segregated based on the level of study and department only; the group were not segregated by sex. Hence, a total of four FGD sessions were held.

3.12 Data management and analyses

Qualitative data

Several procedures were involved in the data management and analysis of the FGDs data.It started with the transcription of tape recordings of the FGDs which was done as soon as the data were collected to avoid loss or omission of important details. The transcribed audio recordings werestored using word processing application and analysed using thematic approach with the aid of NVivo software. After transcription, the transcribed data were imported into the NVivo application and nodes (codes) were generated.

Coding of the data was done using an integrated approach,that is, a combination of deductive and inductive coding procedures.The codeswere generated by the researcher and shared with the research supervisor. Similar codes were merged, categorised into

themesand linked appropriately to the corresponding quotations. Themes were further explored along the pattern of results based on major points of agreements, contrasting views or points, striking and salient points that were made by the participants.Data were presented by themes with appropriate quotations.

Quantitative data

The questionnaires (pre- and post-intervention questionnaire) were serially numbered for control and recall purposes. They were checked for completeness and accuracy after collection from participants. They also were sorted,edited and coded manually by the investigator with use of coding guide. Data were imputed into the computer and analysed using Statistical Package for Social Science (SPSS) software version 20. Frequency counts was generated to detect missing cases while the data were cleaned. Hypotheses were tested using Chi-square test, t-test and logistic regression. There was comparison of the results of the analysis of the EG with the control group to explore the effectiveness of the intervention. Hence, quantitative data were analysed as follows;

a. Baseline assessment of selected variables between the experimental group and the control group
b. Baseline vs end-line assessment of selected variablesin the experimental group
c. Baseline assessment vs end-line assessment of selected variablesin the control group
d. Post-intervention assessmentof selected variablesbetween the experimental and control group

The independent variables for the study isexposure to intervention while the major dependent (outcome) variables are listed below:

a. Knowledge of the effects of exposure to SEM
b. Recent (last one month) intentional exposure to SEM
c. Self-efficacy to prevent intentional exposure to SEM
d. Attitude towards sexual aggressive behaviour
e. Risky sexual behaviour

The analysis was carried out to determine the effects of the intervention using t-test (independent sample t-test and Welch's *t*-test), Chi-square and logistic regression with

level of significance was set at 0.05. Independent sample t-test was used to compare means between two groups at either baseline or post-intervention while Welch's *t*-test was used to compare means between baseline and post-intervention data within the same group. Socio-demographic data were presented using descriptive statistics. Other data were also presented in tables and charts.

Knowledge of effects of exposure to sexual content

Knowledge of effects of exposure to sexual contentwas assessed using 10-item questions and rated on a scale of 20-points. In each question, respondents were requested to select from the options: "True" or "False". Each question was assigned a score of 2-points for every correct answer and 0-point for every wrong answer. The higher the score, the higher the knowledge, hence ≤10, 10 – 15, and >15 were categorised as poor, average and good respectively.

Exposure to adult content

Questions on exposure to SEM were analysed using descriptive statistics and Chi-square. Chi-square was used to compare exposure between EG and CG both at the pre-intervention and post-intervention period. The two groups were compared using life-time exposure and recent exposure. The recent exposure was defined as exposure to sexually explicit content in the last one month preceding the study.

Self-efficacy to prevent intentional exposure to sexual content

The section on self-efficacy to prevent intentional exposure to sexual content consisted 6-questions. Respondents were requested to indicate whether they were "very confident", "a little confident" and "not confident" about the scenarios. The questions were rated on scale of 12-points. The higher the score, the higher the level of the self-efficacy, therefore ≤9 and >9 were categorised as high and low self-efficacy respectively.

Attitude towards sexual aggressive behaviour

Attitude towards sexual aggressive behaviour was assessed using 7-item questions and were rated on a scale of 28-points. In each question, respondents were requested to indicate whether they "Strongly Agree", "Agree", "disagree", "strongly disagree" or "undecided" about the list of scenarios. Each question was awarded 4-points, 3-points,

2-points, 1-point and 0-point for “Strongly Agree, “Agree”, or “undecided”, “disagree”, and “strongly disagree” respectively. The higher the score, the higher the attitude towards sexual aggressive behaviour, hence scores ≤16 and >16 were categorised as negative and positive attitude respectively.

Sexual behaviour

Questions were analysed using descriptive statistics, Chi-square and t-test. Risky sexual behaviour (RSB) which was defined as being recently (last three months) engaged in sexual intercourse, none use of protection during last sexual intercourse and having multiple sexual partners consisted of 10-point scales. The higher the score, the higher the RSB. Scores ≤3 and >3 were categorised as low and high RSB respectively.

Perception on sexually explicit content

Perception on sexually explicit content was assessed using six-item questions and rated on a scale of 12 points. In each question, respondents were requested to indicate whether they “Agree”, “Disagree”, or were “Undecided”. For each question, “Agree” option was rated 2-points while other options (Disagree and Undecided) were rated 0-point. Scores ≤6 and >6 were categorised as negative and positive perception respectively.

Effects of exposure to sexually explicit content

In each question, respondents were requested to select from the options: Agree, disagree or undecided.In each question, respondents were requested to indicate whether they “Agree”, “Disagree”, or were “Undecided”. “Agree” option was rated 2-points while other options (Disagree and Undecided) were rated 0-point. Data were analysed using t-test to compare the mean score in EG with the CG.

Experience and perpetration of sexual violence

Questions on experience and perpetration of sexual violence were assessed using 6 questions each. Respondents were requested to indicate “Yes” or “No” to a list of non-consensual experience whether it has ever happened to them, and if yes, they were to indicate if happened in the last 3 months. Questions were analysed using descriptive and Chi-square by comparing EG with the CG.

HIV risk perception and prevention practice

HIV risk perception consisted 7-item questions with 3 options: High risk, low risk and no risk which were rated with 2-points, 1-point and 0-point respectively. The total points were 14. The perceived risk was increases with score, hence scores ≤6, 7 – 12, >12 were categorised as low, average and high HIV risk perception. The preventive practice questions focused on HIV screening.

Participation on WhatsApp Group

The conversation messages on the social media page (*CampusHealth*) were exported into a word processing application. Monthly assessment was carried out on conversations to determine the number of active participants and the frequency of participation. **A*ctive participant*** *was defined as a participant who made at least one contribution on the WhatsApp at a specified period while the* ***frequency of participation*** *was defined by the number of times participants made contribution on the group page in given period of time*. Data on active participants and frequency of participation were presented by month.

3.13 Ethical considerations

The University of Ibadan/University College Hospital Ethics Review Committee (See Appendices Xa and Xb) approved the study prior to its commencement(Ethics assigned number: UI/EC/17/0366). The researcher also sought permission from each of the institution where the study was conducted (See appendices XI and XII). Written informed consent was obtained from the participants before their enrolment in the study and each of the participants kept a copy of their signed informed consent form for their record (See appendix XIII). The consent form describes the research process, purpose and duration as well as what the data will be used for, hence all participants were properly informed about the processes in the research before commencement. Participants between age 16 and 18 were considered as matured-minors, hence parental consent was not obtained from them since participant could fully understand the content of research, also, the current research is a minimal risk research.

Confidentiality of the participants was given a priority. The participants were assured that all information given by the participants will be kept secret and never be used for non-research purpose including phone numbers and names collected for setting up WhatsApp group page for the intervention. No incentive was provided to the

participants however, three most active participants on social media page in the month and participants that firstly provided corrects answers to weekly “fastest finger” were rewarded. The control group was engaged on the social media group created solely for this for a period of 4 weeks and were furnished with information on career development alone and not the content of intervention.

For the respondents who reported that they had experienced violence, they were counselled on how to further prevent such experience and where to report to if experienced again. This was done only among participants in the experimental group to avoid bias.

Finally, to ensure participants in the control group benefit from the intervention, two WhatsApp groups were created for the participants shortly before the post-intervention data collection. The created groups were used to inform the participants about the planned data collection during that period. However, preventive messages posted earlier on the WhatsApp group pages of the intervention group were also posted on the control group WhatsApp pages shortly after the post-intervention data were collected.

CHAPTER FOUR

RESULTS

This chapter presents the findings from the pre-intervention Focus Group Discussion (FGD), baseline survey, implementation of the intervention and the post-intervention survey.

Data from the FGD were generated using FGD guide (See Appendix I) which consisted questions on the use of social-media, challenges experienced in using using the social media, risky sexual behaviour among students, exposure to SEM including its perceived benefits and negative effects, and social media they would recommend for reproductive health intervention among youths. The baseline FGD was carried out first to explore information that helped to finetune the quantitative data. It also provided information on the social media platform used for the intervention. FGD data are presented based on themes generated from the data collected.

The baseline survey was carried out using questionnaire(See Appendix II). Data generated were analysed using descriptive statistics, bivariate and multivariate methods of analysis. Result from the baseline survey were presented using tables and charts. Data generated during the implementation of the intervention included the frequency of activity of participants on the WhatsApp group page. Data were presented using tables and charts.

The post-intervention survey (See Appendix VI) data were collected using questionnaire while analysis was carried out with descriptive statistics, bivariate and multivariate method of analysis. Post-intervention FGD was also conducted among selected participants to evaluate the process of the intervention using Post-intervention FGD guide (See Appendix VII). Research hypotheses were also tested and presented on tables. Lastly where appropriate, results presented were discussed using relevant literature, also changes in the variables of interest as guided by the research questions were discussed.

The overall effects of the intervention were determined by measuring the change observed overtime in the key variables including exposure to sexually explicit materials, knowledge on the effects of exposure to SEM, self-efficacy to prevent SEM, sexual violence experience and perpetration, attitude toward sexually aggressive behaviour, HIV risk perception and prevention practices, and sexual behaviour and self-efficacy to practice sexual abstinence.

4.1 Findings from the baseline: Focus Group Discussion

Participants of baseline FGD were from Higher National Diploma (HND) II and National Diploma (ND) II. The age of the participants ranged between 20 and 29 years.

Data from the FGD suggested revealed some common themes which are presented with verbatim responses from the participants. The themes include the followings among others; most students use media applications, social media were mainly used for communication and connection, youth experienced various challenges while using the social media, youths engaged in risky behaviours that can affect their sexual health, males were more exposed to exposed to SEM and exposure to SEM has negative on the viewers.

4.1.1.Pattern of social media use

Most students usemedia applications

Most students use various social media platforms including WhatsApp, Facebook, twitter, Baddoo, Instagram, Telegram, 2go, WhatsApp, snapchat, Facebook, Instagram and Google^{+}. However, the majorly used social media across all groups was WhatsApp. Students access the social media using mobile as respondents affirmed that most students have access to smart phones with social media applications installed on them. They also reiterated this with the fact mobile phone use is not prohibited in the school and most of the students want to have social connections.

The following are excerpts from some participants:

> *"There is no student without apps of social media on their phones, everybody has it. There is no rule that don't use this or don't use that"* (Female, Polytechnic Ibadan; 18th July 2018)

> *"Above average most students are using android phones and I can assure you that the main reason why they are using that phone is because they want to socialise which means everybody using mobile(smart) phones have social media app on it"* (Male, Polytechnic Ibadan; 18th July 2018)

One of the participants also made mention of a new social media platform; Tistit and described to be "Immoral". He said:

> *"Tistit is the latest online although it is not morally okay"* (Male, Polytechnic Ibadan)

Social media were mainly used for communication and connection among the students

Purpose ofusing social media and benefits derived from it included; meeting new friends, reconnect with old ones and communicate with them to reduce cost of sending messages through SMS, gather information, advertise products, purchase products, express personal feelings, keep relationships, constantly get connected with friends, reduce stress and cost of transportation and get updated with happenings in the surrounding. One of the participants had this to say:

> *"To interact, communicate; it reduces the cost of communicating because it is cheaper if I communicate through the social media than using MTN and other network (SMS) that we have in Nigeria. It keeps you updated on what is happening around your environment. Recently social media is actually part of our lives without social media it is just like we are living in exile. A day without your phone is like a day in another environment and it is not because of anything majorly but because of social media and the applications on your phone"* (Male student, Polytechnic Ibadan)

Some participants also emphasized that social media is a source of pornography for him which also serve as source of sexual education because he was being deprived of sexual education at home. He said:

> *"... but me I like pornographic videos (laughed). Seeing it on social media is usually exiting to be honest, it is enlightening me about somethings that I am not opportune to know at my level due to the fact that there are some*

forms of education that should be given … but the way we hold sexual issues at home. They scare us away from anything sexual and I need to understand somethings as a man … but with the help of social media I was able to know so many things. It is not about watching porn alone but I am talking about understanding somethings with respect to relationship. I was looking at my Facebook one day and I saw this picture like a male and a female naked on each other I was like what is this all about but when I read the story I understand that the girl has a bright future but because she goes into sex without protection with the guy she lost her future and she got infected with HIV, you know with that I was able to understand that it is very paramount to protect oneself before having sex. So there are lots of things that I have actually learnt on social media" (Male student, Yabatech).

Youth experienced various challenges while using the social media

A major challenge expressed by the participants was internet network problem. Others included lack of confidentiality (information on it are not private) and account security, seeing posted naked pictures, pornographic videos, hacking of account, seeing fake and old news, and receiving messages with threat to forward it again. Here are verbatim responses to illustrate these concerns:

"For me one of the challenges that I have on Facebook is that when I wanted to register on Facebook, I used my number. Some people will just call me and start saying hello fine girl……and I will say I don't know you where do you get my number from, then they will say Facebook and I will tell them not to call me again, please I beg you don't call me again" (Female, Polytechnic Ibadan)

"Like naked pictures that's the major thing. Dresses that a responsible child or girl should not be wearing, and some people will be wearing it and I will be thinking is this madness or insanity (all laughed) but seriously it, they are annoying" (Female, Polytechnic Ibadan)

"They may hack your account so they will be using your account to send message to others without knowing because you are not the one that is operating that account at that particular time" (Male, Polytechnic Ibadan).

"Ehnn … sometimes in Facebook you know so many people post so many videos that is not… (hesitated to talk) … Sex video, video that is not good. For me now I am a born-again Muslim (laughed) I don't like such a thing" (Male, Polytechnic Ibadan).

"Before the INEC announced the result more than 10 different result has been online that we don't even know which one to believe. Also, somethings that has happened 2 or 3 years ago some people will be posting it as if that thing just happened like an hour ago. So sometimes you just get confused that you don't even know which one is which one. Another one is about WhatsApp there is a message that they will send to you and they will say you should send it to 10 people that infuriate me" (Male, Polytechnic Ibadan).

4.1.2 Sexual behaviour

Youths engaged in risky behaviours that can affect their sexual health

Common sexual risk behaviours among students included; dating lecturers/married men, sending of personal nude pictures to sexual partner, living "campus couple life", attending night parties, alcoholism, unprotected sex, indecent dressings, rape, multiple sexual partners and use of drugs for sexual enhancement. The followings are excerpts from the participants:

"… for example, for a female student to send her nude picture to her boyfriend is not good" (Male, Polytechnic Ibadan).

"When you are attending a night party it is very risky you can be raped" (Male, Polytechnic Ibadan).

"There is another thing, nowadays everything has just spoilt you will see boyfriend and girlfriend living couple's life it is very risky for them

because it can cause anything at any point in time" (Male, Polytechnic Ibadan).

"Female wearing short dresses, the school has not done anything to curb that. So the harmless dress that the girls wear is part of the risky behaviour. There are some girls they call them pink girls (I am not the one that told you o). If any guy mistakenly crosses their part on this campus… It happened like last semester, they will gang rape the person. I mean females will rape a guy" (Male, Polytechnic Ibadan).

"There are a lot of drugs like tramadol and codeine and a whole lot of drugs, but the most common ones are these two that can be bought in nearby pharmacy or chemist and I believe that is generally the major behaviour" (Male, Yabatech).

"… It is a common practice (all laughed) like having multiple girlfriends not only in school environment even outside the school environment but it is a common practice" (Male, Yabatech).

4.1.3 Exposure to sexually explicit materials

Sexually explicit materials have various names

Participants referred to sexually explicit materials using different names including;***Porn, blue film, nude pictures, mojo, blue movie, sex film, XXX video and ojimba***. They reiterated that, sometimes a name might be given to SEM with the internt to conceal the real meaning from others. A participant said:

"Mojo is part of it but when I was in secondary school, we used to call it "ojimba". It is we that we are there that know what we are talking about it. If another person is there and we mention it he might not know what we are talking about but generally mojo is like the major name" (Male, Yabatech)

Major sources of sexually explicit material were internet and social media

Mentioned sources of exposure included pornography website (Porn site), movie, internet, social media, YouTube and mobile application. Below are the excerpts from some participants:

"…internet is not the only source of pornography, we have the people that sell the movie as well so it is very easy to have it at home" (Male, Polytechnic Ibadan)

"Nowadays life is coming to an end so many things is happening, people don't even care… like the Facebook someone has just said now; someone can snap naked picture and post it on the Facebook and the person will not even care about it: It is intentionally" (Male, Polytechnic Ibadan)

Malesare more exposed to exposed to sexually explicit materials

Most of the respondents opined that males are more exposed to SEM. Although some of the them were of the opinion females were more exposed while few believed both males and females are exposed. There was also opinion that some snap their nude pictures and send to their sexual partner. A participant said:

"I feel it is the male because most times when you collect a guy's phone most times you will see something because when I was in school there was this girl, she snapped herself naked and sent the picture it to her boyfriend and they fought and the picture leaked, the guy sent it to social media" (Female, Polytechnic Ibadan)

Youths view sexually explicit materials for pleasure, sexual education andto satisfy sexual urge

Reason for watching SEM included: to satisfy sexual urge, for pleasure, prepare for sexual activity, curiosity and to learn about sexual activity and sexual positions. Another important thing is that youths spend so much time to watch SEM

"Some watch it when they have the urge and they are lonely" (Female, Polytechnic Ibadan)

"One of the reasons why I think people watch it is to really understand sex positions and to know how best to enjoy sex. Some watch it to please themselves from urge at that time and some watch it to arouse their sexual urge. It just depends on people; I know of someone who can watch porn from morning till night and he will not be aroused he just watches it to please himself. You can never find any video on his phone apart from those

videos and he sees nothing wrong in it. So, he probably not watching it to arouse himself but just to enjoy the moment while some people because a lady is coming to them, they go ahead and watch it and learn different sex positions" (Male, Yabatech)

Viewing of sexually explicit materials has no benefit

Most of the respondents believed exposure SEM has no benefit. However, some of the respondents disagree with this and maintained it helped to learn about sexual activity: various styles of having sex. Here are excerpts from some participants:

"There is no benefit rather than it destroys you that is just it. You will just think that this video that I have been watching all this while let me just try it…so you will want to try it. So it will only corrupt you" (Female, Polytechnic Ibadan)

"It can be used to satisfy your boyfriend in bed. You will know different kinds of styles then it will not be new to you when your boyfriend wants to try it because you have seen it before and you know it" [Laughed – All] (Female, Polytechnic Ibadan)

Exposure to SEM has negative effects on viewers

Perceived effects of exposure to SEM included pornography addiction, promiscuity, time wastage, strong desire to have sexual intercourse, rape, unwanted pregnancy and quick ejaculation. Below are verbatim responses from some participants.

"The person will be sleeping with girls and will not be able to control himself "(Male, Polytechnic Ibadan)

"To me, if I watch the porn, I feel like having sex so I don't like watching it" (Male, Polytechnic Ibadan)

"It can also lead to rape because all those videos are done real… it could be with an old lady or a teenager or fat or thin lady. For someone that cannot control his emotion he might want to try it out immediately with a teenager around which may lead to rape" (Male, Yabatech)

"It can lead to rape because when you watch it you will feel like you need to practice it … that is why you see older men raping younger girls. It is because of what they see" (Male, Polytechnic Ibadan)

4.1.4 Suggestion for social media intervention among youths

WhatsApp (social media) suggested as the social media intervention choice for reproductive health interventions among youths

The list of suggested social media platform for reproductive intervention among youths were; WhatsApp, Instagram, Facebook, Twitter. However, the majorly emphasised platform was the WhatsApp because of ease of use, access, privacy.A participant from Yabatech said:

> *"**WhatsApp ni** (Its WhatsApp) …. (Although) WhatsApp will be like private (**There would be need to collect participants phone number**) but I think generally may be Facebook and twitter are main … the two that are in vogue now. Everybody in secondary school; you will see them rushing to Facebook and the little advanced ones are on twitter so I believe with those two you can pass your message across" (Male, Yabatech*).

Major suggestions to ensure effectiveness of intervention included; creation of social media group for interaction, clearly stating group guiding rules to avoid misuse, style of discussion must be youth friendly.

A male from the Polytechnic Ibadan reiterated:

> *" there should be a limitation and guiding rule for everyone" (Female Participant, Polytechnic Ibadan)*

Another participant said:

> *... bring the discussion to their level not by telling them don't do this or do this (no). You can also tell them story… then from there, start to give them advise* (Male; Yabatech).

4.2 Findings from the baselinequestionnaire

4.2.1 Socio-demographic information of the respondents at the baseline

The total number of males was 132 (66.0%) while females was 68 (34.0%). Themales were 61.4% in the experimental group (EG) group and 70.7% in the control group (CG). In both experimental and control groups, many (56.0% - EG and 60.6% - CG) of the respondents were within the age group of 20 and 24 years. The mean age of the respondents was 21.4 ± 2.7. The most practiced religion in both groups was Christian religion; 79.5% (77.2% - EG, 81.5% - CG). The dominating ethnic group was Yoruba; 82.0% (93.1% - EG, 70.7% - CG) and only 1.5% of the respondents were married; all of whom were from the control group. Most (78.5%) of the respondents in both groups were from monogamous family (Table 4.1).

Table 4.1: Socio-demographic characteristics of the respondents

Variable	EG n (%)	CG n (%)	Total N (%)	χ^2	p-value
Sex					
Male	62 (61.4)	70 (70.7)	132 (66.0)	1.9	0.16
Female	39 (38.6)	29 (29.3)	68 (34.0)		
Age group					
16 – 19	28 (28.0)	27 (27.3)	55 (27.6)	0.7	0.69
20 – 24	56 (56.0)	60 (60.6)	116 (58.3)		
25 – 29	16 (16.0)	12 (12.1)	28 (14.1)		
Mean age	**21.3 ± 2.7**	**21.4 ± 2.7**	**21.4 ± 2.7**	0.4^{++}	**0**.7
Religion					
Christian	78 (77.2)	81 (81.5)	159 (79.5)	1.4	0.49
Islam	22 (21.8)	18 (18.2)	40 (20.0)		
Traditional	1 (1.0)	0 (0.0)	1 (0.5)		
Ethnic Group					
Yoruba	94 (93.1)	70 (70.7)	164 (82.0)	20.1	<0.001**
Hausa	1 (0.9)	0 (0.0)	1 (0.5)		
Igbo	3 (3.0)	20 (20.2)	23 (11.5)		
Others	3 (3.0)	9 (9.1)	12 (6.0)		
Marital status					
Single (never married)	101 (100.0)	96 (97.0)	197 (98.5)	3.1	0.08
Married	0 (0.0)	3 (3.0)	3 (1.5)		
Level of study					
ND 1	50 (49.5)	48 (48.5)	98 (49.0)	0.21	0.89
HND 1	51 (50.5)	51 (51.5)	102 (51.0)		
Family origin					
Monogamy	83 (82.2)	74 (74.7)	157 (78.5)	1.6	0.2
Polygamy	18 (17.8)	25 (25.3)	43 (21.5)		

**** Significant**

$^{++}$t-test

4.2.2 Social media use

4.2.2.1 Pattern of social media use

All the respondents in the two groups indicated they have profile in at least one of the social media networks. Table 4.2 shows the type of the social media used by the respondents. The highest used social media in the EG was WhatsApp; 99.0%. In the control group, the highest used media was Facebook (97.0%). The least used social media in both groups was the Telegram (12.0% - EG, 11.2% - CG).

Table 4.2: Type of social media used by the respondents

Social media	Group	
	EG n (%)	CG n (%)
WhatsApp	100 (99.0)	91 (91.9)
Facebook	97 (96.0)	96 (97.0)
Instagram	64 (63.4)	67 (67.7)
Twitter	30 (29.7)	33 (33.3)
IMO	21 (20.8)	14 (14.1)
Telegram	12 (12.0)	11 (11.2)

4.2.2.2 Frequency of use of social media

The social media with highest record of daily use among users in both EG and CG groups was WhatsApp (79.0% - EG, 74.7% - CG) while the least frequently used media was Telegram; 25% in both groups (Table 4.3).

Table 4.3: Daily use of social media

Social media	Group	
	EG n (%)	EG n (%)
WhatsApp	79 (79.0)	68 (74.7)
Facebook	74 (76.3)	65 (67.7)
Instagram	29 (45.3)	31 (46.3)
IMO	8 (38.1)	3 (21.4)
Twitter	11 (36.7)	15 (45.5)
Telegram	3 (25.0)	4 (36.4)

4.2.2.3Purpose of using social media

The reasons for using social media was explored. Major reported reasons in both EG and CG was “read news/recent happenings”. Major sexual risk behaviours reported on the social media included; watch/download naked pictures (EG – 6.9%, CG – 7.1) and watch/download sex videos (EG- 14.9% and CG 12.1%) (Table 4.4).

Table 4.4: Participants' reported purpose of using social media

Behaviour	Group		p -value
	EG n (%)	CG n (%)	
Read News/recent happenings			
Yes	83 (82.2)	79 (79.8)	0.7
No	18 (17.8)	20 (20.2)	
Download/listen to Music			
Yes	63 (62.4)	70 (70.7)	0.2
No	38 (37.6)	29 (29.3)	
Watch/download naked Pictures			
Yes	7 (6.9)	7 (7.1)	0.9
No	94 (93.1)	92 (92.9)	
Watch/download Sex Videos/Films			
Yes	15 (14.9)	12 (12.1)	0.6
No	86 (85.1)	87 (87.9)	
Find boyfried/girlfried			
Yes	12 (11.9)	15 (15.2)	0.5
No	89 (88.1)	84 (84.8)	
Share naked pictures*			
Yes	1 (1.0)	1 (1.0)	1.0
No	100 (9.0)	98 (99.0)	
Share "Sex" Videos*			
Yes	2 (2.0)	0 (0.0)	0.5
No	99 (98.0)	99 (100.0)	
Read health news and publications			
Yes	48 (47.5)	52 (52.5)	0.5
No	53 (52.5)	47 (47.5)	

Fisher exact test,

4.2.3Sources and pattern of exposure to SEM

Majority of the participants reported they have been exposed to SEM both inadvertently and advertently.

4.2.3.1 Inadvertent exposure to SEM

Life-time inadvertent exposure in the EG and CG was 88.1% and 97.0% respectively ($p<0.05$) (Table 4.5). On recent exposure, there was no significant difference between EG (38.2%) and CG (46.9%).

Table 4.5: Inadvertent exposure to SEM

Exposure	Group		p -value	χ^2
	EG	CG		
	n (%)	n (%)		
Ever				
Yes	89 (88.1)	96 (97.0)		
No	12 (11.9)	3 (3.0)	0.02	5.6
Recent				
Yes	34 (38.2)	45 (46.9)		
No	55 (61.8)	51 (53.1)	0.2	1.4

4.2.3.2 Advertent exposure to SEM

There was significant difference in life-time advertent exposure to SEM between the EG(61.4%) and the CG(74.7%) (Table 4.6). On the recent exposure, there was no significant difference between the two groups; EG (53.2%) and CG (36.0%), although the EG was more exposed.

Table 4.6: Advertent exposure to SEM

Advertent exposure to SEM	Pre-intervention		p -value	χ^2
	EG n (%)	CG n (%)		
Ever				
Yes	62 (61.4)	74 (74.7)		
No	39 (38.6)	25 (25.3)	0.04	4.1
Recent				
Yes	33 (53.2)	27 (36.0)		
No	29 (46.8)	47 (64.0)	0.05	3.8

4.2.3.3 Sources of exposure to SEM

The major source of exposure to SEM in the EG was the social media for both inadvertent (61.8%) and advertent (51.5%) exposure. However, the least source of the exposure was television for both inadvertent (16.9%) and advertent (37.5%) exposure (Table 4.7).

In the control group, the major source of inadvertent and advertent exposure was the internet; 75.0% and 57.3% respectively. While the least source of exposure was the WhatsApp for both inadvertent (25.9%) and advertent (21.3%) exposure (Table 4.7).

Table 4.7: Sources of inadvertent and advertent exposure to SEM

Sources of exposure	Type of exposure to SEM			
	Inadvertent exposure		Advertent exposure	
	EG n (%)	CG n (%)	EG n (%)	CG n (%)
Internet page	52 (58.4)	72 (75.0)	30 (48.4)	43 (57.3)
Social media	55 (61.8)	54 (56.3)	32 (51.6)	26 (34.7)
Received on WhatsApp	23 (25.8)	25 (25.9)	20 (32.5)	16 (21.3)
YouTube website	25 (28.1)	30 (31.3)	24 (38.7)	26 (34.7)
Television	15 (16.9)	36 (37.5)	10 (16.1)	20 (26.7)
Collected (Via file sharing apps)	N/A	N/A	24 (39.3)	4 (36.0)

4.2.3.4 Frequency of watching SEM

Figure 4.1 presents the frequency at which participants watched SEM the EG and CG. In the EG, majority of the respondents (40.6%) reported they watch SEM in a "few times in the year" also in the control group, the percentage of the respondents who watch SEM "few times in the year" was 38.4%. Few respondents reported they watched SEM daily; EG:1.0%, CG: 3.0%. However, some respondents reported they do not watch SEM, this included 27.7% in the EG and 21.2% in the CG.

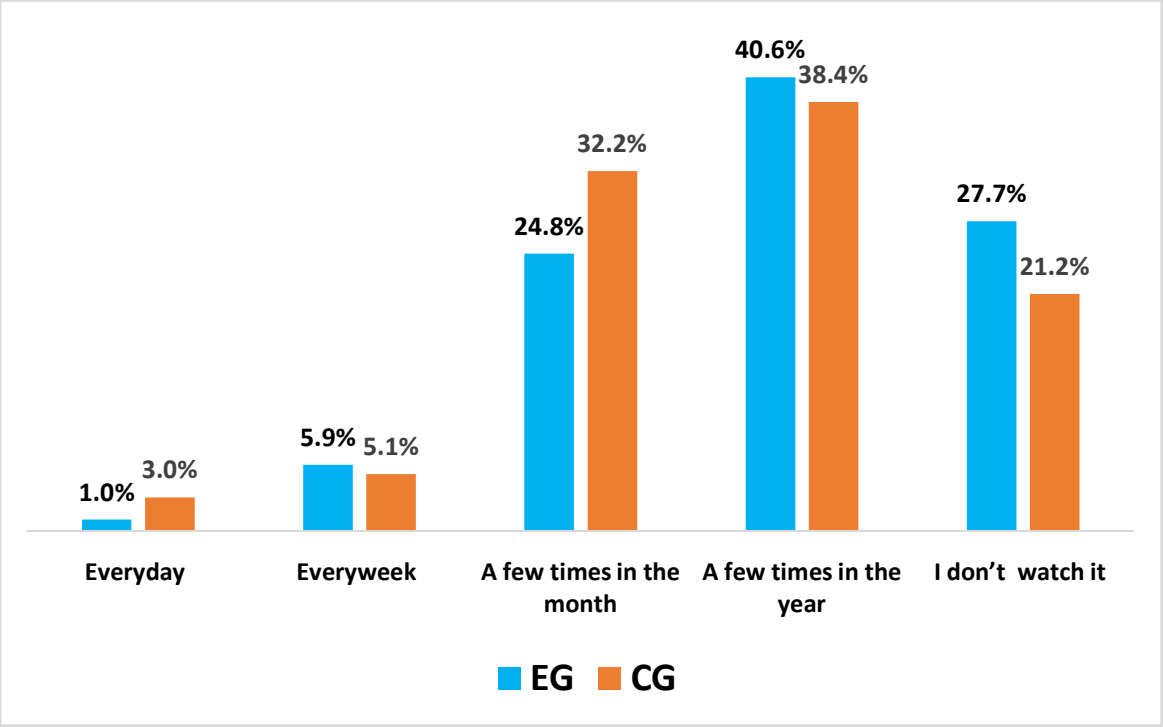


Figure 4.1: Reported current rate of watching SEM

4.2.3.5 Reported reason for not watching or putting a stop to watching SEM

Among those who reported they do not watch or have stopped watching SEM, several reasons were provided for this action which were presented on Table to 4.8. Major reasons provided by the respondents in the EG were religious reason (39.1%), not interested (17.4%) and because it causes unnecessary sexual thought/arousal/behaviour (13.0%) (Table 4.8).

For the CG, major reasons provided were religious reason (40.0%), not good/healthy (20.0%) and not interesting (20.0%).

Table 4.8: Reasons for not watching SEM among participants in EG and CG

Response	EG	CG
Religious reason	39.1%	50.0%
Not interested	17.4%	20.0%
Causes unnecessary sexual thought/arousal/behaviour	13.0%	0.0%
I don't have time for it	8.7%	10.0%
Not good/right/healthy	8.7%	10.0%
I don't like it/It irritates me	8.7%	10.0%
Causes rape	4.3%	0.0%

4.2.3.6Reasons for watching SEM

Major reason for watching SEM reported by the participants in both EG and CG groups was “just to know about it (SEM)”. Other reasons included “to release stress”, “to learn about sexuality”, and “to vary or learn more about sexual activity” (Table 4.9).

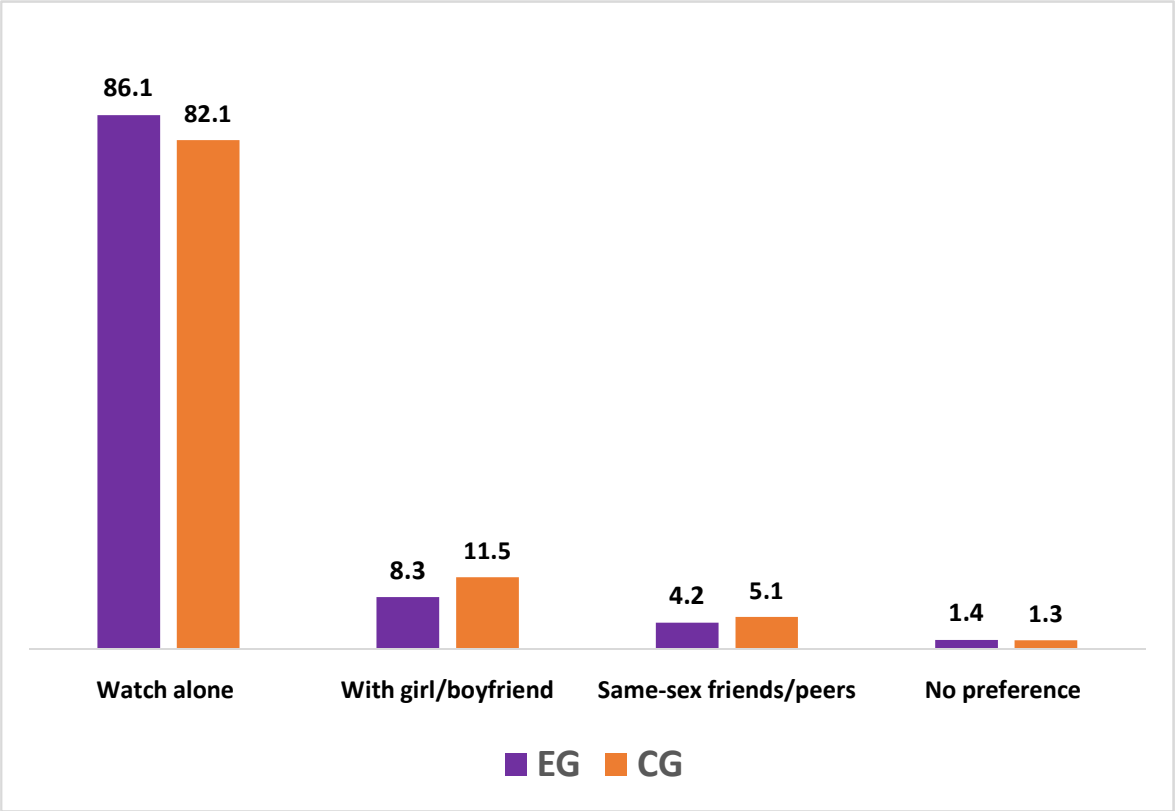
Table 4.9: Reasons for watching sexually explicit content

Reason*	Group	
	EG n (%)	CG n (%)
	N = 71	*N = 72*
To release stress	21 (29.6)	18 (25.0)
Just to know about it	39 (54.9)	44 (61.1)
To get sexually aroused before sexual activity	3 (4.2)	7 (9.7)
To get sexually aroused and masturbate	9 (12.7)	12 (16.7)
To learn more about sexuality	22 (31.0)	26 (36.1)
To vary or learn more about sexual activity	16 (22.5)	23 (31.9)
Everyone does it	11 (15.5)	10 (13.9)

Multiple responses are included

4.2.3.7Preference while watching SEM

For those who watch SEM, majority of the participants reported they prefer to watch SEM alone while some reported they prefer to watch it with their boyfriend or girlfriend. Few reported watching with peers or same sex friends while others reported they had no preference when watching it (Fig 4.2).



**Figures are in %*

Figure 4.2:Preference while watching SEM

4.2.3.8Behaviour following life-time to SEM and perceived effects of the exposure

Figure 4.3 showed the percentage of respondents who reported they have performed what was watched in sexually explicit content. In the CG, a little less than half (43.1%) have performed what they watched in sexually explicit content. However, in the CG a little above half (56.4%) gave this report.

The reported types of behaviour engaged in after watching SEM is indicated on Table 4.10. The major behaviours engaged in the EG included masturbation (46.7%), sex without condom (46.7%) and oral sex (13.3%). While in the CG, major reported behaviour engaged in were sex without condom (46.7%), masturbation (38.7%) and oral sex (34.7%).

Fig. 4.4 showed the last time participants engaged in the reported behaviours following exposure to SEM. About a quarter of the respondents in both EG (24.1%) and CG (20.0%) reported the last time they engaged in such behaviour was within the last week.

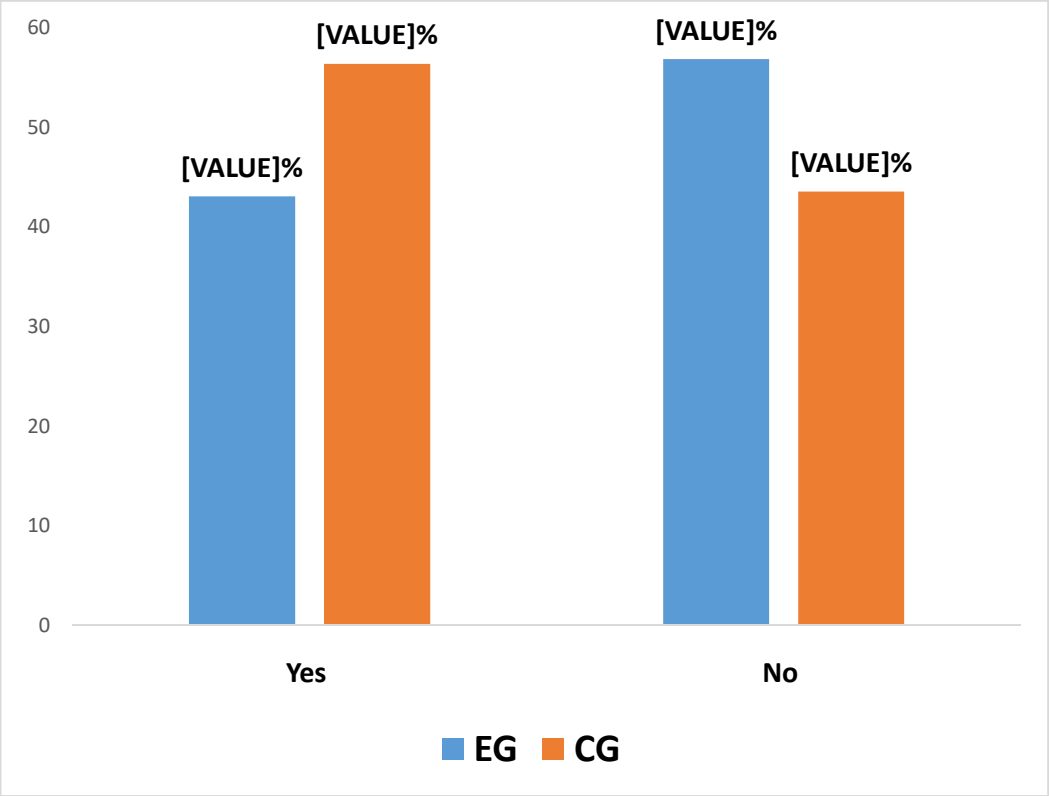


Figure 4.3: Percentage of respondent who ever performed what was watched in sexually explicit content

Table 4.10: Reported sexual behaviour following exposure to SEM

Behaviour	EG	CG	Total
Oral sex	4 (13.3)	22 (48.9)	26 (34.7)
Forceful sex	2 (6.7)	1 (2.2)	3 (4.0)
Group sex	1 (3.3)	0 (0.00	1 (1.3)
Sexual intercourse with same sex	1 (3.3)	1 (2.2)	2 (2.7)
Anal sex	1 (3.3)	5 (11.1)	6 (8.0)
Masturbation	14 (46.7)	15 (33.3)	29 (38.7)
Sex without condom	12 (40.0)	23 (51.1)	35 (46.7)

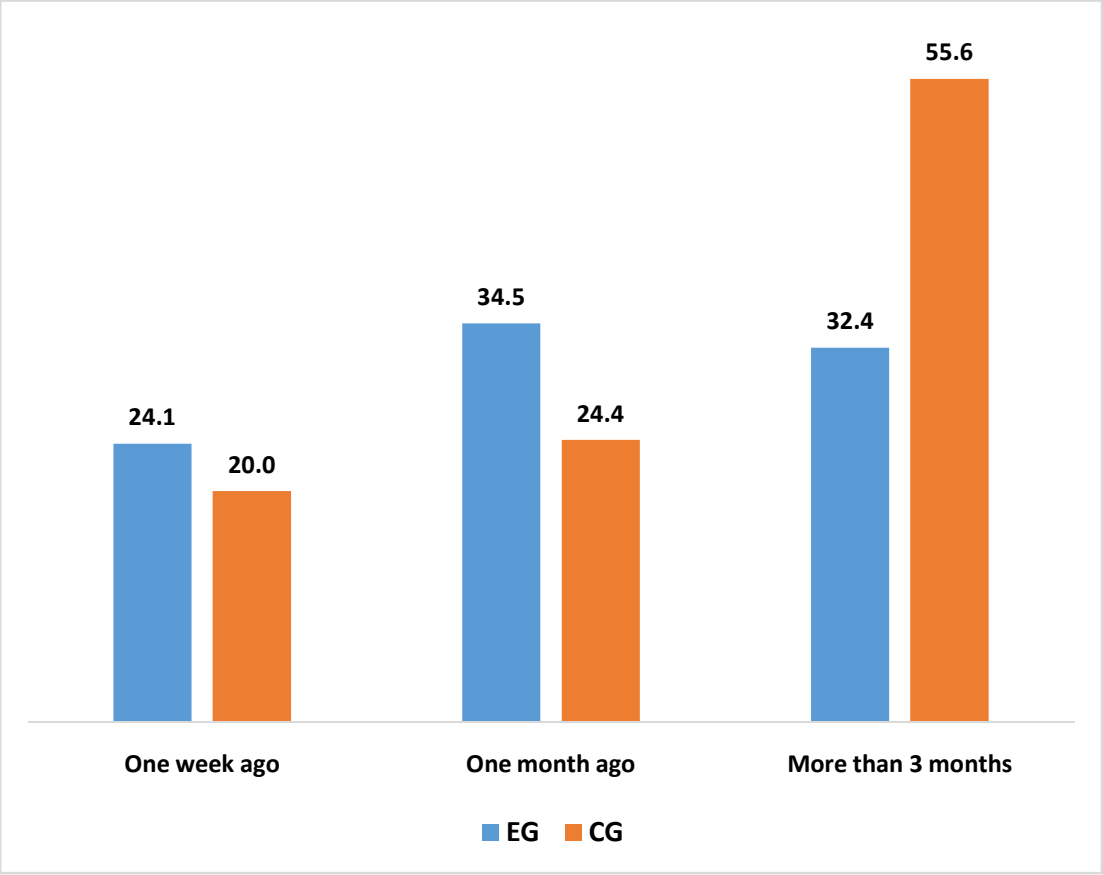


Figure 4.4: Last time engaged in the sexual behaviour following exposure to SEM

4.2.3.9Activity supporting exposure to SEM

Some reported activity supporting exposure to SEM included having pornographic mobile application installed on phone (10.7%) and intentionally visited website of adult content [in the last one month] (29.8%). Few (14.3%) of those who intentionallyvisited website of adult content within the last one month said they do that daily while majority (78.6%) visited the content weekly (Table 4.11).

Table 4.11: Reported activity/behaviour supporting exposure to SEM

Activity/behaviour	EG	CG	Total
Have mobile apps installed on phone to access naked pictures/sex movies/video clips			
Yes	10 (13.7)	6 (7.8)	16 (10.7)
No	63 (86.3)	71 (92.2)	134 (89.3)
Visited website of adult content in the last one month			
Yes	22 (30.1)	23 (29.5)	45 (29.8)
No	51 (48.1)	55 (70.5)	106 (70.2)
Frequency of visit to adult content website within the last one month			
Everyday	3 (14.5)	3 (14.3)	6 (14.3)
Every two days	2 (9.5)	1 (4.8)	3 (7.1)
Every week	16 (76.2)	17 (81.0)	33 (78.6)

4.2.3.10Personal feeling after watching SEM: Lifetime exposure

About half of the respondents (52.3%) who reportedly watch SEM in both EG and CG indicated that they felt ashamed and depressed after watching sexually explicit content, 23.8% indicated they were satisfied, 12.6% indicated they were not satisfied and wished to watch more while 11.3% were indifferent (Figure 4.5).

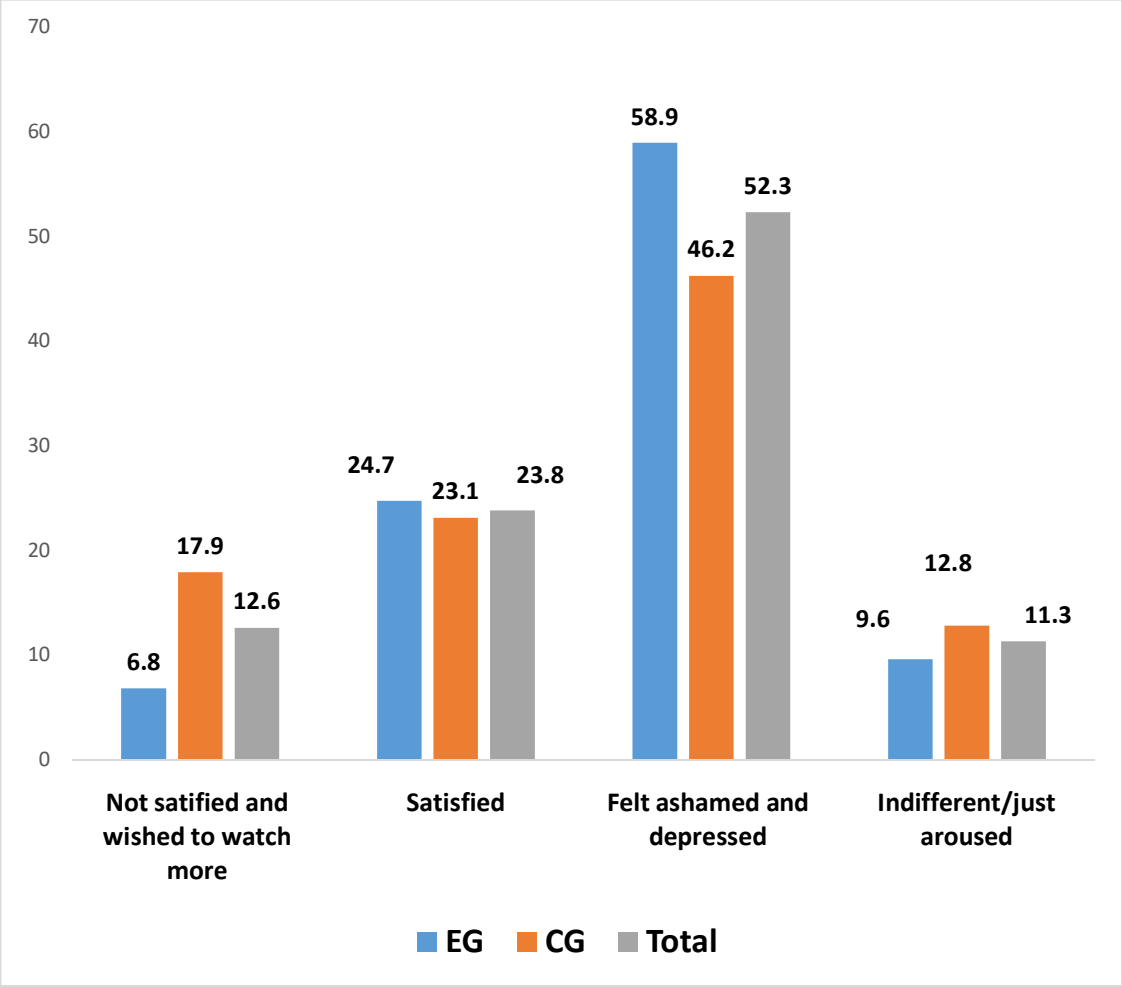


Figure 4.5: Reported feeling after watching SEM

4.2.3.11 Perceived effects of exposure to SEM on interest for sexual intercourse

Respondents who have been either advertently or inadvertently exposed to SEM;were asked to indicate if the exposure has increased their interest for sexual intercourse. Few (21.9%) of the respondents in the EG indicated it has increased their interest while almost half (47.4%) in the CG indicated being affected by the exposure (Figure 4.6).

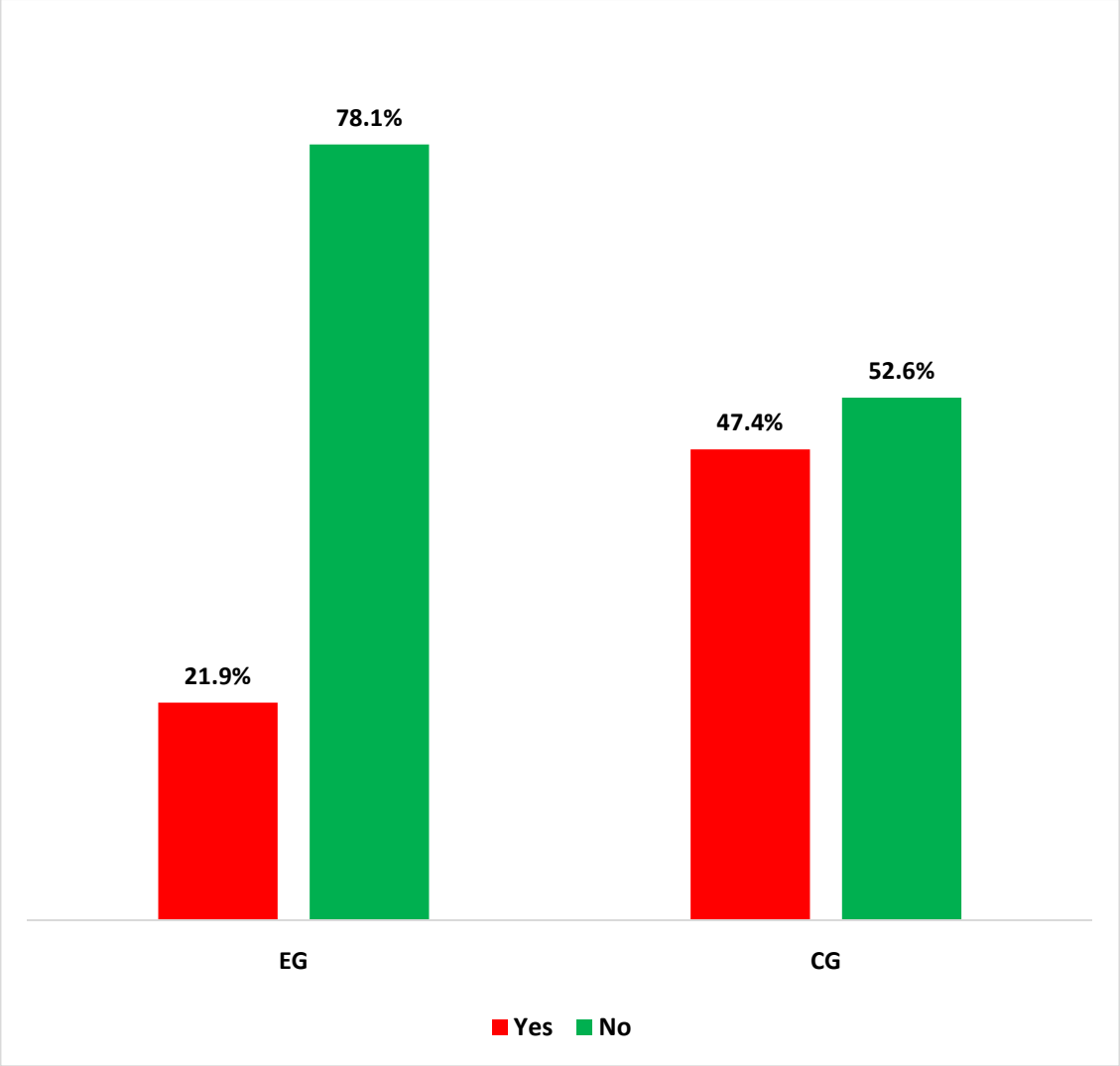


Figure 4.6: Increased interest in sexual intercourse as a result of viewing SEM

4.2.4Perception on sexually explicit content

The level on perception on sexually explicit content are about the same; 27.7% and 27.3% in both EG and CG respectively, there was no significant difference in the level of perception (Table 4.12). The mean perception on sexually explicit content was 9.0±2.9 and 9.6±3.2 in EG and CG respectively ($p>0.05$).

Table 4.12: Perception on sexually explicit content

Perception on SEM	Group		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Negative	28 (27.7)	27 (27.3)	55 (27.5)	0.005	0.9
Positive	73 (72.3)	72 (72.2)	145 (75.2)		

4.2.5Perceived effects of exposure to sexually explicit content

All respondents were requested to respondents to the questions on the perceived effects of exposure to sexually explicit content. The level of perceived effects on SEM was low in both EG and CG with mean perception of 1.5±2.4 and 2.4±2.6, although it was significantly higher in the CG ($p<0.05$) (Table 4.13).

Table: 4.13: Personal perceived effects of exposure to sexually explicit content

Group	Mean perceived effects of exposure to sexually explicit content			
	Mean	**Mean difference**	**t-value**	**p-value**
EG	1.5±2.4			
		0.8	2.5	0.001
CG	2.4±2.6			

4.2.6Knowledge of the effects of exposure to SEM

About half (48.0%) of the respondents in both EG and CG has poor knowledge on the effects of exposure to SEM, however about one-fifth (19.5%) of them had good knowledge of it (Table 4.14). Mean knowledge of effects of exposure to SEM in EG and CG was 12.9±3.8 and 13.9±3.6 respectively and there was no significant difference between two groups (EG and CG) (Table 4.15).

Table 4.14: Knowledge of effects of exposure to SEM

Knowledge on SEM	Group		Total	X^2	*p-value*
	EG n (%)	CG n (%)			
Poor	55 (54.5)	41 (41.4)	96 (48.0)		
Average	28 (27.7)	37 (37.4)	65 (32.5)	3.5	0.17
Good	18 (17.8)	21 (21.2)	39 (19.5)		

Table 4.15: Mean knowledge of effects of exposure to SEM

Group	Mean knowledge of effects SEM			
	Mean	**Mean difference**	**t-value**	**p-value**
EG	12.9±3.8			
		0.93	1.74	0.08
CG	13.9±3.6			

4.2.7Self-efficacy to prevent intentional exposure to sexual content

The mean difference on self-efficacy to prevent intentional exposure to sexual content between the two groups (EG: 9.7±2.8 and (CG: 10.0±2.1) was 0.4 with no significant difference. Most of the respondents in EG (66.3%) and CG (65.6%) had high self-efficacy to prevent intentional exposure to sexual content (Table 4.16).

Table 4.16: Self-efficacy to prevent intentional exposure to sexual content

Level of Self-efficacy	Pre-intervention		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Low	34 (33.7)	34 (34.3)	68 (34.0)	0.01	0.9
High	67 (66.3)	64 (65.6)	132 (66.0)		

4.2.8Attitude towards sexual aggressive behaviour

The mean attitude towards sexual aggressive behaviour in EG was 16.5±5.3 while that of the CG was 18.4±5.0 ($p>0.05$). More (68.7%) of the CG has positive attitude towards sexual aggressive behaviours than the EG (54.5%) ($p<0.05$) (Table 4.17).

Table 4.17: Attitude towards sexual aggressive behaviour

Level of the attitude	Group		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Negative	46 (45.5)	31 (31.3)	77 (38.5)	4.3	0.04
Positive	55 (54.5)	68 (68.7)	123 (61.5)		

4.2.9Experience of sexual violence

More of the respondent in the CG (41.1%) reported they have ever experienced sexual violence compared with 34.7% in the EG ($p<0.05$) (Figure 4.7).

Recent experience of sexual violence is presented on Table 4.18. The percentage of respondents who reported experience of any form of sexual violence in the last 3 months was 16.8% in the EG while that of CG 22.2%) ($p<0.05$).

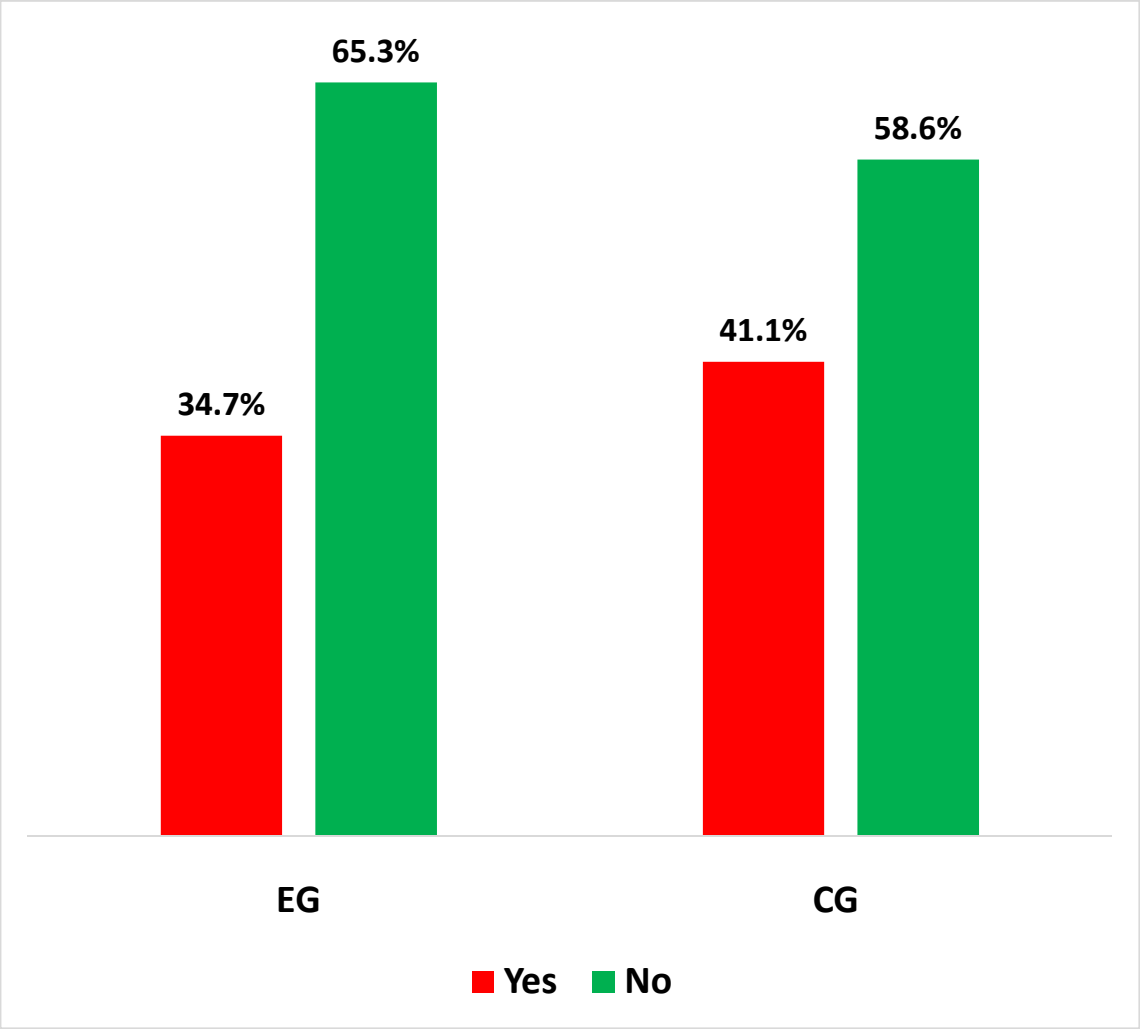


Figure 4.7: Ever experienced any form of sexual violence

Table 4.18: Recent experience of sexual violence

Experienced sexual violence	Group		p -value	χ^2
	EG n (%)	EG n (%)		
Yes	17 (16.8)	22 (22.2)		
No	84 (83.2)	77 (77.8)	0.4	0.9
Total	101 (50.5)	99 (49.5)		

4.2.10Perpetration of sexual violence

Report of lifetime perpetration of sexual violence was higher in the CG than the experimental group (30.3% - CG; 16.8% -EG) (Figure 4.8). The percentage of respondents who reported perpetration of any form of sexual violence in the last 3 months was 6.9% in the EG while that of CG was 17.2% ($p<0.05$) (Table 4.19).

Perpetrated sexual violence	Group	p -value	χ^2

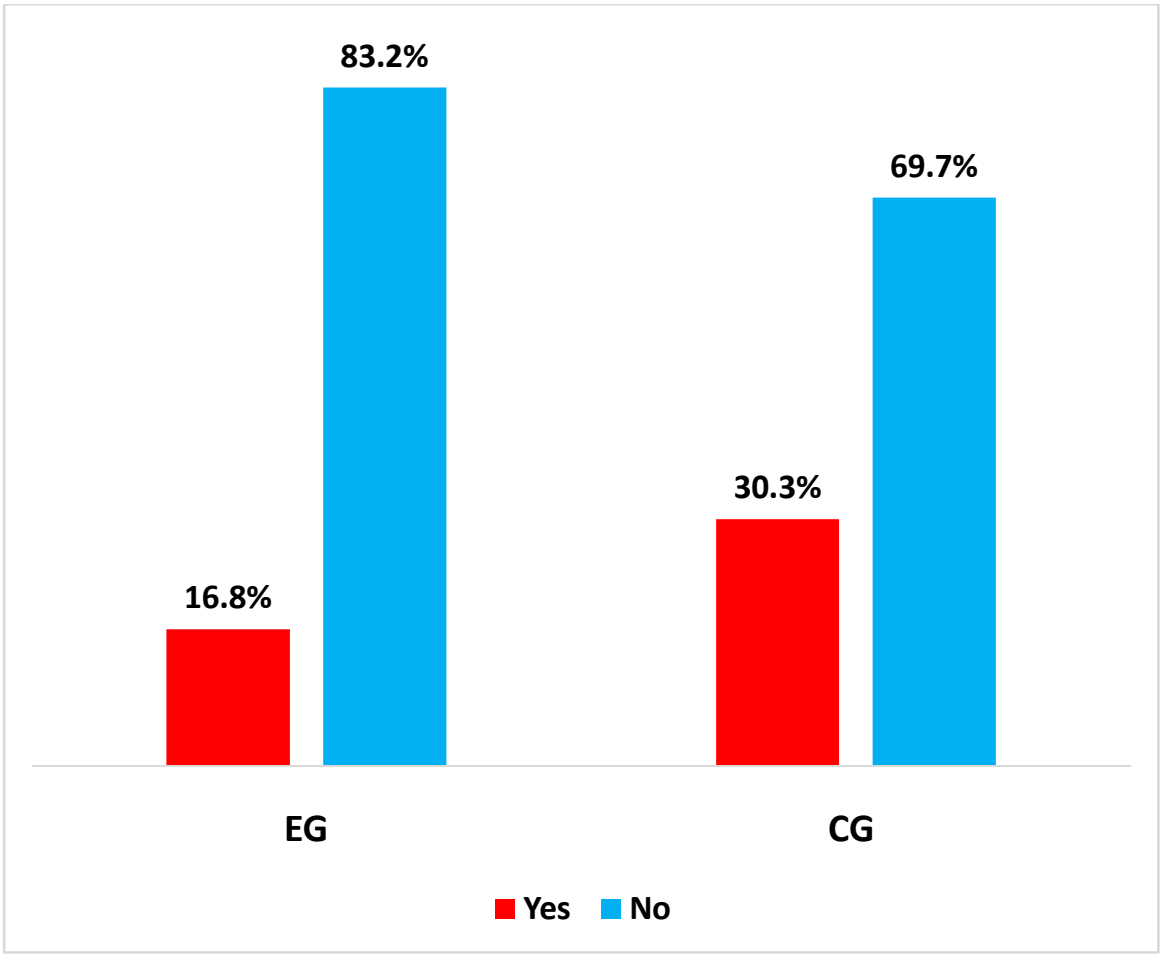


Figure 4.8: Ever perpetrated any form of sexual violence

	EG n (%)	CG n (%)		
Yes	7 (6.9)	17 (17.2)	0.03	4.9
No	94 (93.1)	82 (82.4)		
Total	**101**	**99**		

Table 4.19: Recent perpetration of sexual violence in EG and CG

4.2.11 HIV risk perception and prevention practice

The mean HIV risk perception in the EG and CG was 11.5±2.8 and 11.7±2.4 respectively ($p>0.05$). About half (53.5%) of the respondents in both EG and CG had average HIV risk perception (Table 4.20).

On HIV prevention practice, only 32.7% and 35.4% has ever been tested for HIV in the EG and CG respectively ($p>0.05$). Willingness to get tested for HIV among those who have never received the test was 82.6% and 87.5% ($p>0.05$) in the EG and CG respectively (Table 4.21).

Table 4.20: Level of HIV risk perception

HIV risk perception	Pre-intervention			X^2	*p- value*
	EG n (%)	CG n (%)	Total		
Low	4 (4.0)	4 (4.0)	8 (4.0)	0.001	0.9
Average	54 (53.5)	53 (53.5)	107 (53.5)		
High	43 (42.6)	42 (42.5)	85 (42.5)		

Table 4.21: Reported use of HIV screening service and intention to use

Variable	Group		p -value	χ^2
	EG n (%)	CG n (%)		
Ever taken HIV test				
Yes	33 (32.7)	35 (35.4)		
No	68 (67.3)	64 (64.6)	0.69	0.16
Last time HIV test was done				
<6 months ago	13 (39.4)	13 (37.1)	0.02	8.2
6 months – 1 year	16 (48.5)	8 (22.9)		
>1 year	4 (12.1)	14 (40.0)		
Willing to be tested if offered free				
Yes	57 (83.8)	56 (87.5)	0.43	0.6
No	11 (16.2)	8 (12.5)		

4.2.12Sexual behaviour

The mean age of first sexual intercourse was 19.4±3.5 (EG: 19.8±2.3; CG: 18.9±3.7; p>0.05). More (58.4%) of the CG reported they have ever experienced sexual intercourse compared with the EG (41.6%) (p>0.05) (Figure 4.9). Recent (last 3 the months) experience of sexual intercourse is presented on Table 4.19. Over half (57.9%) indicated they recently had sexual intercourse in the EG while 47.2% indicated this in the CG. Over half of the respondents in both EG (59.5%) and CG (54.5%) indicated they used a form of protection in the last sexual intercourse. Significantly, more respondents in the EG (70.3%) were more confident to practice sexual abstinence than those in the CG (57.7%) (Table 4.22).

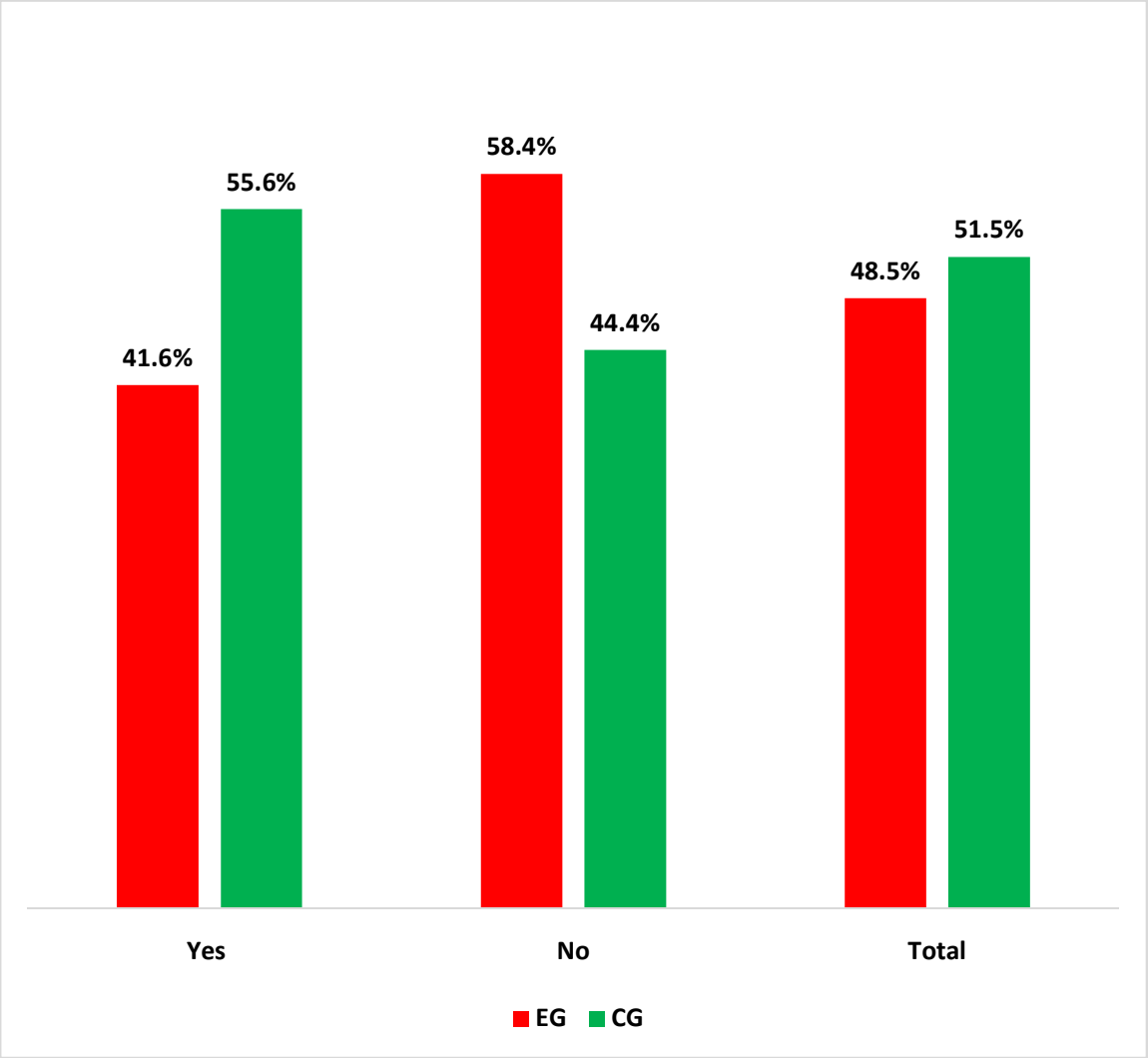


Figure 4.9: Experience of sexual intercourse (p>0.05, *X*= 3.9)

Table 4.22: Sexual behaviour in EG and CG

Variable	Group		χ^2	p- value
	EG n (%)	CG n (%)		
Recently had sexual intercourse**				
Yes	22 (57.9)	25 (47.2)	1.1	0.3
No	16 (42.1)	28 (52.8)		
Used a form of protection in the last sexual intercourse			0.05	0.82
Yes	25 (59.5)	18 (54.5)		
No	17 (40.5)	15 (45.5)		
Use condom in the last one month*			3.4	0.18
Yes	12 (28.6)	4 (12.5)		
No	12 (28.6)	1 (3.21)		
Did not have sex	18 (42.9)	27 (84.4)		
Current no of sexual partner				
≤1	30 (81.1)	41 (83.7)	0.09	0.7
>1	7 (18.9)	8 (16.3)		
Level of confidence to practice sexual abstinence				
Not confident	13 (12.9)	9 (9.3)	7.0	0.03
A little confident	17 (16.8)	33 (33.0)		
Very confident	71 (70.3)	56 (57.7)		

Fisher's Exact test

****Recent: Last 3 months***

4.3 Implementation of the Intervention

The intervention which was conducted for a period 16weeks involved all the participants recruited by adding them to WhatsApp group a day before the intervention started.

4.3.1 Data from the WhatsApp group page

The total of messages written by the moderators on the WhatsApp group page was 1082 and 1386 in the ND group and HND group respectively. The total number of messages written by the particpants was; 1066 in the ND group and 2934 in the HND group. Participants montly contributions (number of messages written on the WhatsApp page) on the WhatsApp group page is presented on Figure 4.10. Number of contributions was higher in the HND group than ND across the four monthsof intervention. In both level of study (ND and HND), contribution was highest in the month of December with HND recorded 1141 and ND reocorded 383 number of contribution respectively. The month of January and February witnessed the lowest contribution by the partciapants (Figure 4.11).

The percentage of monthly active participants by group is presented on Figure 4.11. Acorss all the 4 months of intervention, number of active participants was higher in the HND group than the ND group. In the two groups (ND and HND), the month of Novemeber recorded highest active partitpation while February recorded the lowest.

Few people left the WhatsApp groups, most of whom actually left in error. Some had issues with their phones shortly before the intervention started but they were added to the group since the number was still active on WhatsApp. Such people used to leave immedialy they become active again since they were seeing the group for the first time. The reseracher usually put a phone call to the particpants that exit the page and remind him or her about the project. After which they were added back to the group. Only two people were noticed to have left the group permanently during the intervention. One in the ND group who travalled out of the country and another in HND who got admission into a university.

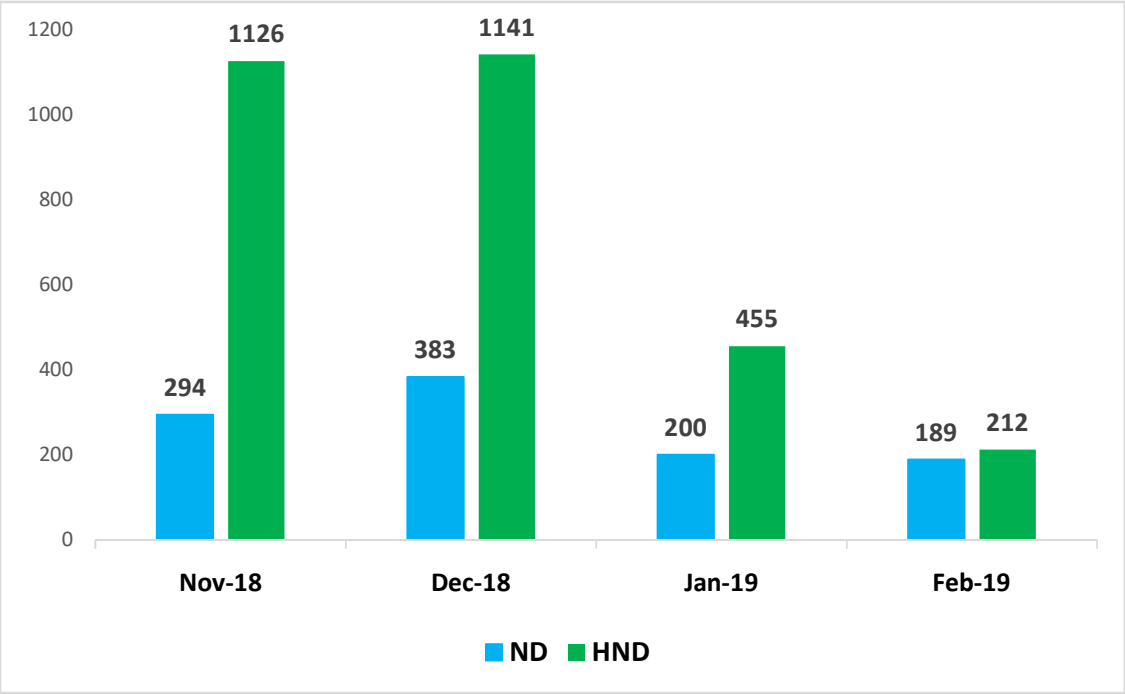


Figure 4.10: Number of messages written by the participants on the CampusHealth page by month

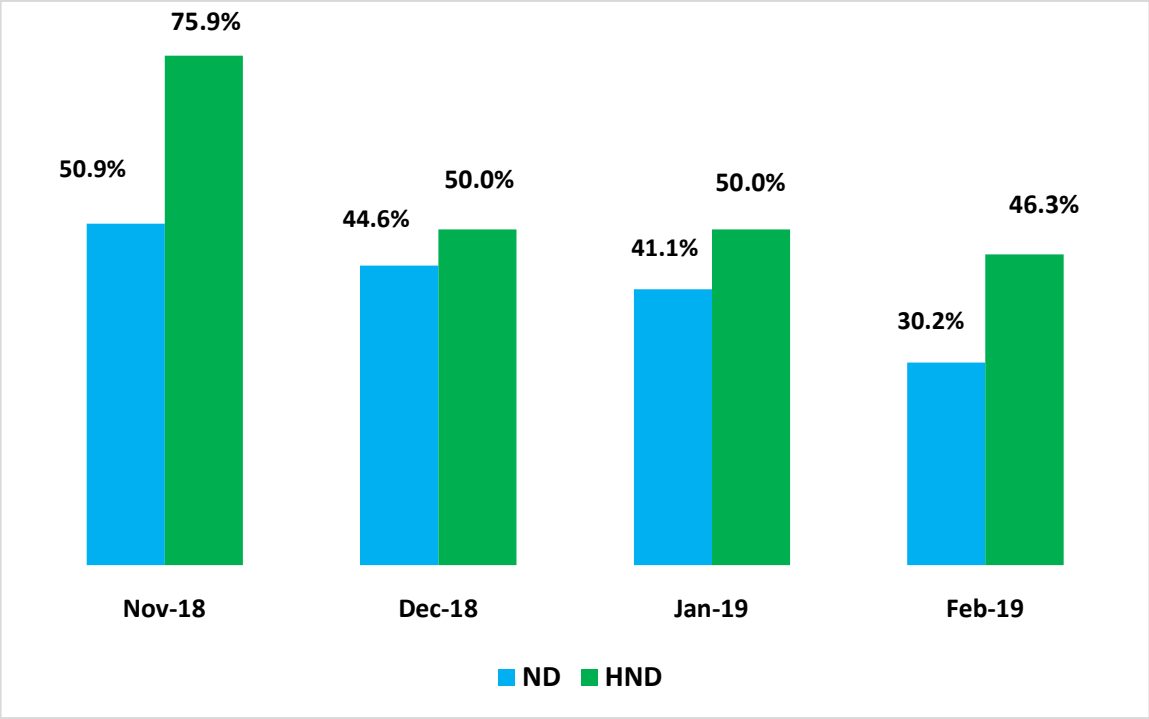


Figure 4.11: Percentage of monthly active participants on the WhatsApp group page

4.3.2 Particpants' activity on WhatsApp group page and factors affecting partciation: Data from the questionnaire

Particpants were asked to indicate the frequency at which they write messages on the created WhatsApp group. Most respondents in both ND (38.9%) and HND (35.6%) groups indicated they particpated a few times in a week. In both groups, 17.3% indicated they participated daily on the page while 16.0% indicated they did not participate at all (Table 4.23).

Major factor that affected participation was lack of internet data bundle in ND (58.3%) and HND (52.3%) groups. Other factors included poor internet network, faulty phone and busy schedule (Table 4.24). Most of the factors were temporary. As stated earlier, some had issues with their phones shortly before the intervention started but though were added to the group. They later bacame active as soon as they had functionable smart phone.

Table 4.23: Frequency of activity of respondents on the WhatsApp group page

Variable (N=81)	ND	HND	Total
Daily	7 (19.4)	7 (15.6)	14 (17.3)
A few times in a week	14 (38.9)	16 (35.6)	30 (37.0)
A few times in a month	12 (33.3)	12 (26.7)	24 (29.6)
Not at all	3 (8.3)	10 (22.2)	13 (16.0)
Total	**36 (44.4)**	**45 (55.5)**	**81 (100.0)**

Table 4.24: Factors that affected participation on the WhatsApp group

Variable (N= 80)	ND	HND	Total
Lack of internet data bundle	21 (58.3)	23 (52.3)	44 (55.0)
Poor network	13 (36.1)	12 (27.3)	25 (31.3)
Faulty phone	12 (33.3)	11 (25.0)	23 (28.8)
Stolen phone	3 (8.3)	1 (2.3)	4 (5.0)
No longer have smart phone when the study started	7 (19.4)	3 (6.8)	10 (12.5)
Others*	1 (2.8)	8 (18.2)	9 (11.3)

Others included: Busy schedule (7), No more interested (1)

4.4 Findings from the post-intervention survey: Questionnaire

4.4.1 Use of social media

Table 4.25 showed the type of the social media used by the respondents and frequency of use. The highest used social media used in the EG (98.8%) and CG (97.4%) was WhatsApp. The least used social media in both groups was Telegram (12.3% - EG, 7.7% - CG).

Table 4.25: Social media used by the respondents

Social media	Group	
	EG n (%)	CG n (%)
Facebook	79 (97.5)	70 (89.7)
WhatsApp	80 (98.8)	76 (97.4)
IMO	10 (12.3)	6 (7.7)
Twitter	25 (43.1)	33 (42.3)
Instagram	60 (74.1)	59 (75.6)
Telegram	19 (23.5)	11 (14.1)

4.4.1.1 Frequency of use of social media

The social media with highest record of daily use among users in both EG and CG groups was WhatsApp (88.3% - EG, 84.0% - CG) while the least frequently used media was IMO; 20.0% in the EG and 6.7% in CG (Table 4.26).

Table 4.26: Daily use of social media

Social media	Group	
	EG n (%)	EG n (%)
Facebook	59 (76.6)	47 (67.1)
WhatsApp	68 (88.3)	63 (84.0)
IMO	2 (20.0)	1 (6.7)
Twitter	9 (36.0)	8 (24.2)
Instagram	17 (28.8)	29 (50.0)
Telegram	4 (22.2)	4 (36.4)

4.4.1.2 Social media behaviour

The purpose of use of social media was explored, major purpose of use in both EG and CG was “read news/recent happenings”. There was a significant difference between EG (4.9%) and CG (21.8%) in number of respondents that use social media to watch/download Sex Videos/Films (Table 4.27).

Table 4.27: Participants' reported purpose of using social media

Behaviour	Group		p -value
	EG n (%)	CG n (%)	
Read News/recent happenings			
Yes	70 (86.4)	69 (88.5)	0.7
No	11 (13.6)	9 (11.5)	
Download/listen to Music			
Yes	51 (63.0)	53 (67.9)	0.5
No	30 (37.0)	25 (31.1)	
Watch/download naked Pictures			
Yes	5 (6.2)	12 (15.4)	0.06
No	76 (93.8)	66 (84.6)	
Watch/download Sex Videos/Films			
Yes	4 (4.9)	17 (21.8)	0.002^{+}
No	77 (95.1)	61 (78.2)	
Find boyfried/girlfried			
Yes	8 (9.9)	16 (20.5)	0.08
No	73 (90.1)	62 (79.5)	
Share naked pictures*			
Yes	0 (0.0)	4 (5.1)	0.06
No	81 (100.0)	74 (46.5)	
Share "Sex" Videos*			
Yes	1 (1.2)	4 (5.1)	0.2
No	80 (98.8)	74 (94.9)	
Read health news and publications			
Yes	44 (54.3)	46 (59.0)	0.6
No	37 (45.7)	32 (41.0)	

Fisher exact test, $^{+}$Statisticallysignificant

4.4.2 Exposure to Sexually explicit materials

4.4.2.1 *Inadvertent exposure to SEM*

Life-time inadvertent exposure in the EG and CG was 91.4% and 96.2% respectively ($p>0.05$) (Table 4.28). On recent exposure there was significant difference between EG (25.7%) and CG (46.1%).

Table 4.28: Inadvertent exposure to SEM

Exposure	Group		p -value	X^2
	EG n (%)	CG n (%)		
Ever				
Yes	74 (91.4)	75 (96.2)		
No	7 (8.6)	3 (3.8)	0.2	1.5
Recent				
Yes	19 (25.7)	35 (46.1)	0.009	6.8
No	55 (74.3)	41 (53.1)		

4.4.2.2 *Advertent exposure to SEM*

Life-time advertent exposure to SEM was 71.6% and 67.9% among EG and CG respectively ($p>0.05$) (Table 4.29). On the recent exposure, there was a significant difference between the EG (22.4%) and CG (47.2%).

Table 4.29: Advertent exposure to SEM

Advertent exposure to SEM	Group		p -value	X^2
	EG n (%)	CG n (%)		
Ever				
Yes	58 (71.6)	55 (70.5)	0.9	0.02
No	23 (28.4)	23 (29.5)		
Recent				
Yes	13 (22.4)	28 (50.9)	0.002	9.9
No	45 (77.6)	27 (49.1)		

4.4.2.3 Sources of exposure to SEM

The major source of inadvertent and Advertent exposure to SEM in both EG and CG was the internet followed by the social media. The least source of exposure for the two groups was television (Table 4.30).

Table 4.30: Sources of exposure to SEM for inadvertent and advertent exposure for lifetime experience

Sources of exposure	Type of exposure to SEM			
	Inadvertent exposure		Advertent exposure	
	EG n (%)	CG n (%)	EG n (%)	CG n (%)
Internet page	50 (67.6)	57 (75.0)	37 (63.8)	34 (64.2)
Social media	39 (52.7)	56 (73.7)	24 (42.1)	27 (50.9)
Received on WhatsApp	16 (21.6)	19 (25.3)	14 (24.6)	16 (30.2)
YouTube website	14 (18.9)	19 (25.3)	14 (24.6)	14 (26.4)
Television	14 (18.9)	18 (24.0)	9 (15.8)	14 (26.4)
Collected (Via file sharing apps)	N/A*	N/A	14 (26.4)	20 (37.7)

***N/A: Not applicable**

4.4.2.4 Frequency of watching SEM

Figure 4.12 presents the frequency at which participants watch SEM the EG and CG. In the EG almost half (40.7%) reported they have stopped SEM at the post-intervention while 25.6% reported this in the CG.

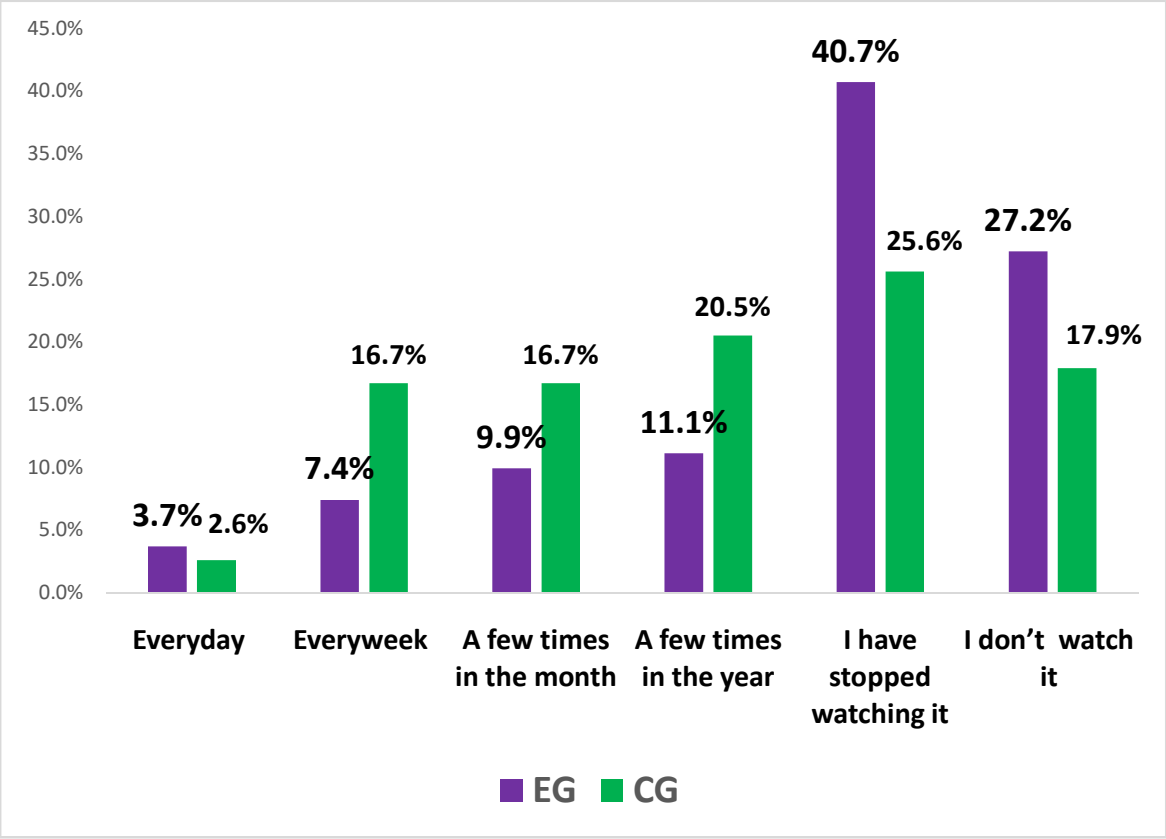


Figure 4.12: Reported current rate of watching SEM

4.4.2.5 Reported reason for not watching or putting a stop to watching SEM

Among those who reported they do not watch or have stopped watching SEM, several reasons were provided for this action which were presented on Table 4.31. Major reasons provided in the EG were; religious (61.9%) and because it causes unnecessary sexual thought/arousal/behaviour (19.0%).

Major reason provided in the CG were; I don't like it (25.0%), not good/healthy (25.0%) and religious reason (25.0%).

Table 4.31: Reasons for not watching SEM among participants

Response	EG	CG
It corrupts mind	4.8%	0.0%
I do not like it anymore	4.8%	25.0%
Causes unnecessary sexual thought/arousal/behaviour	19.0%	12.5%
Not good/right	4.8%	25.0%
No positive benefit in it	4.8%	12.5%
Religious reason	61.9%	25.0%

4.4.2.6 Reasons for watching SEM

Major reason for watching SEM reported by the participants in EG was ‘Just to know about it (41.7%) while the major reason in the CG were ‘To learn more about sexuality’ (50.0%), ‘To release stress’ (47.4%) and ‘Just to know about it’ (44.7%) (Table 4.32).

Table 4.32: Reasons for watching SEM among participants

Reason*	Group	
	EG n (%)	CG n (%)
	N = 24	***N = 38***
To release stress	9 (37.5)	18 (47.4)
Just to know about it	10 (41.7)	17 (44.7)
To get sexually aroused before sexual activity	2 (8.3)	7 (18.4)
To get sexually aroused and masturbate	3 (12.5)	5(13.2)
To learn more about sexuality	5 (20.8)	19 (50.0)
To vary or learn more about sexual activity	6 (25.0)	13 (34.2)
Everyone does it	6 (25.0)	9 (23.7)

Multiple responses included

4.4.2.7 Preference while watching SEM

For those who watch SEM, majority of the participants reported they prefer to watch SEM alone while some reported they prefer to watch it with their boyfriend or girlfriend. Few reported watching with peers or same sex friends while others reported they had no preference when watching it (Figure 4.13).

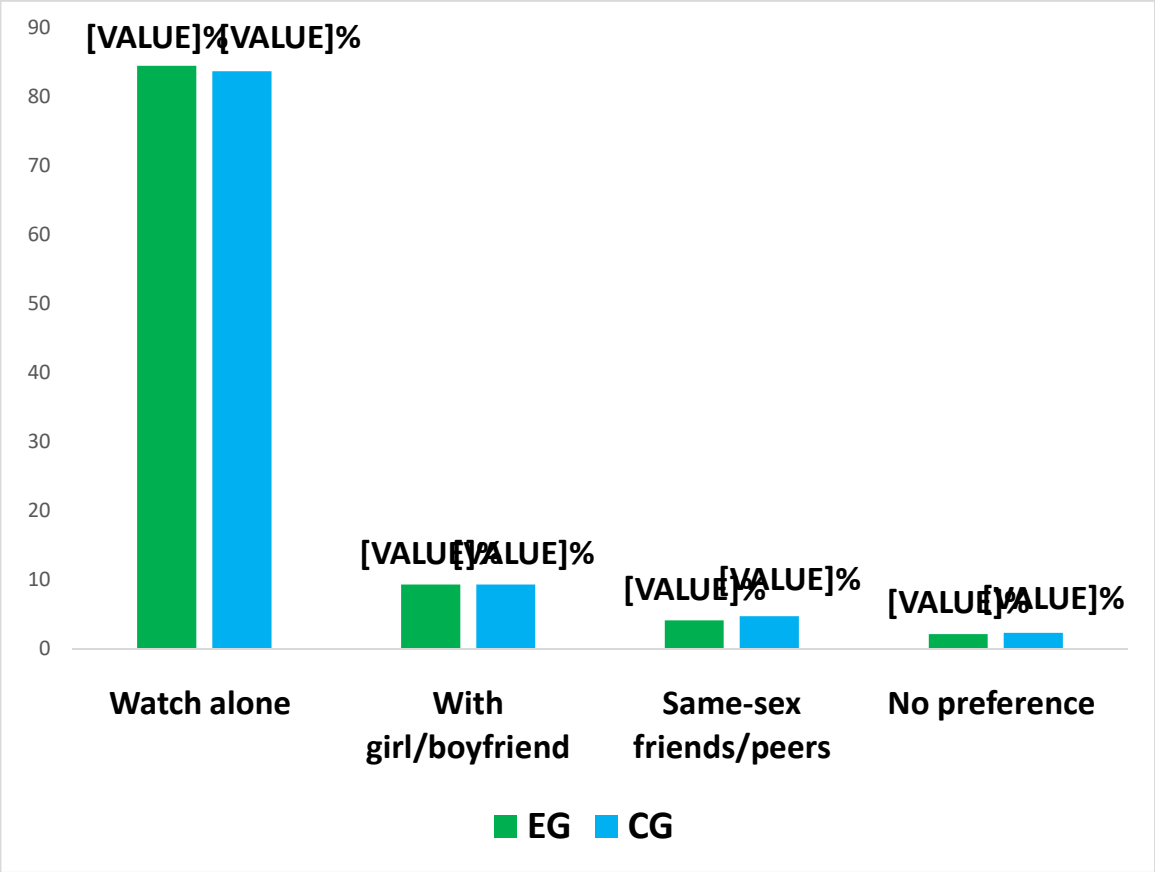


Figure 4.13:Preference while watching SEM

4.4.2.8 Behaviour following exposure to SEM and perceived effects of the exposure

Figure 4.14 showed the percentage of respondents who reported they have performed what was watched in sexually explicit content. In the EG, a little less than half (46.2%) have performed what they watched in sexually explicit content. However, in the CG a little above half reported this during the period.

The reported types of behaviour engaged in after watching SEM is indicated on Table 4.33. The major behaviours engaged in the EG included masturbation (29.4%) and sex without condom (58.8%). While in the CG, major reported behaviour engaged in were sex without condom (51.9%) and oral sex (50.0%). The last time the above behaviours were engaged is reported Figure 4.15. Almost half of the respondents in both EG and CG reported the last time they engaged in such behaviour was within the last one month.

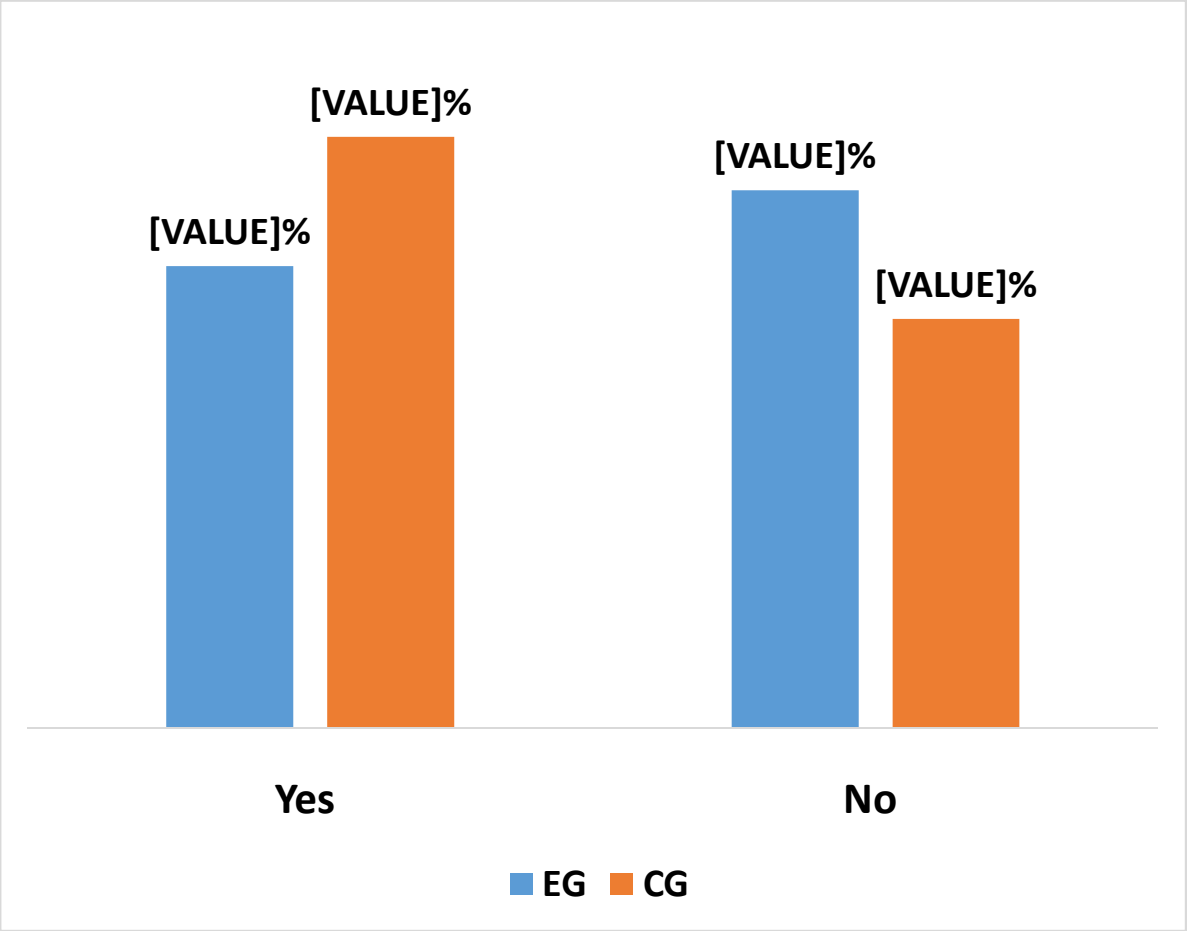


Figure 4.14: Respondent who ever performed what was watched in sexually explicit content

Table 4.33: Reported sexual behaviour following exposure to SEM

Behaviour	EG n (%)	CG n (%)
Oral sex	2 (11.8)	14 (50.0)
Forceful sex	1 (5.9)	2 (7.1)
Group sex	0 (0.0)	4 (14.3)
Sexual intercourse with same sex	1 (5.9)	1 (3.6)
Anal sex	0 (0.0)	3 (10.7)
Masturbation	5 (29.4)	6 (21.4)
Sex without condom	10 (58.8)	14 (51.9)

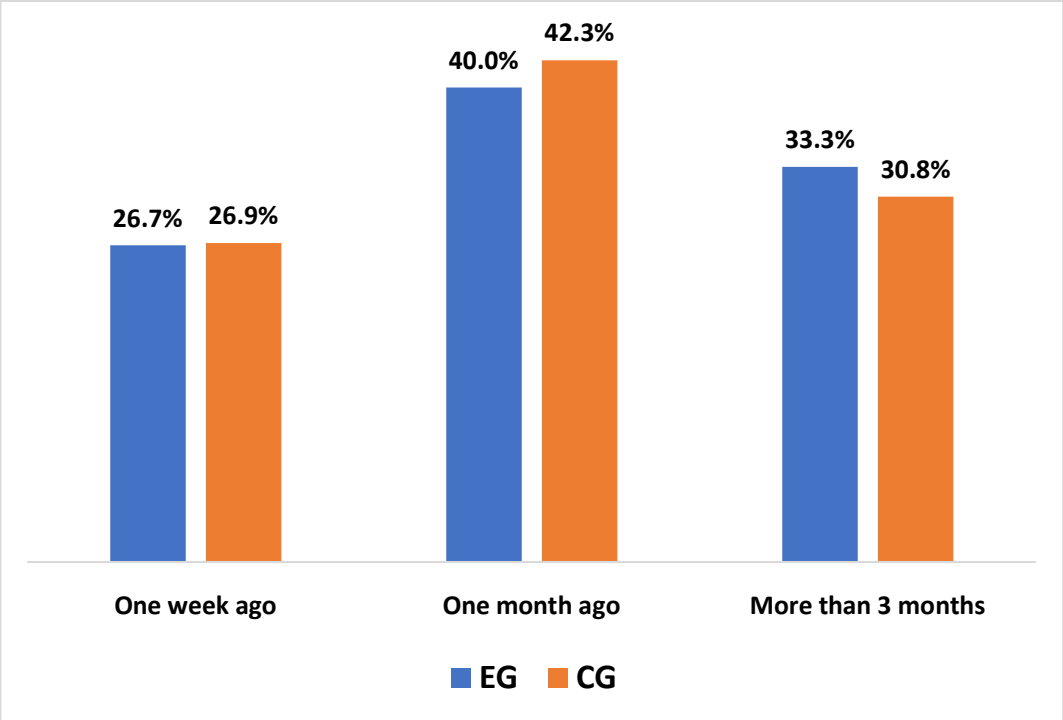


Figure 4.15: Last time engaged in the sexual behaviour following exposure to SEM

4.4.2.9 Personal feeling after watching SEM

About half of the respondents (52.3%) who reportedly they watch SEM in both EG and CG indicated that they felt ashamed and depressed after watching sexually explicit content. Many respondents reported being satisfied after watching it in the EG than the CG (6.8%) (Figure 4.16).

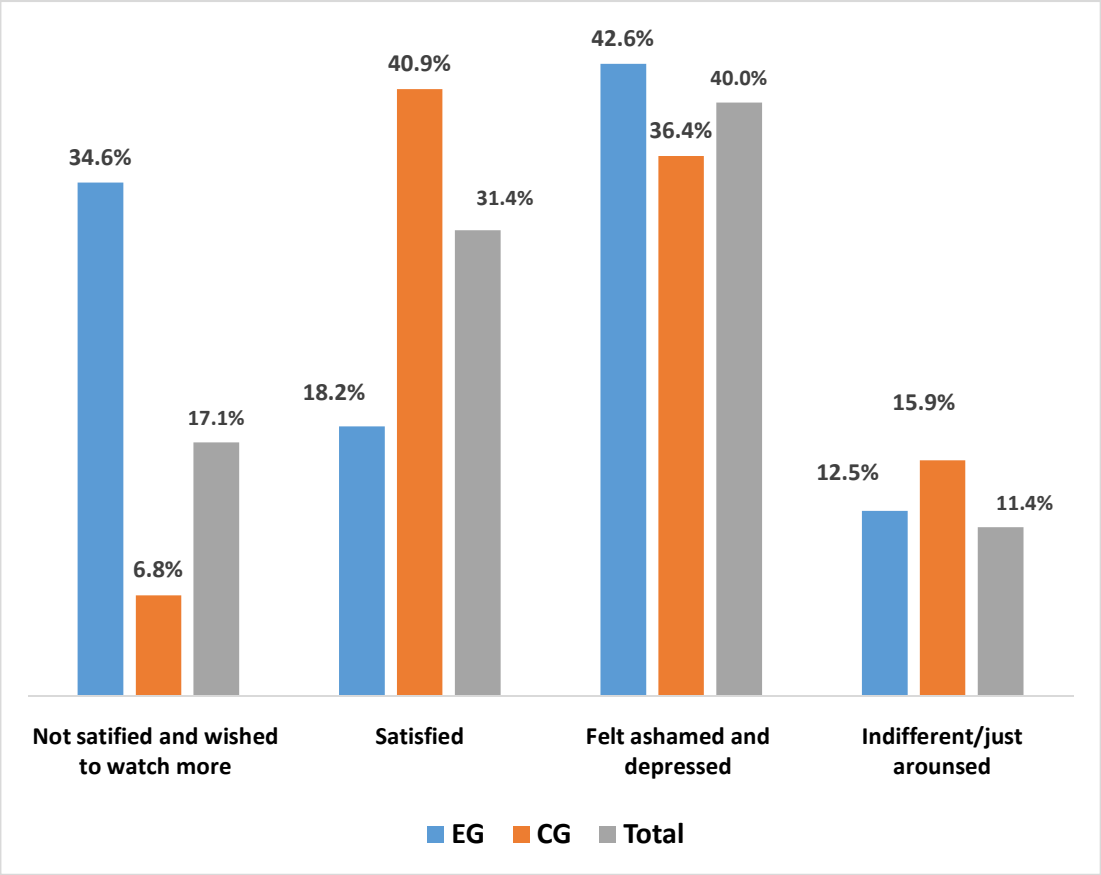


Figure 4.16: Reported feeling after watching SEM

4.4.2.10 Perceived effects of exposure to SEM on interest for sexual intercourse

Respondents who watched SEM were asked to indicate if the exposure has increased their interest for sexual intercourse. Few (26.9%) of the respondents in the EG indicated it has increased their interest while 32.7% in the CG indicated being affected by the exposure (Figure 4.17).

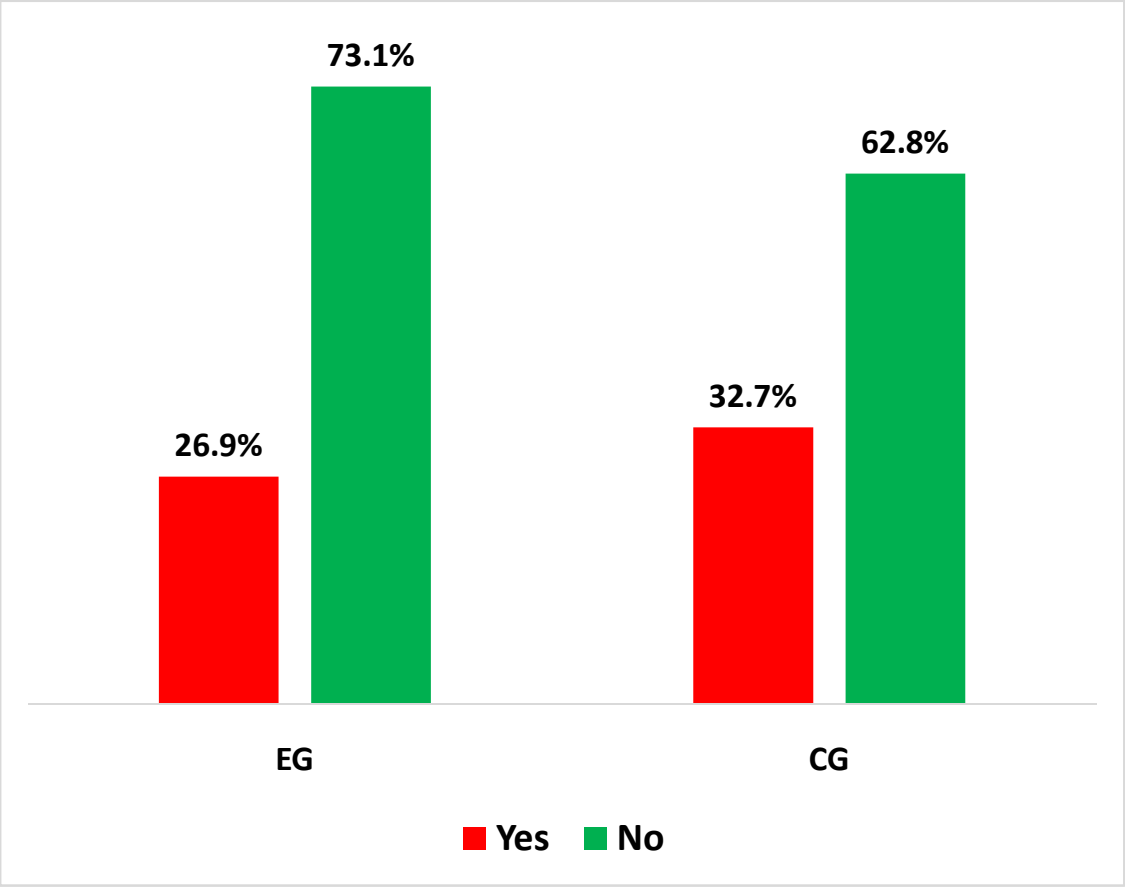


Figure 4.17: Increased interest in sexual intercourse as a result of viewing SEM

4.4.3 Perception of sexually explicit content

The mean perception on sexually explicit content was significantly lower in the EG (7.6±2.9) than the CG (9.2±3.1) ($p<0.05$). Some respondents in the EG (32.1%) had a high perception on sexually explicit content compared with majority who had this perception in the CG ($p<0.05$) (Table 4.34).

Table 4.34: Perception on sexually explicit content

Perception on SEM	Group		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Negative	55 (67.9)	27 (34.6)	82 (51.6)	17.6	0.00
Positive	26 (32.1)	51 (65.4)	77 (48.4)		
Total	81 (50.9)	78 (49.1)	159 (100)		

4.4.4 Perceived effects of exposure to sexually explicit content

The level of perceived effects of SEM was low in both EG and CG with mean perception of 1.3±2.2 and 1.9±2.1($p>0.05$) (Table 4.35).

Table: 4.35: Personal perceived effects of exposure to sexually explicit content

Group	Mean perceived effects of exposure to sexually explicit content			
	Mean	**Mean difference**	**t-value**	**p-value**
EG	1.3±2.2			
		0.5	1.4	0.2
CG	1.9±2.1			

4.4.5 Knowledge of effects of exposure to SEM

The mean knowledge on the effects of exposure to SEM was significantly higher in the EG (15.6±4.7) than the CG (13.9±4.4) (Figure 4.18). Over half (51.9%) of the respondents in both EG has good knowledge on the effects of exposure to SEM while only 28.2% in the CG has good knowledge ($p<0.01$). Almost half (41.0%) had poor knowledge of it in the CG (Table 4.36).

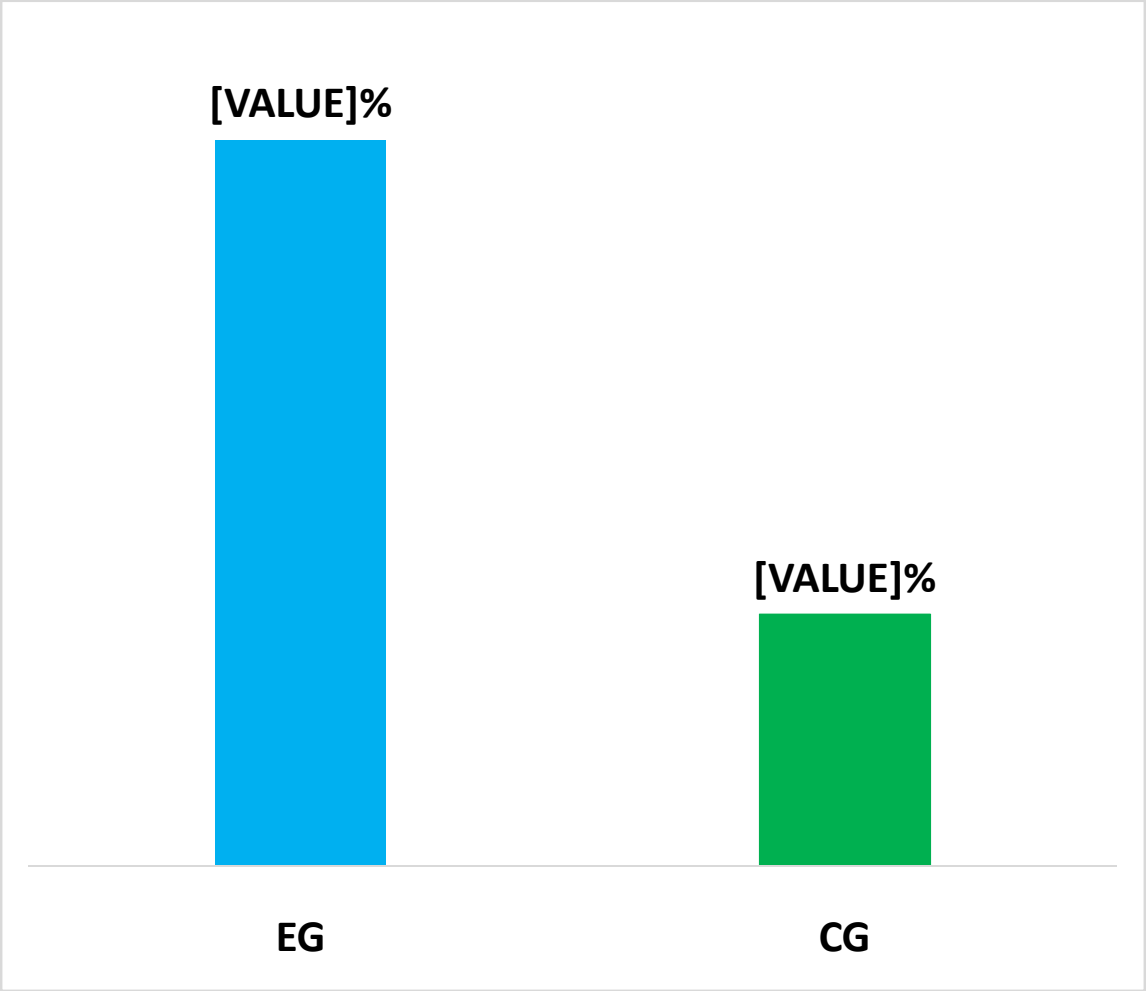


Figure 4.18: Mean knowledge of effects of exposure to SEM

(t= 2.46, p-value = 0.02)

Table 4.36: Knowledge of effects of exposure to SEM

Knowledge on SEM	Group		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Poor	30 (37.0)	32 (41.0)	62 (39.0)	13.1	0.001
Average	9 (11.1)	24 (30.8)	33 (20.8)		
Good	42 (51.9)	22 (28.2)	64 (40.3)		

4.4.6 Self-efficacy to prevent intentional exposure to sexual content

The mean difference on self-efficacy to prevent intentional exposure to sexual content between the two groups (EG: 11.5±1.4; CG: 9.9±2.8) was 4.3 with significant difference. Most of the respondents in EG (93.8%) compared with 75.6% in the CG had high self-efficacy to prevent intentional exposure to sexual content (Table 4.37).

Table 4.37: Self-efficacy to prevent intentional exposure to sexual content

Level of Self-efficacy	EG n (%)	CG n (%)	Total	X^2	*p- value*
Low	5 (6.2)	19 (24.4)	24 (15.1)	10.3	0.001
High	76 (93.8)	59 (75.6)	135 (84.9)		

4.4.7 Attitude towards sexual aggressive behaviour

The mean attitude towards sexual aggressive behaviour in EG was 11.4±8.8 while that of the CG was 17.6±5.1 ($p<0.05$, $t = 5.34$). More (59.0%) of the CG has positive attitude towards sexual aggressive behaviours than the EG (30.0%) ($p<0.05$) (Table 4.38).

Table 4.38: Level of the attitude towards sexual aggressive behaviour

Level of the attitude	Group		Total	X^2	*p- value*
	EG	CG			
	n (%)	n (%)			
Negative	56 (69.1)	32 (41.0)	88 (55.3)	12.7	0.00
Positive	25 (30.9)	46 (59.0)	71 (44.7)		
Total	81 (50.9)	78 (49.1)	159 (100)		

4.4.8 Experience of sexual violence

More of the respondent in the CG (17.9%) reported they experienced at least a form of sexual violence compared with 9.9%% in the EG ($p>0.05$) in the last 3 months preceding the survey (Table 4.39).

Table 4.39: Recent (last 3 months) experience of any form of sexual violence

Experienced sexual violence	Group		p -value	X^2
	EG n (%)	CG n (%)		
Yes	8 (9.9)	14 (17.9)	0.14	2.12
No	73 (90.1)	64 (82.1)		
Total	81 (50.9)	78 (49.1)		

4.4.9 Perpetration of sexual violence

More of the respondent in the CG (12.8%) reported they perpetrated at least a form of sexual violence compared with 2.5%% in the EG ($p<0.05$) in the last 3 months preceding the survey (Table 4.40).

Table 4.40: Recent (last 3 months) perpetration of any form of sexual violence in EG and CG

Perpetrated sexual violence	Experimental group		p -value	X^2
	Baseline n (%)	Baseline n (%)		
Yes	2 (2.5)	10 (12.8)	0.01	6.1
No	79 (97.5)	68 (87.2)		
Total	81 (50.9)	78 (49.1)		

4.4.10 HIV risk perception and prevention practice

The mean HIV risk perception in the EG and CG was 12.6±2.4 and 11.5±2.7 respectively ($p<0.05$, $t = 2.82$). Less than half (43.6%) in CG has high HIV risk perception while majority (75.3%) falls into this category in the EG ($p<0.05$) (Table 4.41).

On HIV test, more of the EG (93.8%) compared with the CG (48.7%) reported to have undergone the HIV test ($p<0.05$) (Table 4.41). In the EG, all the participants (100%) who were yet to get tested were ready to take the test while only 67.5% were ready to get tested in the CG among those who were yet to take the test (Table 4.42).

Table 4.41: Level of HIV risk perception

HIV risk perception	Group		Total	X^2	*p- value*
	EG n (%)	CG n (%)			
Low	3 (3.7)	6 (7.7)	9 (5.7)	16.6	0.00
Average	17 (21.0)	38 (48.7)	55 (34.6)		
High	61 (75.3)	34 (43.6)	95 (59.7)		

Table 4.42: Reported use of HIV screening service and intention to use

Variable	Group		X^2	p -value
	EG n (%)	CG n (%)		
Ever taken HIV test				
Yes	76 (93.8)	38 (48.7)		
No	5 (6.2)	40 (51.3)	0.00	39.8
Last time HIV test was done				
<6 months ago	73 (96.2)	12 (33.3)	0.00	56.3
6 months – 1 year	2 (2.6)	24 (61.1)		
>1 year	1 (1.3)	2 (5.6)		
Willing to be tested if offered the test free				
Yes	5 (100.0)	27 (67.5)	0.13	0.6
No	0 (0.0)	13 (32.5)		

4.4.11 Sexual behaviour

The mean age of first sexual intercourse was 19.5.4±3.7 (EG: 20.4±3.0; CG: 18.8±4.0; $p>0.05$). More (58.0%) of the CG reported they have ever experienced sexual intercourse compared with the EG (42.0%) ($p>0.05$) (Figure 4.19).

Recent (last 3 the months) experience of sexual intercourse is presented on Table 4.43. Over half (52.4%) indicated they recently had sexual intercourse in the CG while only 16.7% indicated this in the EG ($p<0.05$). Over half of the respondents in both EG (53.1%) and CG 71.4%) indicated they used a form of protection in the last sexual intercourse. Significantly, more respondents in the EG (87.7%) were more confident to practice sexual abstinence than those in the CG (56.5%) (Table 4.43).

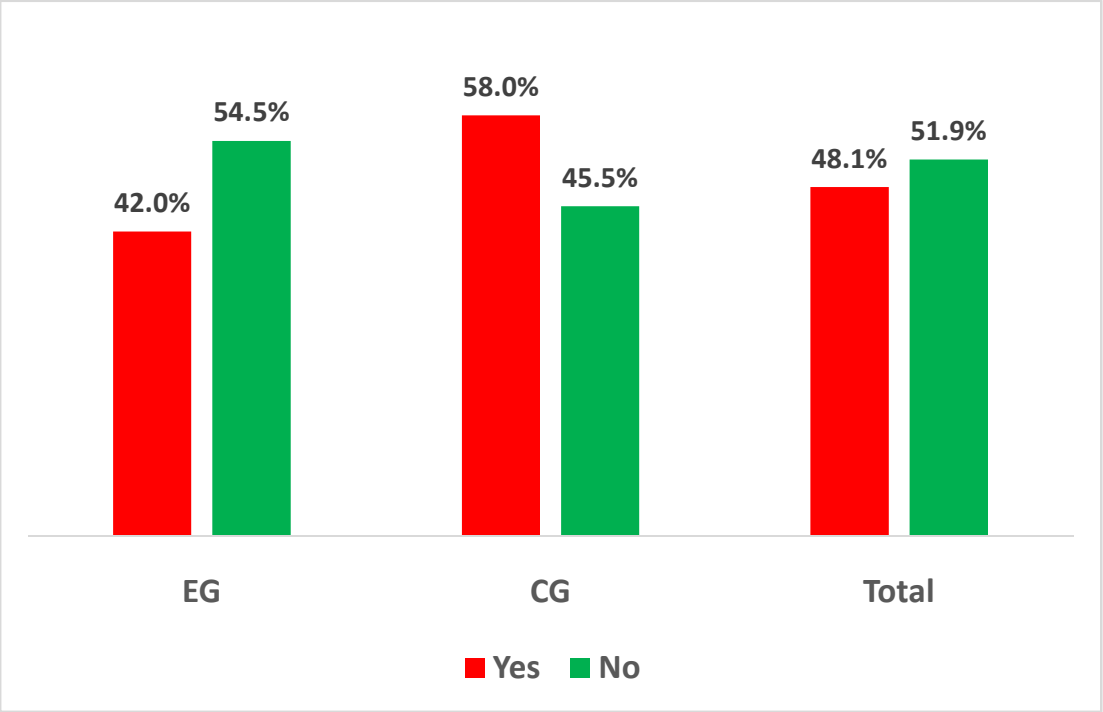


Figure 4.19: Experience of sexual intercourse (p>0.05, 8.2)

Table 4.43: Sexual behaviour in EG and CG

Variable	Group		χ^2	p- value
	EG n (%)	CG n (%)		
Recently had sexual intercourse**				
Yes	5 (16.7)	22 (52.4)	9.5	0.002
No	25 (83.3)	20 (47.6)		
Used a form of protection in the last sexual intercourse			2.6	0.1
Yes	17 (53.1)	30 (71.4)		
No	15 (46.9)	12 (28.6)		
Use condom in the last one month				
Yes	4 (12.5)	11 (26.8)	8.2	0.16
No	1 (3.1)	8 (19.5)		
Did not have sex	27 (84.4)	22 (53.7)		
Current no of sexual partner				
≤1	21 (84.0)	31 (91.2)	0.7	0.4
>1	4 (16.0)	3 (8.8)		
Level of confidence to practice sexual abstinence				
Not confident	1 (1.2)	14 (17.9)	21.7	0.00
A little confident	9 (11.1)	20 (25.6)		
Very confident	71 (87.7)	44 (56.5)		

*****Recent: Last 3 months***

4.5 Evaluation of the Project

4.5.1 Findings from the post-intervention FGD

Some of the participants in the EG were invited to participate in the post-intervention FGD. The participants ranged between 6 – 10 in each groupand were segregated by level and course of study. Hence, a total of four FGD sessions were conducted.

Many themes emerged from this post-intervention FGD which are presented below.

(a) Many factors affected participants' participation on the group page

Major factors reported by the participants to have affected participation on the WhatsApp group page were; lack of internet data, network failure, faulty phone, power failure and busy schedule.

Here are the excerpts from some of the participants:

> *"what I have noticed is that, some people don't have time, for example now, I didn't have much time. Because my hands are always tight. So it's only when I have time that I do contribute*" (Male, HND Engineering; 8th March 2019)

> *"Issue of network, like me now, it's only when I'm in school that I used to participate because Glo network is not good where I am (living) and I subscribe mostly on my Glo network. So it's only when I'm around in school that I used to participate"* (Male, HND Engineering; 8th March 2019)

> *"Actually, in my own perspective, you know during the holiday, a lot of people were working among us and we don't have time to go there (CampusHealth page) to talk like people that don't work*" (Female, HND Banking and Finance; 8th March 2019)

(b) Participants reported to have benefited from the participation

Participants reported that the social media intervention was very educative and beneficial, and therefore expressed their satisfaction. Benefits received included financial benefit (from the fastest finger), knowledge of the effects of exposure to SEM, prevention of risky sexual behaviour and HIV. Below are the verbatim reports from some participants.

> *"The issue of pornography like…, if people are engaged in that pornography, it leads to different vices like rape, sexual violence and stuffs like. I also benefited from the sexual act violence. A lot of things that, I think I really enjoyed it"* (Male, HND Engineering; 8th March 2019)

> *"I gained a lot of things there because there were lessons, ... passed across to us via the WhatsApp group which I have learn more from it. For example, there was a topic raised ... on HIV, how to prevent HIV, avoiding unprotected sex, also by not sharing sharp object with an infected person. There are a lot of things. It really helped, it will help us in the future, in passing information to our younger ones and advising somebody on HIV and on some other things that I gained of which I cannot say all"* (Female, HND Banking and Finance, 8th March 2019)

> *"One of the benefits, I gained from it; I actually enjoyed the fastest finger aspect (Laughs…) and the most active participant for the month. That's two and thirdly, what the group is all about. The way we need to behave in a relationship, (the group taught us), even if you're not in one, you are about to go in. Relationship is not all about sex and even if you'll have sex, you don't need to have sex now because, prevention is better than cure. As you said, grade A (Abstinence) is better than grade C (Use of Condom) ... (laughs), so you better prevent it. Also, the stories they highlighted in the group"* (Male, HND Banking and Finance)

(c) Most participants reported participating in the social media group has no negative effects on them

Although most of the participants reported that participating in the social media group has no negative effects on them due to the set group ground rules, however one of the participants reported participation was time consuming.

> *"There is no negative effect due to the rules and regulation that were laid down. Assuming there was no rules and regulation, I believe there will be more negative effects"* (Female, HND Banking and Finance; 8th March 2019)

However, one of participants reported that participation was time consuming, he said:

> *"The negative effect of participating is that, from my own view, it will take much of your time ... It will not allow you to do some other things* (Male, HND Engineering; 8th March 2019)

(d) Contributions from both moderators and participants were helpful

Participants reported that both contributions from both moderators and participants were helpful. From moderators, reported helpful contributions included information on the need to apply the discussed preventive behaviours in their daily lives, tips on development of Curriculum Vitae, stories shared on the page, the fastest fingers sessions and brilliant use of emojis.

Below are the excerpts from some participants:

> *"The stories like ehmmm, by Mrs (Name withheld), her stories are always wonderful. The suspense and everything…. It is just okay*" (Male, ND Engineering; 9th March 2019)

> *"I think one of the moderators Mrs (Name withheld), suggested that all what we've discussed, as in the positive aspect…we should apply it in our normal daily life"* (Female, HND Engineering; 8th March 2019)

> *"I love the stories, I love the way they use the emoji for everything, I love the way we welcome everybody and I love the way the moderator welcomed us and how we're all told to welcome our new participants"* (Male, ND Engineering; 8th March 2019)

Reported helpful contributions from co-participants included creating laws to barn pornography in the country and issue of HIV at workplace. Below are verbatim reports from the participants:

> *"From the banking and finance department, when one of our colleagues said, there should be a law that will ban Pornography … so I was stunned at that, ah! Though I don't know whether there is a law or not. And I said Wow…*" (Male, HND Banking and Finance; 8th March 2019)

> *"There was a question a moderator asked that an HIV person that went for an interview and they told him to go and do HIV test. When they conducted the test, they realised he was positive. The company now sent him away. I said it is right in the way they sent him away because if care is not taken, he can infect others. F (Name withheld) now said it's not right, whether HIV position or not, they are human being*" (Female, ND Banking and Finance; 9th March 2019)

(e) Most participants expressed their likes about the intervention

The major aspect the participants like most about the intervention included; encouragement from the moderators, moderators' coordination and style of interaction with the participants, the quiz (fastest finger), sexual education, participants discussing freely, educative stories and use of emojis. Below are the verbatim contributions from the participants:

> *"One thing I like most about the project is the way people are being encouraged. Once you comment, the there is a way you will be encouraged. There are some groups that when you comment, ehhh,*

talked about your own opinion, you won't be encouraged but some group like campus health, when you say something, people will welcome your idea, in which I think is very okay" (Male HND Engineering; 9th March 2019).

"...The quiz was very good (Fastest finger) because ... there are some people in our class that, laughs, that at least they benefited from it, it is not even once, it is more than twice or thrice that I won. So it encouraged, it was good. (Someone laughed). That is it" (Female HND Engineering; 8th March 2019)

"What I like is the, the interaction of the moderator. How the moderator interacts with the students, I think they bring themselves to the level of the student so I believe the interaction should continue like that" (Female ND, Banking and Finance; 9th March 2019)

"On the WhatsAppgroup page, it's all about,the group. It's a free group. You're free to ask any question and which will be answered. You're free to ask any question that is bothering you, which will be answered in the group and once the question is getting to personal terms, you actually single the person out to talk with, to chat with the person personally, that one is very, very good, I actually gained a lot from that" (Male ND Engineering; 9th March 2019)

"And the videos that do, you know, before, there are times that they send videos before we expatiate, before they expatiate on the video that we should watch them. Like that of HIV, it's really, really, I got a lot of things even before we start the discussion, it's very, very educative" (Male ND Engineering; 9th March 2019).

"I love the stories, I love the way they use the emoji for everything, I love the way we welcome everybody, and I love the way the moderator welcomed us and how we're all told to welcome our new participants" (Male, ND Engineering; 9th March 2019)

(f) Few expressed their dislike on the intervention

Most of the participants reported they did not have any dislike on the intervention. A participant said:

"No (No dislike) the thing is this. You see that rules and regulations that was there, gave no room for such thing. If there were no rules and regulations, seriously (there will be issues)" (Female, HND Banking & Finance; 8th March 2019)

However, few people expressed some dislikes about their experience on the group page. Issues raised included participants arguing on the page and manner of expression by few participants.

> *"Something I don't like about the group was that, there was a guy, because when they started the fastest finger and we were supposed to answer the questions in one message. I wanted to leave the group that time because of the way the guy was talking to me. He was talking as if he was the owner of the group. I told him that was not they way somebody should be corrected. (Although) he later apologised to me* (Female, ND Banking & Finance; 9th March 2019)

> "*Ah! There are some things I disliked about the group … sometimes when people exchange words on the group. I don't like it"* (Female, HND Engineering; 8th March 2019)

Recommendations and lessons learnt

Recommendations provided by the participants are**:**

1. More participants should be included even from other faculties in any future related program. This will create opportunity to received contributions from different perspectives.
2. The project should create opportunity for the participants to meet physically during the program
3. Participants may be notified on their personal page before the start of discussion in any day

Verbatim responses from the participants are expressed below:

> *"It's very, very good but I think even though we have more than five faculties together in a group, it doesn't mean anything because by then you can meet people, you can share ideas. The idea from the faculty of banking and finance will be different from the faculty of engineering because, our different perspective is quite different. The way people are relating over there is quite different the way people are relating in engineering. Because, even in engineering, we didn't have much ladies here compare to faculty of finance and other faculties which we have different things* (Male, HND Engineering; 8th March 2019)

> *"… making it more physical; where the participants will be meeting physically*" (Male, HND Engineering; 8th March 2019)

"More people should be allowed to join rather than limiting it to few numbers of people" (Female, HND Banking and Finance; 9th March 2019)

"… broadcast message, you tell them there's discussion going on the CampusHealth now, so we would like to get contributions from you" (Male ND, Banking and Finance; 9th March 2019)

Lessons learnt as expressed by the participants included:

1. The program foster unity among student from different departments
2. The duration of the program was good
3. The use of WhatsApp was appropriate as many people rarely visit the Facebook unlike WhatsApp
4. Introduction of new topic by the moderator before the actual discussion during the week was highly helpful in keeping track of discussion

"One thing I have to say that is foster unity in diversity. Let me put it that way. In the sense that banking and finance and engineering department, coming together on a platform and being able to dialogue together, at least I have some of us that, due to that, we've been able to communicate with each other … then friendship has started from that" (Male HND, Banking and Finance; 8th March 2019)

"… to the issue of maybe using another platform, I think the best social media in which we can chat and interact with ourselves in the best way is WhatsApp. If we use Facebook, not everyone of us is using Facebook, but I think every day, even if you don't want to log in, once your data is on, the notification will be there that you have a message in which you will want to click on. The way the moderators are moderating the program, I think it is very, very okay in the sense that, at least, they will give the topic before, you know, maybe on Monday, you know, they have dropped the topic, this is what we are going to discuss tonight, so everybody should get prepared, your own contribution, at least the outline of those things you would want to discuss would have been stated," (Male, HND Banking and Finance; 8th March 2019)

4.5.2 Exposure to intervention content outside the research

Table 4.44 shows the number of respondents who indicated that they were exposed to the intervention content outside the research during the research period in both EG and CG. In the control group 7.7%, 10.3% and 5.3% of the respondents reported that they received information about sexual violence prevention, HIV prevention and prevention

of risky sexual behaviours respectively during the period of the intervention. However, in the EG, nobody reported they receive information on prevention of exposure to SEM, while 1.2%, 1.2% and 3.7% reported they received information on sexual violence prevention, HIV prevention and prevention of risky sexual behaviours respectively during the period of the intervention.

Table 4.44: Exposure to intervention areas outside the research

	Variable	EG (N= 81) n (%)	CG (N = 78) n (%)
1	Prevention of exposure to SEM	0 (0.0)	1 (1.3)
2	Sexual violence prevention	1 (1.2)	6 (7.7)
3	HIV prevention	1 (1.2)	8 (10.3)
4	Prevention of risky sexual behaviours	3 (3.7)	4 (5.1)
	Exposure to at least one of intervention areas (Above:1 - 4) outside the research	**3 (3.7)**	**12 (15.4)**

4.6 Hypotheses Testing

Five hypotheses were tested in this study. The hypotheses were tested to know if the intervention has any effects on the study outcomes. In testing the hypotheses, level of significance was set at 0.05 and decision rule was applied. The null hypothesis was rejected in favour of the alternative hypothesisif the p-value computed was less than 0.05; the cut-off p-value and vice versa

Hypothesis 1:

The first hypothesis states that there is no significant difference on the knowledge of the effects of exposure to SEM between the experimental and control groups before and after the intervention.

There was a significant increase in the mean knowledge of effects of exposure to SEM in the EG at the post-intervention compared with pre-intervention with a mean difference of 2.68 (Table 4.45). The control group likewise showed an increase in the mean knowledge, however with a mean difference of 0.03 ($p>0.05$).

At the baseline, there was no significant difference between two groups (EG and CG) on the knowledge of the effects of exposure to SEM, however at the post-intervention, there exist a significant difference with the EG recording an increase in knowledge while the control remained relatively the same (Table 4.46).

On the level of knowledge on effects of exposure to SEM, few of the respondents in both EG (17.8%) and CG (21.2%) had poor knowledge of effects of exposure to SEM at the preintervention ($p>0.05$). At the post-intervention, over half (51.9%) of respondents in the EG had good knowledge of knowledge of effects of exposure to SEM while only 28.2% had good knowledge in the control group.

Result of multinomial logistic regression ispresented on Table 4.47. Participants in the CG were 2 times less likely to have good knowledge of effects of exposure to SEM than the EG (AOR: 0.5; 95% CI: 0.2 - 0.9) with reference to low knowledge of effects of exposure to SEM. The null hypothesis is therefore rejected.

Table 4.45: Mean knowledge of effects of exposure to SEM at pre-intervention and post-intervention

Mean knowledge; effects SEM						
Group/Value	**Baseline**	**Post-intervention**	**Mean difference**	**Welch's *t*-Statistics**	**p-value**	**Remark**
EG	12.9±3.8	15.6±4.7	2.68	15.8	0.00	Significant
CG	13.9±3.6	13.9±4.4	0.03	0.4	0.54	Not Significant
Mean difference	0.93	1.78				
t-value	1.74	2.46				
p-value	0.08	0.02				
Remark	Not Significant	Significant				

Table 4.46: Knowledge of effects of exposure to SEM at pre-intervention and post-intervention

Knowledge on SEM	Pre-intervention			Post-intervention		
	EG n (%)	CG n (%)	Total	EG n (%)	CG n (%)	Total
Poor	55 (54.5)	41 (41.4)	**96 (48.0)**	30 (37)	32 (41.0)	**62 (39.0)**
Average	28 (27.7)	37 (37.4)	**65 (32.5)**	9 (11.1)	24 (30.8)	**33 (20.8)**
Good	18 (17.8)	21 (21.2)	**39 (19.5)**	42 (51.9)	22 (28.2)	**64 (40.3)**
X^2		3.5			13.1	
p- value		0.17			0.001	

Table 4.47: Multinomial logistic regression model on change in knowledge of effects of exposure to SEM

Level of knowledge*	Predictors value	p- value	AOR**	95% CI for AOR	
				Lover	Upper
Average	Group	0.1	2.2	0.8	5.5
	Sex	0.9	1.0	0.4	2.7
	Area of study	0.6	1.2	0.5	3.1
	Exposed to intervention content	0.7	3.3	0.8	13.3
Good	Group	0.04	0.5	0.2	0.9
	Sex	0.8	0.9	0.4	2.0
	Area of study	0.3	1.4	0.6	3.0
	Exposed to intervention content	0.7	1.3	0.3	5.8

***Reference category: Poor, **AOR = Adjusted Odd Ratios**

Hypothesis 2

The second hypothesis states that;"there is no significant difference on recent advertent exposure to SEM between the experimental and control groups before and after the intervention". There was significant difference between the EG (53.2%) and CG (36.0%) at the baseline with more of the EG being exposed than the CG. However, at the post-intervention period, significantly more of the CG (47.2%) compared with EG (25.9%) were recently exposed to SEM (Table 4.48).

Comparing recent pre-intervention exposure with post-intervention exposure withineach group, there was significant reduction in the number of those who reported advertent exposure to SEM from 53.2% to 25.9% in the EG. However, in the CG the percentage of recent advertent exposure increased from 36.6% to 47.2% ($p>0.05$).

Result of the logistic regression (Table 4.49) showed that none of the variable tested was associated with variable of interest; exposure to SEM at the post-intervention. Participants in the CG were 4 times (AOR: 3.8; 95% CI: 1.6 - 8.9)more likely to have been recently exposed to SEM compared with the CG. The null hypothesis is therefore rejected.

Table 4.48: Advertent exposure: Pre-intervention vs Post-intervention

Advertent exposure to SEM	Pre-intervention			Post-intervention		
	EG n (%)	CG n (%)	p -value	EG n (%)	CG n (%)	p -value
Recently exposed						
Yes	33 (53.2)	27 (36.0)		13 (22.4)	28 (47.2)	0.002
No	29 (46.8)	47 (64.0)	0.05	45 (77.6)	227 (52.8)	

Table 4.49: Logistic regression model on recent advertent exposure to SEM

Variable	Model 1	Model 2	Model 3	Model 4
	**UOR (95%CI) p	+AOR (95%CI) p	AOR (95%CI) p	AOR (95%CI) p
Group				
EG	1	1	1	1
CG	3.5 (1.6 - 8.1) 0.02	3.8 (1.6 - 8.6) 0.02	3.7 (1.6 - 8.6)0.02	3.8 (1.6 - 8.9) 0.02
Sex				
Male		1	1	1
Female		0.3 (1.1- 0.9) 0.04	0.4 (0.1 -1.0) 0.06	0.3 (0.1 - 1.0) 0.06
Area of study				
Science based			1	1
Non-science based			0.8 (0.3 - 1.9) 0.8	0.8 (0.3 - 1.9) 0.8
Exposed to intervention content*				
Yes				1
No				0.9 (0.3 - 2.9) 0.8

*Participants exposure to any areas of the intervention content outside the research

** UOR: Unadjusted Odd Ratio

+ Adjusted Odd Ratio

Hypothesis 3

The third hypothesis states that "there is no significant difference in the self-efficacy to prevent intentional exposure to SEM between the experimental and control groups before and after the intervention".

The means of self-efficacy to prevent intentional exposure to sexual content during the pre- and post-intervention in both EG and CG are presented on Table 4.50. The mean difference between the two groups (EG and CG) at the baseline was 0.4 with no significant difference. However, during the post-intervention, the mean difference significantly increased to 1.5 with a mean of 11.5±1.4 and 9.9±2.8 in the EG and CG respectively. Comparing the mean self-efficacy score in the EG, there was a significant difference between the mean score in the pre-intervention (9.7±2.8) and post-intervention (1.5±1.4). However, for the CG, there was no significant difference the mean scores during the two periods of measurement (Table 4.50).

On level of self-efficacy to prevent intentional exposure to sexual content (Table 4.51), EG (93.8%) significantly had higher level of efficacy than the CG (75.6%) at the post intervention. However, this was not significant between the two groups at the preintervention (EG: 66.3%; CG: 65.6%).

Result of the logistic regression (Table 4.52) showed that none of the variable tested was significantly associated with the variable of interest. Participants in the EG were 6 times (AOR: 5.6; 95% CI: 1.9 – 16.1)more likely to have higher self-efficacytoprevent intentional exposure to SEM than the CG. The null hypothesis is therefore rejected.

Table 4.50: Self-efficacy to prevent intentional exposure to SEM at pre-intervention and post-intervention

Group	Mean self-efficacy					Remark
	Baseline	**Post intervention**	**Mean difference**	**Welch's *t*-Statistics**	**p-value**	
EG	9.7±2.8	11.5±1.4	1.8	31.8	0.00	Significant
CG	10.0±2.1	9.9±2.8	0.08	0.05	0.8	Not Significant
Mean difference	0.4	1.5				
t-value	1.0	4.3				
p-value	0.3	0.00				
Remark	Not Significant	Significant				

Table 4.51: Self-efficacy to prevent intentional exposure to SEM at pre-intervention and post-intervention

Level of self-efficacy	Pre-intervention			Post-intervention		
	EG n (%)	CG n (%)	Total	EG n (%)	CG n (%)	Total
Low	34 (33.7)	34 (34.3)	**68 (34.0)**	5 (6.2)	19 (24.4)	**24 (15.1)**
High	67 (66.3)	64 (65.6)	**132 (66.0)**	76 (93.8)	59 (75.6)	**135 (84.9)**
X^2		0.01			10.3	
p- value		0.9			0.001	

Table 4.52: Logistic regression model on self-efficacy to prevent intentional exposure to SEM

Variable	Model 1	Model 2	Model 3	Model 4
	**UOR (95%CI) p	+AOR (95%CI) p	AOR (95%CI) p	AOR (95%CI) p
Group				
EG	4.9 (1.7 -13.8) 0.03	4.8 (1.7 – 13.7) 0.03	4.8 (1.7 - 13.7) 0.03	5.6 (1.9 – 16.1) 0.01
CG	1	1	1	1
Sex				
Male		0.7 (0.3 – 2.2) 0.8	0.7 (0.3 -2.2) 0.8	0.7 (0.3 -2.2) 0.8
Female		1	1	1
Area of study				
Science based			1.0 (0.4 – 2.6) 0.9	0.9 (0.4 – 2.4) 0.9
Non-science based			1	1
Exposed to intervention content*				
Yes				1
No				0.2 (0.02 – 1.2) 0.08

*Participants exposure to any areas of the intervention content outside the research
** UOR: Unadjusted Odd Ratio
+ Adjusted Odd Ratio

Hypothesis 4

The fourth hypothesis states that "there is no significant difference on attitude towards sexual aggressive behaviour between the experimental and control groups before and after the intervention".

The mean score of attitudes towards sexual aggressive behaviour in EG during the baseline was 16.5±5.3 while that of the CG was 18.4±5.0 ($p>0.05$). At the post-intervention, the mean attitude in the EG group significantly reduced with a mean difference of 5.04, however for the control, there was slight increase of a mean difference of 0.77 with no significant difference (Table 4.53).On the level of attitudetowards sexual aggressive behaviour at pre-intervention, there was no significant difference between the EG and CG, however at the post-intervention, more of the CG (59.0%) had higher positive attitude towards sexual aggressive behaviour than the EG (30.9%) (Table 4.54).

Result logistic regression are presented on Table 4.55. Findings showed that none of the variable tested was associated with variable of interest. Participants in the CG were 3 times (AOR: 3.4; 95% CI: 1.7 – 6.7)more likely to have positive attitude towards sexual aggressive behaviour than the EG. The null hypothesis is therefore rejected.

Table 4.53: Attitude towards sexual aggressive behaviour at pre-intervention and post-intervention

Group	Mean attitude towards sexual aggressive behaviour					Remark
	Baseline	**Post-intervention**	**Mean difference**	**Welch's *t*-Statistics**	**p-value**	
EG	16.5±5.3	11.4±8.8	5.04	20.5	0.00	Significant
CG	18.4±5.0	17.6±5.1	0.77	0.6	0.4	Not Significant
Mean difference	1.91	6.17				
t-value	2.62	5.34				
p-value	0.009	0.00				
Remark	Significant	Significant				

Table 4.54: Level of attitude towards sexual aggressive behaviour at pre-intervention and post-intervention

Level of the attitude	Pre-intervention			Post-intervention		
	EG n (%)	CG n (%)	Total	EG n (%)	CG n (%)	Total
Negative	46 (45.5)	31 (31.3)	77 (38.5)	56 (69.1)	32 (41.0)	88 (55.3)
Positive	55 (54.5)	68 (68.7)	123 (61.5)	25 (30.9)	46 (59.0)	71 (44.7)
X^2		4.3			12.7	
p- value		0.04			0.00	

Table 4.55: Logistic regression model on attitude towards sexual aggressive behaviour

Variable	Model 1	Model 2	Model 3	Model 4
	**UOR (95%CI) p	+AOR (95%CI) p	AOR (95%CI) p	AOR (95%CI) p
Group				
EG	1	1	1	1
CG	3.2 (1.7 – 6.2) 0.00	3.3 (1.7 – 6.4) 0.00	3.4 (1.8 – 6.6) 0.00	3.4 (1.7 – 6.7) 0.00
Sex				
Male		1	1	1
Female		1.3 (0.7 – 2.6) 0.4	1.5 (0.7 – 3.2) 0.2	1.5 (0.7 – 3.1) 0.3
Area of study				
Science based			1	1
Non-science based			0.6 (0.3 - 1.2) 0.1	0.6 (0.2 - 1.2) 0.1
Exposed to intervention content*				
Yes				1
No				1.1 (0.4 - 2.8) 0.9

*Participants exposure to any areas of the intervention content outside the research
** UOR: Unadjusted Odd Ratio
+ Adjusted Odd Ratio

Hypothesis 5

The fifth hypothesis states that there is no significant difference on the experience of risky sexual behavioursbetween the experimental and control groups before and after the intervention.

At the pre-intervention, there was no significant difference comparing the mean score of risky sexual behaviour between the EG (4.2±2.6) and CG (3.7±2.6). At the post-intervention, the mean risky sexual behaviour scores significantly reduced to 2.4±1.4 in the EG while that of the CG increased to 4.2±2.8 with no significant difference (Table 4.56). On the level of risky sexual behaviour, 57.9% and 50.9% in the EG and CG had high risky sexual behaviour with no significant difference. However, at the post-intervention, more of the CG (56.1%) than the EG (13.8%) significantly had high level of risky sexual behaviour (Table 4.57).

Result of logistic regression showed that none of the variable tested was associated with variable of interest; risky sexual behaviour. Participants in the CG were 9 times (AOR: 8.9, 95%CI: 2.4 – 32.4)more likely to have engaged in risky sexual behaviours than the EG (Table 4.58). The null hypothesis is therefore rejected.

Table 4.56: Risky sexual behaviour scores at pre-intervention and post-intervention

Group	Risky sexual behaviour					Remark
	Baseline	**Post-intervention**	**Mean difference**	**Welch's *t*-Statistics**	**p-value**	
EG	4.2±2.6	2.4±1.4	1.9	20.5	0.00	Significant
CG	3.7±2.6	4.2±2.8	0.1	0.61	00.4	Not Significant
Mean difference	0.5	1.9				
t-value	0.9	2.8				
p-value	0.3	0.007				
Remark	Not Significant	Significant				

Table 4.57: Risky sexual behaviour

Variable	Pre-intervention			Post-intervention		
	EG n (%)	CG n (%)	p -value	EG n (%)	CG n (%)	p -value
Level of risk						
Low	16 (42.1)	26 (49.1)		25 (86.1)	18 (43.9)	
High	22 (57.9)	27 (50.9)	0.5	4 (13.8)	23 (56.1)	0.00
Total	38 (41.8)	53 (58.2)		29 (41.4)	41 (56.8)	

Table 4.58: Logistic regression model on risky sexual behaviour

Variable	Model 1	Model 2	Model 3	Model 4
	**UOR (95%CI) p	+AOR (95%CI) p	AOR (95%CI) p	AOR (95%CI) p
Group				
EG	1	1	1	1
CG	7.9 (2.3 – 27.1) 0.001	9.1 (2.5 – 32.7) 0.001	9.1 (2.5 – 32.9) 0.001	8.9 (2.4 – 32.4) 0.001
Sex				
Male		1	1	1
Female		2.6 (0.7 – 9.0) 0.1	2.6 (0.7 – 9.1) 0.1	2.6 (0.7 – 9.2) 0.1
Area of study				
Science based			1	1
Non-science based			1.0 (0.3 – 3.3) 0.9	1.1 (0.3 – 3.4) 0.9
Exposed to intervention content*				
Yes				1
No				1.3 (0.3 – 5.6) 0.7

*Participants exposure to any areas of the intervention content outside the research
** UOR: Unadjusted Odd Ratio
+ Adjusted Odd Ratio

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter discusses the results presented in chapter four which included changes in the variables of interest as guided by the research questions.

5.1 Baseline Characteristics of the respondents

Socio-demographic information

The mean age of the respondents which was about 21 years in both EG and CG is consistent with previous researches among students of tertiary institutions in southern Nigeria (Iwuagwu, Ajuwon and Olaseha, 2000; Olaleye and Ajuwon, 2011; Imaledo, Peter-Kio, and Asuquo, 2012; Ogunwale, Oshiname, Ajuwon, 2012). This has a reflection on the marital status of the respondents because all the respondents were still single except few respondents in the control group.

Use of social media

Findings revealed that most of the students used many social media applications. This support a previous findings that more than half of internet users (52%) use two or more of the social media sites (Facebook, Twitter, Instagram, Pinterest) to communicate with their family or friends" (Duggan, Ellison, Lampe, Lenhartand Madden, 2015). This could be inherent in the fact that social media sites have several features that make it popular among young people including creation of personal profiles, upload photographs, videos and post messages that connect them with other users (Pempek et al., 2019).

Finding from the current study showed that social media platform in general are used for meeting new friends, reconnect with old ones and communicate with them to reduce cost of sending messages through SMS, gather information, advertise products, purchase products, express personal feelings, keep relationships, constantly get connected with friends, reduce stress and cost of transportation and get updated with happening in the surrounding. Hence, is it not surprising that respondents in the current

study used at least one of the six social media platforms explored. Findings from the current research

supports previous findings that WhatsApp and Facebook are the most frequently used social media application in Nigeria (Buhari and Ahmad, 2014; Eke et al., 2014, Olaleye, 2017). The WhatsApp, was recently reported to be the current world leading mobileinstant message application (Statistica, 2019).This finding wasalso reflected in the FGD sessions as the mostly emphasized and suggested social media platform for reproductive health interventions among youths was the WhatsApp. This is expected because of the ease of use of WhatsApp, and it has been recorded to be the most popular and widely used social media in Nigeria (Schwartz, 2016; Buhari and Ahmad, 2014), also being the current world leading mobile messaging application including Nigeria (Statista, 2021b).

Major challenges expressed in the use of social media during the FGD sessions included lack of confidentiality (information on it are not private) and account security, seeing posted naked pictures, pornographic videos, hacking of account, seeing fake and old news, and receiving messages with threat to forward it again. This finding therefore established the fact social media which serves as a means of communication and sharing of ideas also served as source of pornographyamong youths (Adil, 2018).

Exposure to sexually explicit materials

Baseline data showed that a major source of SEM among participants in both EG and CG was the social media as many acknowledged that they watch sex movies and naked pictures on the social media.This confirm findings from a previous research among young persons in southwestern Nigeria (Arulogun et al, 2016). Also, majority of the participants have ever been exposed to SEM whether advertent or inadvertent. The reason for this could be because of the youths' explorative behaviour (Pew Research Centre, 2016). This finding therefore suggests the extent to which exposure to SEM might have affected these youths which was reflected in the risky sexual behaviours reported they have engaged in as a result of their exposure to SEM which included anal sex, masturbation, sex without condom, group sex and forceful sex. These findings therefore confirm the assertion by Wallmyr and Welin (2006) which stated that arousal and masturbation remained key issues on exposure to SEM. Some of the respondents who watched SEM expressed that the exposure has increased their interested in sexual intercourse, hence supporting the assertion by made by Arulogun

et al., (2016) that exposure to sexually explicit content could result in change in sexual behaviour. Also, as argued by Flood (2009) in his review; "pornography is particularly damaging to young people's attitudes and behaviour" since it has debilitating effects on their sexual behaviour when exposed to it. Also, exposure to SEM may be disturbing or upsetting, this therefore explains the reason why participants in this study reported the feeling of being ashamed and depressed after watching sexually explicit content.FGD participants in the current study also confirmed this as they expressed the effects of SEM to include pornography addiction, promiscuity, time wastage, strong desire to have sexual intercourse, rape, unwanted pregnancy and quick ejaculation. Current findings also support affirmation by some researchers that exposure to sexually explicit contents have ranges of notable and often troubling effects on the viewers (Flood, 2007; Ashby, Arcari, and Edmonson, 2006; Rideout, 2001; Collins et al., 2004). Although, contrary to the above and other previous findings, some of the respondents expressed that exposure to SEM has a benefit of learning about sexual intercourse. Although, this is in tandem with the affirmation by some researchers (Rothman et al., 2015; Greenberg et al., 2017) that pornography serves as a source of sexual knowledge to the young persons. However, it is lucid that the negative effects outweigh the stated benefits. Hence, the fact that virtually all the respondents has been exposed to SEM is therefore a cause for concern among the set of youths.

Another key important finding in this research is the preference when watching SEM. Over 80% of the respondents who currently watch SEM reported they prefer to watch it alone. The explanation to this could be related the fact that issues related sexual intercourse are always kept secret in Nigeria society(Ikpe, 2004).This finding is an evidence to support the fact that youths are likely to practice or experiment what they view in the sexually explicit videos which in turns affect their sexual behaviour (Arolugun et al, 2016). The practice of sexual behaviour viewed in the pornographic materials could be explained using the Social Cognitive Theory (Bandura, 2001) which states that "when people observe a model performing a behaviour and the consequences of that behaviour, they remember the sequence of events and use this information to guide subsequent behaviours". This therefore suggests that SEM, when watched could shape one's attitude, hence such risky behaviour could be modelled and practiced.

Sexual violence experience

Over a quarter of the respondents have experienced at least form of sexual violence explored. The figure is comparable to the findings from a study among Polytechnic students in Ibadan Nigeria in which 47% of the respondents have experienced at least a form of sexual violence (Olaleye and Ajuwon, 2011). Also, about a quarter of the respondents have perpetrated at least form of sexual violence, this is also comparable with a previous study among Polytechnic students in Ibadan Nigeria in which 22% have perpetrated at least a form of sexual violence. In the current study, the percentage of the experience and perpetration of sexual violence was higher in the CG (Yabatech) than the EG (Polytechnic). This is not surprising as a higher level of experience and perpetration of sexual violence may be expected among youths in a Metropolitan city of Lagos, Nigeria.

HIV prevention practices

About a quarter of the respondents have ever taken HIV test and most of those who indicated they have never taken the test were willing to take the test. This shows that young people may likely take HIV test if offered free and provide access. Although, few of the respondents still indicated that they were not interested. Their level of knowledge on the disease may be responsible for this. A previous related study among student of tertiary institution showed that both males and females students have low knowledge of HIV and AIDS (Abebi, 2014). Hence education of young person about HIV may assist them to take the decision to take HIV as this would help them to know the importance of taking the test.

Sexual behaviour

Pre-marital sex is common among youths in Nigeria. According to WHO (2011), majority of youth become sexually active at the stage of adolescent. From the current study, about half of the participants were sexual experienced although a higher percentage was reported in CG than the EG. This is consistent with the trend of the experience of sexual violence reported earlier between the CG and EG in this study as more respondents in the CG had experienced sexual violence than the EG. This finding on the number of the sexually experienced respondents buttressed some previous findings among students of tertiary institution. For example, Olaleye and Ajuwon (2011) found out among students of the Polytechnic that 56.1% have experienced

sexual intercourse.Young people do not just only involve in sexual intercourse, they engage in risky sexual practices. This is shown in the current study that almost half of those who have engaged in sexual intercourse did not use any form of protection in their last sexual intercourse. Also, data from the FGD reflects common risky behaviours among students on campus which included; dating lecturers/married men, sending of personal nude pictures to sexual partner, living "campus couple life", attending night parties, alcoholism, unprotected sex, indecent dressings, rape, multiple sexual partners and use of drugs for sexual enhancement. These behaviours have a serious implication on the lives of youths as it may prone them to contracting sexually transmitted disease.

5.2 Activities of the participants on WhatsApp group page

Findings showed that participantsin the HND group participated more actively than the ND group. When enquired about this during the post-intervention FGD, participants reported that some participants in ND group usually switch off their internet data in order to conserve data. To buttress, the moderators observed that messages posted on the WhatsApp were delivered to more participants in the HND group than the ND group at any given time. The participants in the ND group affirmed many participants used to read the messages on the group later and may probably not respond in cases where events have passed the messages or questions posted. Internet data is therefore a major factor for active participation for any social media delivered intervention.

5.3 Effectiveness of the Intervention

The overall effects of the intervention were determined by measuring the change observed overtime in the key variables including exposure to sexually explicit materials,perception on the effects of exposure to SEM, knowledge on the effects of exposure to SEM, self-efficacy to prevent SEM,sexual violence experience, attitude toward sexually aggressive behaviour, HIV risk perception and prevention practices, and risky sexual behaviour and self-efficacy to practice sexual abstinence.

Exposure to sexually explicit materials

There was a significant reduction in the percentage of respondents who reported recent exposure to SEM in the EG. The CG however witnessed a slight increase. Although the change in EG could be associated with the WhatsApp intervention as the

respondents were provided with messages on prevention of inadvertent exposure to SEM, however the difference was not significant. One explanation for this is that although an individual may try to prevent inadvertent exposure to SEM, he/she may not have total control on what may be seen while checking through the social media or even while browsing the internet generally.

For advertent exposure, there was a significant reduction in the percentage of respondents who reported recent exposure to SEM in the EG. The CG however witnessed a slight increase. Again, the change in EG could be associated with the WhatsApp intervention. The changed observed was also reflected on the current rate at which the participants watch SEM. Almost half of the respondents in EG reported to have stopped watching SEM while only a quarter reported this in the CG. Major, reason for non-watching of SEM in the two group especially in the EG was religious reason. Issue of religion and SEM was extensively discussed during the intervention. This finding is not surprising as Nigeria society is a society that is highly embedded in religious practices; Islam and Christianity, both do not support watching of pornography.

Perception on the effects of exposure to SEM

There was a significant decrease on the respondent perception on SEM in the EG at the post intervention compared with the baseline. Although there was slight decrease on this in the CG, it was not significant. This significant change could be attributed to intervention. This finding reflects findings on exposure to SEM, hence the higher the mean perception, the more the preference to watch SEM and vice versa. The decrease would have accounted for the decrease in advertent exposure to SEM observed in the EG.

Knowledge on the effects of exposure to SEM

There was a significant improvement in the knowledge of the effects of exposure to SEM for the EG while the CG remain the same at the post-intervention compared with the pre-intervention. This change was as a result of the knowledge gained during the period of intervention. This result is consistent with some previous researchers in which participants were provided health education. For example, a WhatsApp delivered conducted to assess the feasibility and effectiveness in improving knowledge

on oral cancer showed that there was increase in knowledge scores in both intervention and control groups, however, significant difference was only observed in the intervention group (Nayak, Nayak, Sathiyabalan, Aditya and Das, 2018). Another research conducted in Nigeria showed that HIV that peer education was effective in improving knowledge on HIV (Adeomi, Adeoye, Asekun-Olarinmoye, Abodunrin, Olugbenga-Bello and Sabageh, 2014). Other researchers have also observed related changes in their studies (Ajuwon, Komolafe-Opadeji and Ikhizama, 2014; Ijiwole, 2015). This improvement in the knowledge is desirable and important because acquisition of knowledge is usually the first logical stage in the process of behavioural change (Ajuwon and Brieger, 2007).

Self-efficacy to prevent SEM

This research recorded increase in the self-efficacyof participant in the EG at the post-intervention which was not recorded in the CG compared with the baseline data. This difference could be attributed to the WhatsApp intervention. This difference is reflected in the observable difference in the number of participants who reported they stopped Watching SEM in the EG compared with the CG at the post-intervention.

Attitude toward sexually aggressive behaviour and Sexual violence experience

The findings of this study showed a negative shift in attitude toward sexually aggressive behaviour in the EG and CG at the post-intervention compared with the pre-intervention. This change (negative shift) implies increase in attitude against sexually aggressive behaviour. However, the change was only significant in the EG. Again, the change could be associated with the social media education provided to the EG. Although this is contrary to the previous findings by Sucharitha and Sreeja (2017) which showed that there was no significant change in knowledge in both intervention and control group. The study intended to Evaluate the feasibility and potential impact of 'WhatsApp'smart phone application education intervention on self-medicationpractices of medical and non-medical professionalcourse students in Chennai, South India. A factor that may responsible for this was the short duration of the intervention which was just one month.

On the sexual violence experience and perpetration, although there was an observable decrease in the percentage of the respondents who recently reported (last 3 months)

these; experience and perpetration of sexual violence at the post-intervention compared with the preintervention which was higher in the EG, there was no observable significant difference between the two groups. The explanation is that, although there were observable significant change in attitude toward sexually aggressive behaviour in the EG, this may not immediately lead to observable changes in the experience because experience of sexual violence experiencesare relatively rare cases and considering the limited time of the research. Hence, future intervention on sexual violence may consider longer period of intervention and follow-up relatively to the period of the current research.

HIV risk perception and prevention practices

There was an observable significant increase in the mean HIV risk perceptionin the EG while that of the CG remain the same comparing post-intervention data with the pre-intervention. This finding is like the study of Aiyedun (2018) in which there was an observable significant increase in HIV risk perception in the treatment arm of the study. This finding is reflected in the number of those who have been tested for HIV and those who were willing to get tested for HIV at the post-intervention compared with the preintervention. There was significant increase the number of those who have been tested for HIV in the EG compared with CG at the post-intervention relatively to pre-intervention data. Also, all the participants who were yet to get tested for HIV in EG were willing to get tested unlike the participants in this category in the CG.

Risky sexual behaviour and self-efficacy to practice sexual abstinence

There was significant difference in number of respondents who reported sexual abstinence in the EG than CG comparing post-intervention with the preintervention. This data is also reflected in the increase in the percentage of respondents who reported they were very confident in practicing sexual abstinence comparing post-intervention compared with the preintervention and the CG. This finding is also reflected in the number of participants who engaged in risky sexual practices as few of the participants in the EG recorded high risky sexual behaviours at the post-intervention compared with the baseline and the CG. Hence, the observable decrease in the risky sexual behaviour could be attributed to the social media intervention. These observable differences can be related with previous findings among young person in Southwestern Nigeria (Ajuwon and Brieger, 2007). Another related study was

conducted by Cheung et al. (2015) using social media intervention. This study recorded effective behavioural change using the social media as smoking relapse in recent quitters was successfully prevented.

5.4 Implications of the research findings

The result of this study clearly shows that social media intervention could facilitate attitudinal change, knowledge gain and behavioural change among young persons in this short term. Social media intervention especially among youths is therefore a powerful because most youth spend most of their time on it. Hence, it is an appropriate channel for reaching young people.It can provide avenue to meet young people's reproductive health needs and address problems facing this population including violence. This is because social media provides opportunity for constant interactions since there is no physical barrier. People can be easily reached, irrespective of the location and time. Again, youths are ardent users of the social media and therefore interacting with them on the media is like "meeting them at home". Although many factors could affect youths in using the social media thus making them unreachable, this was noted by FGD participants during the project evaluation to include lack of internet data, network failure, faulty phone, power failure and busy schedule. Despite all these challenges most of the participants still participated actively on the WhatsApp group platform.

5.5Conclusion

This study has documented the effects of social media-delivered intervention on exposure to pornography, sexual behaviour and other related issues among students in two tertiary institutions in south-western Nigeria. Students in the EG benefited from the programme as there was reduction in the number participants who were either advertently or inadvertently exposed to SEM. There was also increase in HIV risk perception, safe sex practice and self-efficacy to practice sexual abstinence in the EG. Finally, social media-delivered intervention was effective in reducing exposure to pornography and sexual related activities among the respondents in the short term. Interventions using social media are therefore recommended for related reproductive health issues among young persons in Nigeria.

5.6 Limitation of the study

Data on sexual behaviour, experience of sexual violence, and exposure to SEM were self-reported. As a result, participants might have either under- or over-reported their experiences. To reduce this, participants were encouraged to provide honest responses to the questions since there was identifier attached to the questionnaire.

The study was conducted among students of Polytechnics, data may not generalisable to all young persons in other tertiary institutions.

5.7 Lessons learnt

Fivelessons were learnt from the study. One, the study demonstrated that it is feasible to conduct intervention study among youth via the social media if a frequently used social media platform among them is employed. Two, the four-month intervention had a remarkabledifference as the post-intervention results showed significant difference over the baseline findings in the EG. This therefore suggests that sustained exposure to an intervention on social media over a period could facilitate behavioural change.

Three, the number of participants in each WhatsApp group were kept minima (about 50 participants in each group) this facilitated opportunity for the moderators to have a good coordination of the group. In addition, the fact that participants were added to the social media based on level of study foster interaction among the group members.

Four, health related social media interaction must be very lively, filled with humour, engaged brilliant use of social media emoticons and infusion of career development messages when it comes to the issue youths being the participants. An important strategy used by the moderators in the current study was health educative stories. This facilitated active participation as participants were eager to know the end of the story and therefore

Five, there was high attrition (20%) at the post-intervention, hence some could not complete the post-intervention questionnaire. Researcher enquiry on this with other participants showed that many of the students changed school as they have gained admission into university. Specifically, one of the participants was noticed to have travelled abroad when he changed his WhatsApp number to an international number.

This therefore suggests that future social media intervention project may need to recruit enough participants to make up for possible high attrition rate.

5.8 Recommendations

1. This study was conducted in two tertiary institutions, Polytechnic, in Southwest Nigeria. It is therefore recommended that future studies should include students in other types of tertiary institutions including Universities, Colleges of Education, Schools of Nursing and Schools of Health Technology
2. As a follow up to this study, continuous health education should be carried out among student of Polytechnic students in southwestern Nigeria. This should include more participants from the schools to ensure more people benefit from the project. This is one of the recommendations provided by the FGD participants which is stated as follows; "more participants should be included even from other faculties in any future related program, this will create opportunity to receive contributions from different perspectives"
3. HIV programs should target youths on campus by bringing testing service closer to them since many of them were willing to get tested but do not have easy access to the service. This will consequently increase number people who have known their HIV status in the country.
4. Social media interventions are recommended to reach young persons on other health-related issues affecting them such as cancer, sexually transmitted infections, personal hygiene, genotype testing etc

5.9Contributions to knowledge

The study made three significant contributions to knowledge. First, it has shown that it is feasible to use social media to provide preventive health messages to youths. Second, WhatsApp-delivered educational intervention could help youth to reduce exposure to pornography and prevent risky sexual behaviours. Lastly, the outcome of this research and lessons learnt could be used to develop effective social media health educational programmeamong young persons in Nigeria.

5.10 Suggestion for future research

1. Future research may consider using other social media such media such as Telegram as number of people using this has continued to increase daily.

Telegram which was launched in 2013 reached 200 million uses in March 2018 and was recorded in March 2019 that 3 million signed up on the apps within the last 24 hours.

2. Future similar study could consider students in the secondary schools as this will prevent their exposure to SEM thereby helping them to prevent early involvement sexual activities. Although this may be affected by their limited access to smart phones.
3. Future research can consider other health areas affecting young person such cancer, sexually transmitted infections and personal hygiene

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APPENDIX I

Usage pattern of social media by Nigerians

Author	Setting	Study population	Study type	Key findings
Ezeah et al, 2013	South-East Nigeria	University students	Descriptive	Students used social media to get entertainment, education/information and discuss national issues, engage in cybercrimes and watch SEM
Buhari and Ahmad, 2014	Kaduna	Polytechnic students	Descriptive	Most frequently used social media platform were Facebook and WhatsApp. Social Media were used to get connected and interact through chat and share information with friends.
Makinde et al, 2016	NA	NA	Literature review	Report of experience of gender-based violence by perpetrators met on Facebook
Nathaniel and Adio, 2016	Conference	Ophtalmologists	Descriptive	WhatsApp is most preferred and popularly used (50.5%) social media platform
Apuke, 2016	Jalingo, Taraba State	University students	Descriptive	About half (50.0%) of the respondents had an account with Face-book, while 30.0% and 15.0% had WhatsApp and Blackberry Messenger respectively
Arulogun et al, 2016	Ibadan, Oyo State	Young persons	Descriptive	Time spent online daily ranged from 30 minutes to three hours. Some (34.1%) engaged in online (social media) chatting.
Olaleye, 2017	Ibadan, Oyo State	In-school adolescents	Descriptive	Most (88.0%) of the respondents reported the use social media. The highest used social medium was Facebook (71.2%) followed by WhatsApp (55.0%).
Abubakar & Dasuki, 2018	Kano	Women	Descriptive	WhatsApp has the potential of contributing to women empowerment as it aids their freedoms to participate in developmental activities
Ajuwon et al., 2018	South-west Nigeria	Nurse tutors	Intervention	WhatsApp was used to support teaching practice among nurse tutors

APPENDIX II

Summary of data on prevalence of exposure to SEM and its effects on sexual behaviour of young people

Author	Age of sample	Setting	Prevalence of Exposure to SEM	Effects on behaviour
Gina et al., 2001	14 to 18 years	United States	Exposure to pornographic movies was reported by 29.7% of adolescents	Negative attitudes toward using condoms, multiple sex partners, non-use of contraception, test positive for chlamydia
Wallmyr and Welin, 2006	15 – 25 years	Sweden	Majority of males (98.8%) and female (73.5%) at age 15 had viewed pornographic movies	Positive attitude towards intentional exposure which increases with age
Morgan, 2011	18 – 30 years	United States	Life intentional exposure was 91.7% among males and 50.0% among females. While intentional exposure in the 6 months preceding the study was 78.8% and 30.9% in males and females respectively.	Higher viewing frequency of SEM was positively associated with less sexual and relationship satisfaction
Hald et al., 2013	15 – 25 years	Netherlands	Prevalence of intentional exposure to SEM was 88% among men and 45% among women in the past 12 months	Intentional exposure to SEM influenced the sexual behaviours of the youth
Mattebo, 2014.	16 years	Uppsala, Sweden	96% boys and 54% of girls had watched pornography.	Many watched more pornography than they actually wanted to. It also results into alcoholism, sedentary lifestyle, obesity, peer relationship problems and sexual encounter with friends
Mahapatra, and Saggurti, (2014)	25 – 29 years	India	Forty percent reported viewing of pornographic videos in the month preceding the survey.	Pornographic viewers were more likely to engage in both paid and unpaid sex, more likely to report inconsistent condom use in paid sex and more like to have experience STI-like symptoms than their counterparts who do not watch pornography
Arulogun et al., 2016	21 years	Nigeria	Majority (72%) had ever stumble on pornographic sites	Almost half (48.3%) engaged in oral sex (48.3%), some had body tattoo (18.3%), multiple sexual partnership (11.6%) and homosexuality (5.0%)

APPENDIX III

Selection of participants by institution, Faculty/School, department and course of study

Institution	Type	Faculty/School*	Number of departments	Department selected	Course of study selected
The Polytechnic Ibadan (EG)	**Science**	**Engineering**	5	Civil engineering	Civil engineering
		Science	8		
		Environmental Studies	9		
	Non-science	**Financial management**	3	Banking and finance	Banking and finance
		Business management	7		
Yaba College of Technology	**Science**	Technology	7		
		Engineering	12	Metallurgical Engineering	Metallurgical Engineering
		Environmental Studies	6		
		Science	6		
	Non-science	Liberal Studies	3		
		Management and business studies	6		
		Technical education	5		
		Art, Design and printing	7	Fine Art	General Art

* Faculties selected are in bold font

APPENDIX IV (Baseline Focus Group Discussion Guide)

Effects of social-media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states

Questions

1. Do students of this school generally have access to phones with social media apps installed?
2. Which social media platforms are being used by the youth on campus? (Probe for the most frequently used).
3. What are the benefits of using social media?
4. What are the major challenges experienced in using or while using the social media? (probe for accessibility in terms of network).
5. In using social media, are there content of media you don't like? (Probe for sexually explicit contents).
6. What are the common risky sexual behaviour among students? (Probe for sexual coercion, having more than one sexual partner, indiscriminate sex, sex without condom).
7. What are the names given to Sexually Explicit Material among undergraduate students?
8. How and where are the students exposed to SEM? (Probe for; deliberate and intentional exposure, source of the materials, environment that makes them more exposed including internet and social media).
9. What is the level of exposure to SEM among males compared to females?
10. Why do young people especially students view sexually explicit contents?
11. What are the benefits of being exposed to sexually explicit materials?
12. What are the possible effects of exposure to sexually explicit materials? (Probe for effects on sexual behaviour).
13. Which social media app/site will you recommended undergraduate students are to be reached on social media about their sexual health and safe sex practices?
14. What are your suggestions to ensure effectiveness if undergraduate students are to be reached about their sexual health and safe sex practices using social media (WhatsApp)?

APPENDIX V (Baseline Questionnaire)

Effects of social-media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states

Greetings; my name is **Oladipupo Sam, OLALEYE. I came from the University of Ibadan in the** Department of Health Promotion and Education. I am part of the team undertaking a research on "**Effects of social-media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states.** This study has been reviewed and granted approval by University of Ibadan/University College Hospital Ethics Review Committee and assigned the number: **UI/EC/17/0366.** Your participation in this research will cost you nothing and your participation is completely voluntary. You may choose to withdraw from the research at any time. You will not be paid for participating.

In participating in this study, your responses and identity will only be used for research purpose. No name is required in filling the questionnaire. You are requested to please give the honest responses to the questions as much as possible.

***Do you agree to participate*? Yes ☐ No ☐**

SECTION A – SOCIO-DEMOGRAPHIC INFORMATION

Instruction: ***Please mark (√)in boxes provided (as appropriate)***

1. Sex 1. Male ☐ 2. Female ☐
2. How old were you at your **last birthday**_____ (**in years**)?
3. Please indicate the religion you practice

   1. Christianity ☐ 2.Islam ☐ 3. Traditional religion ☐

   4. None ☐ 5.Others (specify) _____
4. Please indicate your ethnic group:
   1. Yoruba ☐ 2. Hausa ☐ 3. Igbo ☐ 4. Others (specify)_____
5. What is your marital status?

   1. Single never married ☐ 2. Married ☐ 3. Cohabit ☐

4. Divorced/Separated/Widowed ☐ 5. Others (specify) _____

6. What is your level of study?

1. ND1 ☐ 2. HND 1 ☐

7. What is your area of study?

1. Science ☐ 2. Social Science ☐ 3. Engineering ☐
4. Business Administrative ☐ 5. Arts ☐ 6. Others (Specify) _____

8. What is the type of your family origin?

1. Monogamy ☐ 2. Polygamy ☐

SECTION B: USE OF SOCIAL MEDIA

9. Do you own a Smart Phone/Tablet with social apps installed on it?

1.Yes ☐ 2. No ☐

10. Are you on social media*(E.g Facebook, Whatsappetc)*1. Yes ☐ 2. No ☐

11. Which of the following Social Media do you use? ***Please tick as many that apply, then indicate the frequency of use.***

S/N	Social Medium		Indicate ☑ frequency of use			
	Please Tick ☑		**Everyday**	**Once in 2 days**	**Weekdays only**	**Weekends only**
I	**Facebook**	☐				
II	**WhatsApp**	☐				
III	**IMO**	☐				
IV	**Twitter**	☐				
V	**Instagram**	☐				
VI	**Telegram**	☐				
VII	**Others (Specify & indicate frequency of use):** _____					

12. Which of the following statements describe how you use the social media?

(You can tick MORE than one option)

i	Read News	☐	v	Look for boyfried/girlfried	☐
ii	Download/listen to Music	☐	vi	Share naked pictures	☐
iii	Watch/download naked Pictures	☐	vii	Share "Sex" Videos	☐
iv	Watch/download Sex Videos/Films	☐	viii	Read health news/publications	☐
ix	Others (Please Specify): _____				

SECTION C: EXPOSURE TO ADULT CONTENT

13. Have you ever encountered pictures of naked person with the sexual organs exposed?

1. Yes ☐ 2. No ☐

14. Have you ever encountered video of people having sex? 1. Yes ☐ 2. No ☐

15. (a) Did you encounter pictures of naked person with the sexual organs exposed or video of people having sex while you were browsing through **INTERNET** in the last 3 Months? 1. Yes ☐ 2. No ☐

(b) What did you do about the picture/video?

1. Clicked and opened the link ☐ 2. Closed the window/pop-up ☐

3. Ignored it ☐ 4. Others (Specify)_____

PLEASE indicate your personal experience in following questions; **EVER** (If it has happened to your before) and **occurred in the last 1 Month**

	Question	EVER		Occurred in the Last 1 month	
		Yes	No	Yes	No
16.	**(a)** Have you encountered **nude picture(s) or video(s) of people having sex ACCIDENTALLY (when you don't want to)**?	☐	☐	☐	☐
	(b) The following indicate where you may have encountered the **picture(s) or video(s)**. Please tick **as MANY** that **APPLY** to you.				
	i While surfing the internet generally	☐			
	ii Social media (e.g Facebook, Instagram)	☐			
	iii Send to me on WhatsApp	☐			
	iv On YouTube website	☐			
	v On TV (Cable TV, Local TV, Films [CD])	☐			
	vi Others (Specify): _____	☐			

	Question	EVER		Within the Last 1 month	
		Yes	No	Yes	No
17.	**(a)** Have you ever **INTENTIONAL** watched **video(s) of people having sex** or **nude pictures**?	☐	☐	☐	☐
	(b) Please indicate **WHERE you may have watched the video(s) or picture(s)**. Tick **as MANY** that **APPLY** to you				
	i Internet e.g dating sites	☐			
	ii Social media (e.g Facebook, Instagram)	☐			
	iii Sent to you on Whatsapp	☐			
	iv YouTube website	☐			
	v TV (Cable TV, Local TV, Films [CD])	☐			
	vi Received from someone through file sharing Apps (Xender, Bluetooth etc)	☐			
	vii Others _____	☐			

18. (a) Currently, how often do you watch video clips/movies with sexually explicit content (adult video)

1. Daily ☐ 2. Weekly ☐ 3. A few times in a month ☐
4. A few times in the year ☐ 5. I have never watched it ☐

(b) If you tick **option 5** (***do not watch at all***) specify your reason(s) and then go to **Qs 26;**

_____

(c) If you tick any of **1 – 4 options (above)**, please specify the major reason(s) why you watch? **(Tick as MANY that apply to you)**

I	To release stress	☐
II	Just want to know about it	☐
III	To get sexually aroused before sexual activity	☐
IV	To get aroused and masturbate	☐
V	To learn more about sexuality	☐
VI	To vary sex or learn more about sex	☐
VII	Everyone does it	☐
VIII	Others (Specify) _____	

19. Indicate the circumstance that best describes you when viewing nude picture/sex video. **Please tick only ONE (1) option**

I	I prefer to watch alone	☐
II	I prefer to watch it with girl/boyfriend(s)	☐
III	I prefer to watch it with same-sex friends/peers	☐
IV	Others (Specify)_____	

20. (a) Have you ever attempted to perform any sexual act(s) seen in any adult video clips you watched? ☐ Yes ☐ No ***(If "NO", go to Qs 21)***

(b) Indicate the ones(s) you have performed out of the following after watching it.

(Tick as MANY options that apply to you)

i	Oral Sex	☐		v	Anal Sex	☐
ii	Forceful sex	☐		vi	Masturbation	☐
iii	Group Sex	☐		vii	Sex without condom	☐
iv	Sex with same sex	☐		viii	Others_____	

(c) When last did you do any of those **indicated above?**

1. One week ago ☐ 2. 1- 3 months ago ☐ 3. More than 3 months ago ☐

21. Do you have sex movies/video clips (adult film) saved on your mobile phone?

1. Yes ☐ 2. No ☐

22. Do you have any mobile apps installed on your phone where you can have access to naked pictures/sex movies/video clips (adult film)? ☐ Yes ☐ 2. No

23. (a) Did you visit websites of "**adult content"** (naked picture or sex videos) in the last 1 month?' 1. Yes ☐ 2. No ☐

(b) If yes, How often? 1. Everyday ☐ 2. Every 2 days ☐ 3. Every week ☐

24. Indicate what best describe your feelings after watching sex videos;

1. Not satisfied & wished to watch more ☐ 2. Satisfied ☐
3. Feel ashamed/depressed ☐ 4. Others (Specify) _____

25. Do you feel exposure to sex video/movies/pictures has increased your interest for sexual intercourse? 1. Yes ☐ 2. No ☐

26. (a) Have you at any time in the last 1 month received nude pictures or sex video on your mobile phone? 1. Yes ☐ 2. No ☐ ***(If "NO", go to Qs 27)***

(b) **If yes**, indicate the "**App**" through which it was sent to you?

(Tick as MANY options that apply to you)

i	WhatsApp	☐
ii	Xender	☐
iii	Bluetooth	☐
iv	***Others (Specify):*** _____	

27. (a) Have you ever sent your personal naked/half-naked to someone before?
1. Yes ☐ 2. No ☐ ***(If "NO", go to Section D)***

(b) Did this happen within the last 1 months? 1.Yes ☐ 2. No ☐

(c) If **YES**, how is this person related to you? _____

SECTION D: PERCEPTION ON SEXUALLY EXPLICIT CONTENT

Please indicate either you Agree (AG), Disagree (DA) or Undecided (UD

28.	**Statement**	**AG**	**DA**	**UD**
I	It is good to view/watch sex videos/naked pictures to improve one's sexual performance	☐	☐	☐
II	It is good to view/watch sex videos/naked pictures since they are officially approved for adult use globally	☐	☐	☐
III	Production, distribution and watching of videos/naked pictures should be legalised for all ages	☐	☐	☐
IV	Involving in the production of sex videos is good because one can easily become a celebrity through that	☐	☐	☐
V	Pornography is a good "sex educator"	☐	☐	☐
VI	Pornography helps to prevent rape in the society	☐	☐	☐

SECTION E: EFFECTS OF EXPOSURE TO SEXUALLY EXPLICIT CONTENT

Please indicate either you Agree (AG), Disagree (DA) or Undecided (UD)

29.	Statement	AG	DA	UD
I	I watch sex video/nude picture more than I want to	☐	☐	☐
II	I CANNOT do without watching sex video/nude picture in a week	☐	☐	☐
III	I have more than one sexual partners ***(Boyfriend/girlfriend, man friends/woman friends***) so that I can properly satisfy	☐	☐	☐
IV	It is unhealthy for me as a man/lady if don't have sex frequently	☐	☐	☐
V	Exposure to sex video/nude picture has definitely affected my sexual behaviour	☐	☐	☐

SECTION F: KNOWLEDGE OF EFFECTS OF EXPOSURE TO SEXUAL CONTENT Please indicate if the following statement are TRUE or FALSE

30.	Statement	TRUE	FALSE
I	Viewing/watching sex video results in unsatisfactory sexual appetite	☐	☐
II	Viewing/watching sex video materials increases interest to have sex	☐	☐
III	Viewing/watching sex videos promotes use of condom during sex	☐	☐
IV	Viewing/watching sex video prevents early experience of sexual intercourse	☐	☐
V	Viewing/watching sex video promotes sexual abstinence	☐	☐
VI	Viewing/watching sex video materials helps to stick to one sexual partner	☐	☐
VII	Viewing/watching sex video helps to avoid indiscriminate sex	☐	☐
VIII	Viewing/watching sex video increases tendency of perpetrating sexual violence such as rape	☐	☐
IX	Pornography affects the sexual performance of the viewers (e.g premature ejaculation and erectile dysfunction)	☐	☐
X	Pornography addiction results in mental health problem	☐	☐

SECTION G: EXPERIENCE OF SEXUAL VIOLENCE

For each of the following, kindly indicate the one have experienced**,** when and who did it to you

	31. Has anybody done of these to you?	**Ever happened**		**Happened 3 months ago**		**Who did you do it to?(E.g Boy/girlfriend, Male/Female friend)**
		Yes	**No**	**Yes**	**No**	
I	Someone sent unwanted nude pictures or sex film to you in demand for sex	☐	☐	☐	☐	
II	Someone forced you to watch sex video/film	☐	☐	☐	☐	
III	Someone paid you money or gave you gift in demand for sex?	☐	☐	☐	☐	
IV	Someone made you to perform sexual act(s) against your wish.	☐	☐	☐	☐	
V	Someone **attempted** to forcefully have sexual intercourse with you	☐	☐	☐	☐	
VI	Someone actually **forced** you to have sexual intercourse	☐	☐	☐	☐	

SECTION H: PERPETRATION OF SEXUAL VIOLENCE

For each of the following, kindly indicate the one you have **DONE to anyone, and who you did to**

	32. Have you done any of these to anyone?	**Ever happened**		**Happened 3 months ago**		**If "YES" Who did you do it to? *(boyfriend, girlfriend, etc)***
		Yes	**No**	**Yes**	**No**	
I	You forced somebody to watch pornography or to see sexually explicit materials	☐	☐	☐	☐	
II	You kissed somebody against his/her wish	☐	☐	☐	☐	
III	You put some drugs into somebody drinks to make him/her feel sleep so that he/she could have sex with you	☐	☐	☐	☐	
IV	You made somebody to perform sexual act against him/her wish.	☐	☐	☐	☐	
V	You tried to forcefully have sex with somebody	☐	☐	☐	☐	
VI	You actually forced somebody to have sex with you	☐	☐	☐	☐	

SECTION I: ATTITUDE TOWARDS SEXUAL AGGRESSIVE BEHAVIOUR

Please evaluate the following statements indicate the **level of your agreement**

33.	Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
I	If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand	☐	☐	☐	☐	☐
II	If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	☐	☐	☐	☐	☐
III	When guys rape, it is usually because of their strong desire for sex; it is really not their fault	☐	☐	☐	☐	☐
IV	Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away	☐	☐	☐	☐	☐
V	It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing	☐	☐	☐	☐	☐
VI	If a girl doesn't physically resist sex, even if protesting verbally, it should not be considered rape.	☐	☐	☐	☐	☐
VII	If a girl doesn't physically fight back, it should not be considered rape.	☐	☐	☐	☐	☐

SECTION J: RISK PERCEPTION & HIV PREVENTION PRACTICE

*For each of the statement below tick whether you consider yourself **at High Risk, Low Risk** or **No Risk of HIV infection** to the statement*

34.	Statement	High risk	Low risk	No risk
I	If I have sex just once without using condom	☐	☐	☐
II	If I have sex with a virgin without using condom	☐	☐	☐
III	If I have sex always with a regular partner (boy/girlfriend) without using condom	☐	☐	☐
IV	If I share unsterilized instruments for tattooing	☐	☐	☐
V	If I engage in forced sex	☐	☐	☐
VI	If I have sex with more than one person at a time	☐	☐	☐
VII	If I do not use personal or sterilised instruments such clippers/manicure	☐	☐	☐

35. (a) Have you ever taken HIV test? 1. Yes ☐ 2. No ☐

(b) If No, will you be willing to take the test if offered free? 1. Yes ☐. No ☐
(c) If **Yes**, when last did you do the test?
1. Less than 6 months ☐**2**. Between 6 months and 1 year ☐**3**. More than 1 year ago

SECTION K: SEXUAL BEHAVIOUR

36. (a) Have you ever engaged in sexual intercourse? 1. Yes ☐ 2. No ☐
(If No, please go to QUESTION 45)

(b) If **YES,** how old were you when you had your first intercourse? _____ years
(c) Which of the following best describe the last time you had sexual intercourse?

(Tick only ONE (1) option)

a	One week ago	☐
b	One month ago	☐
c	Between 2 – 3 months ago	☐
d	More than 3 months ago	☐

37. (a) Have you ever engaged in **Group Sex** (***sexual involving more than 2 people***)**?**
1. Yes ☐ 2. No ☐
(b) Did you experience this in the last 1 months? **1.** Yes ☐ 2. No ☐

38. (a) Did you use any method of Protection during your last intercourse?
1. Yes ☐ 2. No ☐
(b) If **YES,** indicate the type of protection used?
1. Male Condom ☐ 2. Female Condom ☐ 3. Withdrawal ☐
4. Others (Specify) ……..

39. Did you use condom for all sexual intercourse during last one month?
1. Yes ☐ 2. No ☐ 3. I did not have sex in the last one month ☐

40. (a) Have you ever watched "**sex film/video"** shortly before having sex?
1. Yes ☐ 2. No ☐
(b) If yes, did this happen in the last **1 month** 1. Yes ☐ 2. No ☐

41. (a) Have you ever used drug/materials/drinks to enhance/have sexual performan☐ 1☐s 2. No ***(If "NO", go to Qs 42)***
(b) If **YES**, did you use any in the last 1 month? 1. Yes ☐ 2. No ☐
(c) What is the name of drug/materials/drinks used? **……**

42. (a) Have you ever had Anal Sex? 1. Yes ☐ 2. No ☐
(b) Did you have it in the last 1 month? 1. Yes ☐ 2. No☐

43. (a) How many **boy/girlfriend(s) [sexual partner]** have you had in the last 3 months? **……**
(b) How many do you have currently? **.....**

44. How often do you drink alcohol?
1. Never ☐ 2. Daily ☐ 3. At least Once a week ☐ 4.Occasionally ☐

SECTION L: SELF-EFFICACY TO PREVENT INTENTIONAL EXPOSURE TO SEXUAL CONTENT AND ADOPT SAFE SEX PRACTICE

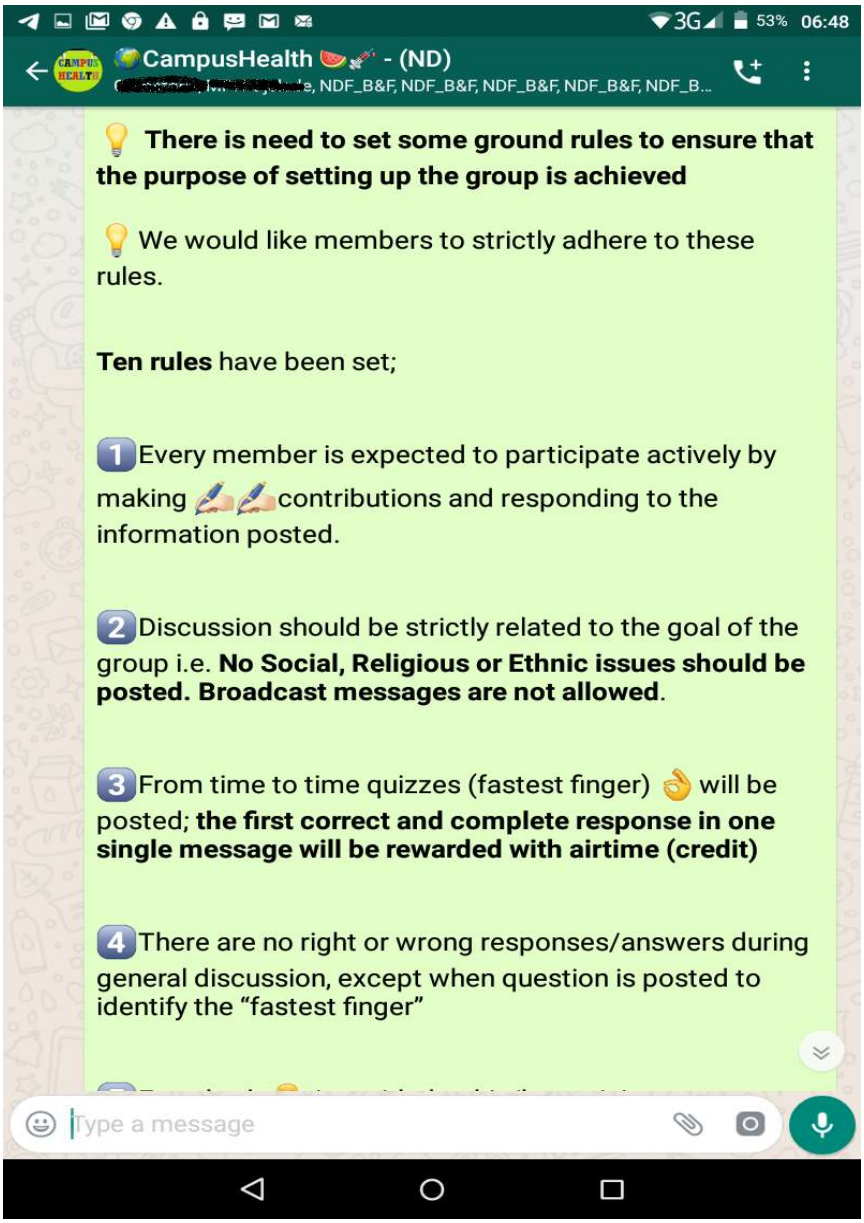
Indicate the level of your confidence to the following

45.	**Question**	**Very Confident**	**A little confident**	**Not confident**
I	How confident are you to ***unfriend*** your intimate friend who frequently post sexually explicit content to you/your wall on social media (e.g Facebook)?	☐	☐	☐
II	How confident are you to **delete** all sex videos/nude pictures stored in your phone?	☐	☐	☐
III	How confident are you stay over a month without watching sexually explicit video?	☐	☐	☐
IV	How confident are you to say **"NO"** if your boy/girlfriend want you to watch sex videos/nude pictures	☐	☐	☐
V	How confident are you to say "NO" if your boy/girlfriend demand for your personal naked picture?	☐	☐	☐
VI	How confident are you to close/ignore **pop-ups** showing nude pictures when browsing through the internet?	☐	☐	☐
VII	How confident are you to stay for a year without having sexual intercourse even if your girlfriend/boyfriend demands for it?	☐	☐	☐

Thank you for your participation

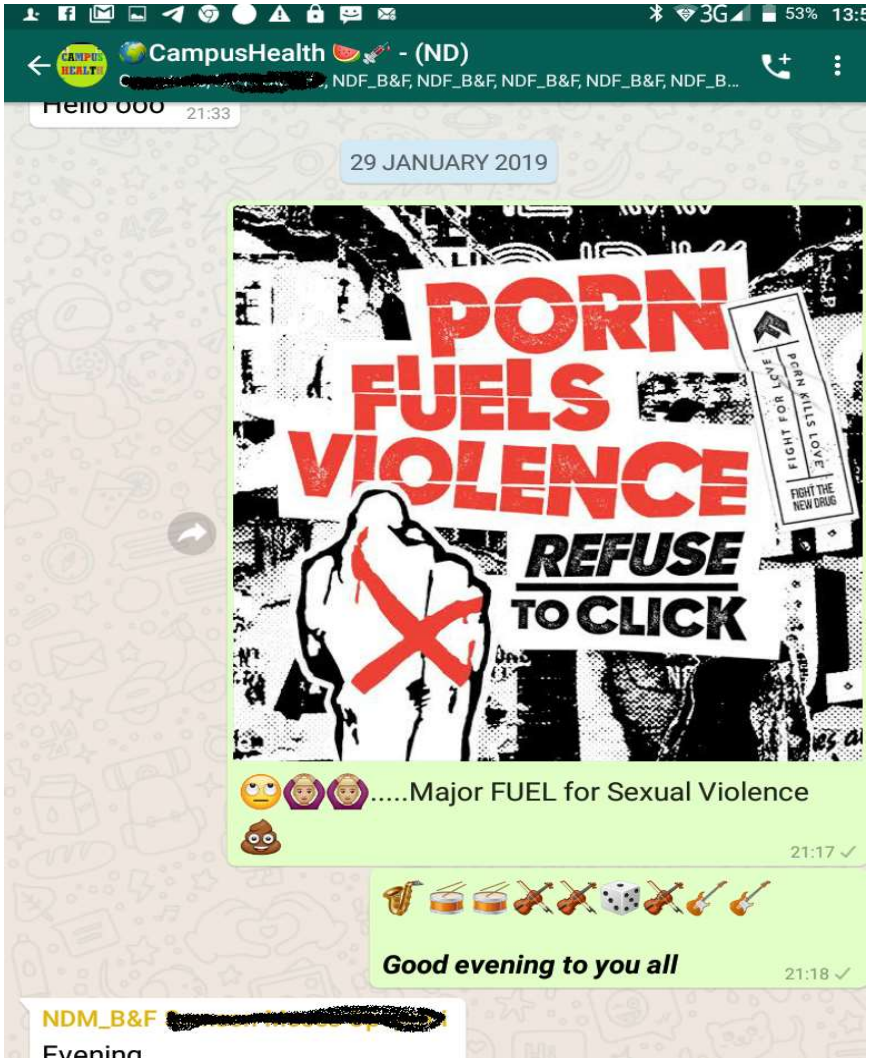
Appendix VI

Setting up ground rules for the group page



Appendix VII

Snapshot of posted message: Posting educative picture



APPENDIX VIII

Post-intervention Questionnaire

Effects of social-media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states

Greetings; my name is **Oladipupo Sam, OLALEYE. I came from the University of Ibadan in the** Department of Health Promotion and Education. I am part of the team undertaking a research on "**Effects of social-media-delivered intervention on exposure to pornography and risky sexual behaviours among students of selected tertiary institutions in Oyo and Lagos states.** This study has been reviewed and granted approval by University of Ibadan/University College Hospital Ethics Review Committee and assigned the number: **UI/EC/17/0366.** Your participation in this research will cost you nothing and your participation is completely voluntary. You may choose to withdraw from the research at any time. You will not be paid for participating.

In participating in this study, your responses and identity will only be used for research purpose. No name is required in filling the questionnaire. You are requested to please give the honest responses to the questions as much as possible.

SECTION A – SOCIO-DEMOGRAPHIC INFORMATION

Instruction: ***Please mark*** **(√)** ***in boxes provided (as appropriate)***

29. Sex 1. Male ☐ 2. Female ☐

30. How old were you at your **last birthday**_____ (**in years**)?

31. Please indicate the religion you practice

1. Christianity ☐ 2.Islam ☐ 3. Traditional religion ☐
4. None ☐ 5.Others (specify) _____

32. Please indicate your ethnic group:

2. Yoruba ☐ 2. Hausa ☐ 3. Igbo ☐ 4. Others (specify)_____

33. What is your marital status?

1. Single never married ☐ 2. Married ☐ 3. Cohabit ☐
4. Divorced/Separated/Widowed ☐ 5. Others (specify) _____

34. What is your level of study?

2. ND1 ☐ 2. HND 1 ☐

35. What is your area of study?

1. Science ☐ 2. Social Science ☐ 3. Engineering ☐
4. Business Administrative ☐ 5. Arts ☐ 6. Others (Specify)

_____

36. (a) What is the type of your family origin?

1. Monogamy ☐ 2. Polygamy ☐

(b)I live: 1. On-Campus ☐ 2. Off-Campus ☐

SECTION B: USE OF SOCIAL MEDIA

37. Do you own a Smart Phone/Tablet with social apps installed on it?

1. Yes ☐ 2. No ☐

38. Are you on social media*(E.g Facebook, Whatsapp etc)*1. Yes ☐ 2. No ☐

39. Which of the following Social Media do you use? ***Please tick as many that apply, then indicate the frequency of use.***

S/N	Social Medium *Please Tick* ☑		Indicate frequency of use ☑			
			Everyday	Once in 2 days	Weekdays only	Weekends only
I	Facebook	☐				
II	WhatsApp	☐				
III	IMO	☐				
IV	Twitter	☐				
V	Instagram	☐				
VI	Telegram	☐				
VII	Others (Specify & indicate frequency of use): _____					

40. Which of the following statements describe how you use the social media?

(You can tick MORE than one option)

i	Read News	☐	v	Look for boyfried/girlfried	☐
ii	Download/listen to Music	☐	vi	Share naked pictures	☐
iii	Watch/download naked Pictures	☐	vii	Share "Sex" Videos	☐
iv	Watch/download Sex Videos/Films	☐	viii	Read health news/publications	☐
ix	Others (Please Specify): _____				

SECTION C: EXPOSURE TO ADULT CONTENT

41. Have you ever encountered pictures of naked person with the sexual organs exposed?

2. Yes ☐ 2. No ☐

42. Have you ever encountered video of people having sex? 1. Yes ☐ 2. No ☐

43. (a) Did you encounter pictures of naked person with the sexual organs exposed or video of people having sex while you were browsing through **INTERNET** in the last 3 Months?

1. Yes ☐ 2. No ☐

(b) What did you do about the picture/video?

1. Clicked and opened the link ☐ 2. Closed the window/pop-up ☐

3. Ignored it ☐ 4. Others (Specify)_____

PLEASE indicate your personal experience in following questions; **EVER** (If it has happened to your before) and **occurred in the last 1 Month**

Question 16		EVER		Occurred in the Last 1 month	
		Yes	No	Yes	No
	(c) Have you encountered **nude picture(s) or video(s) of people having sexACCIDENTALLY (when you don't want to)**?	☐	☐	☐	☐
	(d) The following indicate where you may have encountered the **picture(s) or video(s)**. Please tick **as MANY** that **APPLY** to you.				
	i While surfing the internet generally	☐			
	ii Social media (e.g Facebook, Instagram)	☐			
	iii Send to me on WhatsApp	☐			
	iv On YouTube website	☐			
	v On TV (Cable TV, Local TV, Films [CD])	☐			
	vi Others (Specify): _____				

Question 17		EVER		Within the Last 1 month	
		Yes	No	Yes	No
	(c) Have you ever **INTENTIONAL** watched **video(s) of people having sex** or **nude pictures**?	☐	☐	☐	☐
	(d) Please indicate **WHERE you may have watched the video(s) or picture(s)**. Tick **as MANY** that **APPLY** to you				
	i Internet e.g dating sites	☐			
	ii Social media (e.g Facebook, Instagram)	☐			
	iii Sent to you on Whatsapp	☐			
	iv YouTube website	☐			
	v TV (Cable TV, Local TV, Films [CD])	☐			
	vi Received from someone through file sharing Apps (Xender, Bluetooth etc)	☐			
	vii Others _____				

18. (a) Currently, how often do you watch video clips/movies with sexually explicit content (adult video)

1. Daily ☐ 2. Weekly ☐ 3. A few times in a month ☐
4. A few times in the year ☐ 5. I have never watched it ☐

(d) If you tick **option 5** (***do not watch at all***) specify your reason(s) and then go to **Qs 26; __**

_____

(e) If you tick any of **1 – 4 options (above)**, please specify the major reason(s) why you watch? **(Tick as MANY that apply to you)**

I	To release stress	☐
II	Just want to know about it	☐
III	To get sexually aroused before sexual activity	☐
IV	To get aroused and masturbate	☐
V	To learn more about sexuality	☐
VI	To vary sex or learn more about sex	☐
VII	Everyone does it	☐
VIII	Others (Specify) _____	

19. Indicate the circumstance that best describes you when viewing nude picture/sex video. **Please tick only ONE (1) option**

I	I prefer to watch alone	☐
II	I prefer to watch it with girl/boyfriend(s)	☐
III	I prefer to watch it with same-sex friends/peers	☐
IV	Others (Specify)_____	

20. (a) Have you ever attempted to perform any sexual act(s) seen in any adult video clips you watch ☐ 1. Yes ☐ 2. No ***(If "NO", go to Qs 21)***

(b) Indicate the ones(s) you have performed out of the following after watching it.

(Tick as MANY options that apply to you)

i	Oral Sex	☐	v	Anal Sex	☐
ii	Forceful sex	☐	vi	Masturbation	☐
iii	Group Sex	☐	vii	Sex without condom	☐
iv	Sex with same sex	☐	viii	Others_____	

(c) When last did you do any of those **indicated above?**

1. One week ago ☐ 2. 1- 3 months ago ☐ 3. More than 3 months ago ☐

21. Do you have sex movies/video clips (adult film) saved on your mobile phone?

1. Yes ☐ 2. No ☐

22. Do you have any mobile apps installed on your phone where you can have access to naked pictures/sex movies/video clips (adult film ☐ 1. Yes ☐ 2. No

23. (a) Did you visit websites of "**adult content"** (naked picture or sex videos) in the last 1 month? ☐ Yes ☐ No

(b) If yes, How often? 1. Everyday ☐ 2. Every 2 days ☐ 3. Every week ☐

24. Indicate what best describe your feelings after watching sex videos;

1. Not satisfied & wished to watch more ☐ 2. Satisfied ☐
3. Feel ashamed/depressed ☐ 4. Others (Specify) _____

25. Do you feel exposure to sex video/movies/pictures has increased your interest for sexual intercourse? 1. Yes ☐ 2. No ☐

26. (a) Have you at any time in the last 1 month received nude pictures or sex video on your mobile phone? ☐ Yes ☐ No ***(If "NO", go to Qs 27)***

(b) **If yes**, indicate the "**App**" through which it was sent to you?

(Tick as MANY options that apply to you)

i	WhatsApp	☐
ii	Xender	☐
iii	Bluetooth	☐
iv	***Others (Specify):*** _____	

27. (a) Have you ever sent your personal naked/half-naked to someone before?
1. Yes ☐ 2. No ☐ ***(If "NO", go to Section D)***

(b) Did this happen within the last 1 months? 1.Yes ☐ 2. No ☐

(c) If **YES**, how is this person related to you? _____

SECTION D: PERCEPTION ON SEXUALLY EXPLICIT CONTENT

Please indicate either you Agree (AG), Disagree (DA) or Undecided (UD

28.	**Statement**	**AG**	**DA**	**UD**
I	It is good to view/watch sex videos/naked pictures to improve one's sexual performance	☐	☐	☐
II	It is good to view/watch sex videos/naked pictures since they are officially approved for adult use globally	☐	☐	☐
III	Production, distribution and watching of videos/naked pictures should be legalised for all ages	☐	☐	☐
IV	Involving in the production of sex videos is good because one can easily become a celebrity through that	☐	☐	☐
V	Pornography is a good "sex educator"	☐	☐	☐
VI	Pornography helps to prevent rape in the society	☐	☐	☐

SECTION E: EFFECTS OF EXPOSURE TO SEXUALLY EXPLICIT CONTENT

Please indicate either you Agree (AG), Disagree (DA) or Undecided (UD)

29.	Statement	AG	DA	UD
I	I watch sex video/nude picture more than I want to	☐	☐	☐
II	I CANNOT do without watching sex video/nude picture in a week	☐	☐	☐
III	I have more than one sexual partners ***(Boyfriend/girlfriend, man friends/woman friends***) so that I can properly satisfy	☐	☐	☐
IV	It is unhealthy for me as a man/lady if don't have sex frequently	☐	☐	☐
V	Exposure to sex video/nude picture has definitely affected my sexual behaviour	☐	☐	☐

SECTION F: KNOWLEDGE OF EFFECTS OF EXPOSURE TO SEXUAL CONTENT Please indicate if the following statement are TRUE or FALSE

30.	Statement	TRUE	FALSE
I	Viewing/watching sex video results in unsatisfactory sexual appetite	☐	☐
II	Viewing/watching sex video materials increases interest to have sex	☐	☐
III	Viewing/watching sex videos promotes use of condom during sex	☐	☐
IV	Viewing/watching sex video prevents early experience of sexual intercourse	☐	☐
V	Viewing/watching sex video promotes sexual abstinence	☐	☐
VI	Viewing/watching sex video materials helps to stick to one sexual partner	☐	☐
VII	Viewing/watching sex video helps to avoid indiscriminate sex	☐	☐
VIII	Viewing/watching sex video increases tendency of perpetrating sexual violence such as rape	☐	☐
IX	Pornography affects the sexual performance of the viewers (e.g premature ejaculation and erectile dysfunction)	☐	☐
X	Pornography addiction results in mental health problem	☐	☐

SECTION G: EXPERIENCE OF SEXUAL VIOLENCE

For each of the following, kindly indicate the one have experienced**,** when and who did it to you

	31. Has anybody done of these to you?	**Ever happened**		**Happened 3 months ago**		**Who did you do it to? (E.g Boy/girlfriend, Male/Female friend)**
		Yes	**No**	**Yes**	**No**	
I	Someone sent unwanted nude pictures or sex film to you in demand for sex	☐	☐	☐	☐	
II	Someone forced you to watch sex video/film	☐	☐	☐	☐	
III	Someone paid you money or gave you gift in demand for sex?	☐	☐	☐	☐	
IV	Someone made you to perform sexual act(s) against your wish.	☐	☐	☐	☐	
V	Someone **attempted** to forcefully have sexual intercourse with you	☐	☐	☐	☐	
VI	Someone actually **forced** you to have sexual intercourse	☐	☐	☐	☐	

SECTION H: PERPETRATION OF SEXUAL VIOLENCE

For each of the following, kindly indicate the one you have **DONE to anyone, and who you did to**

	33. Have you done any of these to anyone?	**Ever happened**		**Happened 3 months ago**		**If "YES" Who did you do it to? *(boyfriend, girlfriend, etc)***
		Yes	**No**	**Yes**	**No**	
I	You forced somebody to watch pornography or to see sexually explicit materials	☐	☐	☐	☐	
II	You kissed somebody against his/her wish	☐	☐	☐	☐	
III	You put some drugs into somebody drinks to make him/her feel sleep so that he/she could have sex with you	☐	☐	☐	☐	
IV	You made somebody to perform sexual act against him/her wish.	☐	☐	☐	☐	
V	You tried to forcefully have sex with somebody	☐	☐	☐	☐	
VI	You actually forced somebody to have sex with you	☐	☐	☐	☐	

SECTION I: ATTITUDE TOWARDS SEXUAL AGGRESSIVE BEHAVIOUR

Please evaluate the following statements indicate the **level of your agreement**

46.	Statement	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
I	If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand	☐	☐	☐	☐	☐
II	If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped.	☐	☐	☐	☐	☐
III	When guys rape, it is usually because of their strong desire for sex; it is really not their fault	☐	☐	☐	☐	☐
IV	Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away	☐	☐	☐	☐	☐
V	It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing	☐	☐	☐	☐	☐
VI	If a girl doesn't physically resist sex, even if protesting verbally, it should not be considered rape.	☐	☐	☐	☐	☐
VII	If a girl doesn't physically fight back, it should not be considered rape.	☐	☐	☐	☐	☐

SECTION J: RISK PERCEPTION & HIV PREVENTION PRACTICE

*For each of the statement below tick whether you consider yourself **at High Risk, Low Risk** or **No Risk of HIV infection** to the statement*

47.	Statement	High risk	Low risk	No risk
I	If I have sex just once without using condom	☐	☐	☐
II	If I have sex with a virgin without using condom	☐	☐	☐
III	If I have sex always with a regular partner (boy/girlfriend) without using condom	☐	☐	☐
IV	If I share unsterilized instruments for tattooing	☐	☐	☐
V	If I engage in forced sex	☐	☐	☐
VI	If I have sex with more than one person at a time	☐	☐	☐
		☐	☐	☐
		☐	☐	☐

VII	If I do not use personal or sterilised instruments such clippers/manicure			

48. (a) Have you ever taken HIV test? 1. Yes ☐ 2. No ☐

(b) If No, will you be willing to take the test if offered free? 1. Yes ☐ 2. No ☐

(c) If **Yes**, when last did you do the test?

1. Less than 6 months ☐ **2**. Between 6 months and 1 year ☐ **3**. More than 1 year ago

SECTION K: SEXUAL BEHAVIOUR

49. (a) Have you ever engaged in sexual intercourse? 1. Yes ☐ 2. No ☐

(If No, please go to QUESTION 45)

(b) If **YES,** how old were you when you had your first intercourse? _____ years

(c) Which of the following best describe the last time you had sexual intercourse?

(Tick only ONE (1) option)

a	One week ago	☐
b	One month ago	☐
c	Between 2 – 3 months ago	☐
d	More than 3 months ago	☐

50. (a) Have you ever engaged in **Group Sex** (***sexual involving more than 2 people***)**?** ☐

1. Yes ☐ 2. No ☐

(b) Did you experience this in the last 1 months? **1.** Yes ☐ 2. No ☐

51. (a) Did you use any method of Protection during your last intercourse?

1. Yes ☐ 2. No ☐

(b) If **YES,** indicate the type of protection used?

1. Male Condom ☐ 2. Female Condom ☐ 3. Withdrawal ☐

4. Others (Specify) ……..

52. Did you use condom for all sexual intercourse during last one month?

1. Yes ☐ 2. No ☐ 3. I did not have sex in the last one month ☐

53. (a) Have you ever watched "**sex film/video"** shortly before having sex?

1. Yes ☐ 2. No ☐

(b) If yes, did this happen in the last **1 month** 1. Yes ☐ 2. No ☐

54. **(a)** Have you ever used drug/materials/drinks to enhance/have sexual perform☐ce? ☐. Yes 2. No ***(If "NO", go to Qs 42)***

(b) If **YES**, did you use any in the last 1 month? 1. Yes ☐ 2. No ☐

(c) What is the name of drug/materials/drinks used?

……

55. (a) Have you ever had Anal Sex? 1. Yes ☐ 2. No ☐

(b) Did you have it in the last 1 month? 1. Yes ☐ 2. No ☐

56. **(a)** How many **boy/girlfriend(s) [sexual partner]** have you had in the last 3 months? **……**

(b) How many do you have currently? **.....**

57. How often do you drink alcohol?

1. Never ☐ 2. Daily ☐ 3. At least Once a week ☐ 4. Occasionally ☐

SECTION L: SELF-EFFICACY TO PREVENT INTENTIONAL EXPOSURE TO SEXUAL CONTENT AND ADOPT SAFE SEX PRACTICE

Indicate the level of your confidence to the following

58.	**Question**	**Very Confident**	**A little confident**	**Not confident**
I	How confident are you to ***unfriend***your intimate friend who frequently post sexually explicit content to you/your wall on social media (e.g Facebook)?	☐	☐	☐
II	How confident are you to **delete** all sex videos/nude pictures stored in your phone?	☐	☐	☐
III	How confident are you stay over a month without watching sexually explicit video?	☐	☐	☐
IV	How confident are you to say **"NO"** if your boy/girlfriend want you to watch sex videos/nude pictures	☐	☐	☐
V	How confident are you to say "NO" if your boy/girlfriend demand for your personal naked picture?	☐	☐	☐
VI	How confident are you to close/ignore **pop-ups** showing nude pictures when browsing through the internet?	☐	☐	☐
VII	How confident are you to stay for a year without having sexual intercourse even if your girlfriend/boyfriend demands for it?	☐	☐	☐

SECTION M: EVALUATION OF THE INTERVENTION ***(For Intervention group only)***

59. In the last 6 months **(apart from the WhatsApp group Page *CampusHealth*)** did you attend any **seminar or had opportunity to be a part of educational session/activity** on any of the followings ***(Please Tick):***

	Theme	**Yes**	**No**	**If yes, please indicate WHERE**
1	Prevention of exposure to pornography (sexually explicit materials)			
2	Sexual violence prevention			
3	HIV Prevention			
4	HIV Test			
5	Prevention of sexual risk behaviours			

60. On the average, how often have you participated (**READING MESSAGES and/or CONTRIBUTING)** on the **CAMPUS HEALTH** WhatsApp group page?

(***Please tick only one***)

1	Daily	
2	A few times in a week	
3	A few times in a month	
4	No at all	

61. Which of the following factors **affected** your participation on the ***CampusHealth*** WhatsApp group page? **(Please Tick)**

S/N	**Factors**	**YES**	**NO**
1	Data subscription		
2	Network		
3	Faulty phone		
4	Stolen phone		
5	Lack of **WhatsApp enabled phone** during the period		
6	Others (Please Specify): _____		

Thank you for your participation

APPENDIX IX

Post-intervention Focus Group Discussion guide

Questions

1. What were the difficulties people experienced in participating on the WhatsApp group – CAMPUS HEALTH?
2. What were the benefit(s) you received (if there is any) in taking part in this social media group? (Probe for examples)
3. What were the negative effects of participating in the social media group?
4. What were the contributions and support (Questions, statement, techniques…) from moderator that have helped and encouraged you most? Probe for examples.
5. What were the contributions and support (Questions, statement, techniques…) from co-participants that have helped and encouraged you most? Probe for examples.
6. What do you like best regarding participating in the social media group?
7. What do you dislike most regarding participating in the social media group?
8. Do you have **recommendations/ lessons learnt** that can be helpful in any related future projects? Probe for the following areas;
   a) *Moderating style*
   b) *Duration of intervention,*
   c) *Social medium used*
   d) *Topics discussed*
   e) *Incentive to participants*

APPENDIX Xa

Ethical Approval

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.

Director: **Prof. Catherine O. Falade,** *MBBS (Ib), M.Sc., FMCP, FWACP*
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Effects of Social Media-Delivered Intervention on Exposure to Pornography and Risky Sexual Practices among Youths on National Service in South-Western, Nigeria

UI/UCH Ethics Committee assigned number: UI/EC/17/0366

Name of Principal Investigator: **Olaleye Oladipupo S.**
Address of Principal Investigator: Department of Health Promotion and Education, College of Medicine, University of Ibadan, Ibadan

Date of receipt of valid application: 10/08/2017

Date of meeting when final determination on ethical approval was made: **N/A**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **23/11/2017 to 22/11/2018.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
23 NOV 2017
APPROVED
COLLEGE OF MEDICINE, U.I.

Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com

APPENDIX Xb

Amendment of Ethical Approval

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.

Director: **Prof. Catherine O. Falade,** *MBBS (Ib), M.Sc., FMCP, FWACP*
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

Notice of Approval for Amendment

Re: Effects of Social Media-Delivered Intervention on Exposure to Pornography and Sexual Behaviour among undergraduate students in South-Western, Nigeria

UI/UCH Ethics Committee assigned number: UI/EC/17/0366

Name of Principal Investigator: **Olaleye Oladipupo S.**

Address of Principal Investigator: Department of Health Promotion and Education, College of Medicine, University of Ibadan, Ibadan

Date of receipt of application: 17/05/2018

Status: **Approval for Amendment**

This is to inform you that the UI/UCH Ethics Committee has reviewed your application for approval for amendment to the above titled research. The amendment states a change of title as indicated above. It also indicates the modification to the study population and location in the research methodology.

The Committee notes the amendments and having found it satisfactory, hereby approves the amended protocol.

All informed consent forms used in this study must carry the UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

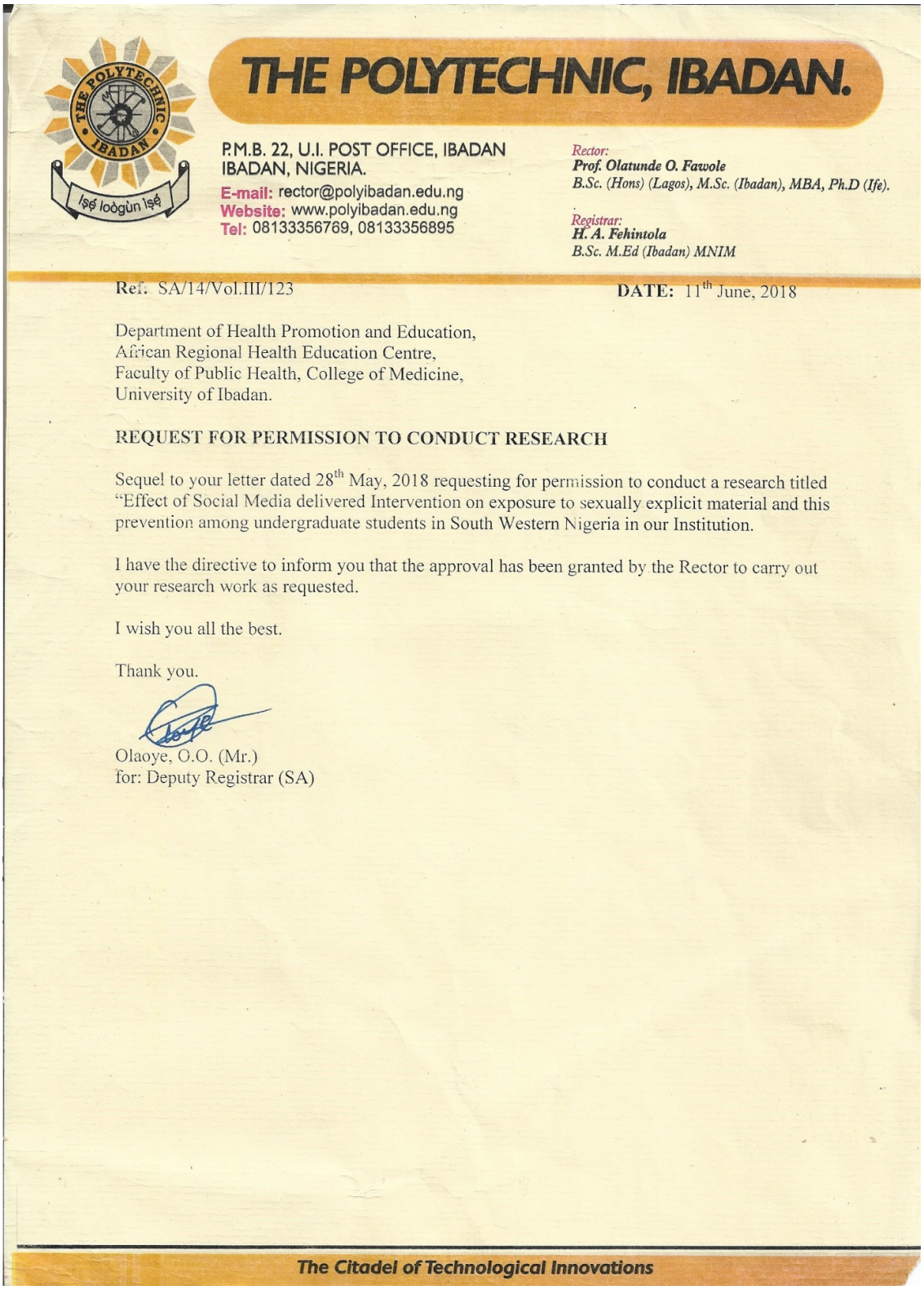
The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
23 MAY 2018
APPROVED

Dr. R. O. Akinyemi
For: Director, IAMRAT
Chairman, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com

Letter of Permission from Institution (Intervention Group)

APPENDIX XI



THE POLYTECHNIC, IBADAN.

P.M.B. 22, U.I. POST OFFICE, IBADAN
IBADAN, NIGERIA.
E-mail: rector@polyibadan.edu.ng
Website: www.polyibadan.edu.ng
Tel: 08133356769, 08133356895

Rector:
Prof. Olatunde O. Fawole
B.Sc. (Hons) (Lagos), M.Sc. (Ibadan), MBA, Ph.D (Ife).

Registrar:
H. A. Fehintola
B.Sc. M.Ed (Ibadan) MNIM

Ref: SA/14/Vol.III/123 **DATE:** 11th June, 2018

Department of Health Promotion and Education,
African Regional Health Education Centre,
Faculty of Public Health, College of Medicine,
University of Ibadan.

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Sequel to your letter dated 28th May, 2018 requesting for permission to conduct a research titled "Effect of Social Media delivered Intervention on exposure to sexually explicit material and this prevention among undergraduate students in South Western Nigeria in our Institution.

I have the directive to inform you that the approval has been granted by the Rector to carry out your research work as requested.

I wish you all the best.

Thank you.

Olaoye, O.O. (Mr.)
for: Deputy Registrar (SA)

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APPENDIX XII

Letter of Permission from Institution (Control Group)

YABA COLLEGE OF TECHNOLOGY

P. M. B. 2011, Yaba, Lagos, Nigeria
E-mail: registrar@yabatech.edu.ng Website: www.yabatech.edu.ng
Tel: +234 7037431055, +234 8076391846

YCT/SAU/DEAN/CORRESP./VOL.VI/40 14th August, 2018

Olaleye Oladipupo
Department of Health Promotion and Education,
College of Medicine,
University of Ibadan,
Oyo State.

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Your letter dated 27th July, 2018 on the above subject matter refers.

I write to inform you that approval has been granted for you to conduct your research work tagged ***"Effects of solid media-delivered intervention on exposure to sexually explicit materials and HIV prevention among undergraduate students in Southwestern Nigeria"*** in the College Campus.

Please we would like to advice that you conduct your research in an orderly and peaceful manner.

Please accept the warm regards and assurances of the Rector.

Thank you.

Sobande 14/8/18

A. O. Sobande (Mrs)
Dean, Students' Affairs

Yabatech...the cradle of higher learning in Nigeria

APPENDIX XIII

INFORMED CONSENT (FORM)

Introduction

You are invited to take part in a research study with approval number: UI/EC/17/0366. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read the following information.

Researcher Name and affiliation: The study is being carried out by OLALEYE, Oladipupo Samuel, Department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan

Purpose of research: The purpose of this research is to determine the feasibility of using social-media to educate youth on prevention of exposure to sexually explicit materials and if social-media intervention can promote safe sex practice among undergraduate students.

Why have I been invited to take part?: You have been invited to take part because you are a student of this school (Polytechnic)

What will happen if I take part?: If you agree to take part in the study, we will ask you to sign an informed consent form, provide your WhatsApp contact no and fill a questionnaire (this will take about approximately 15 minutes to complete). You will be reached on a WhatsApp group with information on **Health Education and career/academic developmen**t for a period of 4 weeks or 24 weeks depending the group you are assigned to.

Risk: The study has no risks connected with it. Although, participants would need to be a user of the social-media platform to be able to take part.

Cost of being part of the research: There is no cost associated with being part of the study apart from the time to be spent in filling the questionnaire and time to contribute on the WhatsApp group.

Benefits: The researcher hopes this study will help participants to be knowledgeable about issues related to their reproductive health adopt a healthier lifestyle.

Confidentiality: Your name will not be required to complete the questionnaire or during the group discussing.All information including your social-media contact will be treated anonymous and would never be used for non-research purpose.

Voluntariness: Participating in the study is voluntary. Participants may decide to pull-out anytime

Obtaining participant consent

The research has been fully explained to _____, enough information has been provided including the benefits and risks.

NAME:

DATE: _____ SIGNATURE: _____

Statement of person providing consent

I have read the description of the research. I understand that my participation is voluntary. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form to keep for myself.

NAME:

DATE: _____ SIGNATURE: _____

Contact info.

This study was approved by the Ethics Committee; University of Ibadan - Biode Building, Room 210, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, E-mail: uiuchirc@yahoo.com and uiuchec@gmail.com

Investigators' contact info: Oladipupo S. OLALEYE, Department ofHealth Promotion and Education, College of Medicine, University of Ibadan. Phone: +2348062311652. Email: oladipsam@yahoo.com