UNIVERSITY OF GHANA

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RELATIONSHIP AMONG Sexting Behaviours, Sexual Risk Behaviours and Psychological Wellbeing Among College Students in the Greater Accra Region

BY

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DECLARATION

This is to certify that this thesis is the result of research undertaken by Mustapha Amoadu and supervised by Dr. Kingsley Nyarko and Dr. Paul Narh Doku towards the award of MPhil in Psychology degree in the University of Ghana.

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ABSTRACT

Research into sexting has yield inconsistent result in terms of sexting prevalence and correlates such as sexual risk behaviours and psychological wellbeing. The present study examined the relationships between sexting, sexual risk behaviours and psychological wellbeing among college students in Ghana. This cross-sectional survey recruited 380 undergraduate students in the Greater Accra Region using a convenient sampling technique. The study revealed that sexting behaviours is positively associated with sexual risk behaviours and negatively related to psychological wellbeing. Self-control partially mediated the relationship between sexting behaviours and psychological wellbeing. Peer pressure fully mediated the relationship between sexting behaviours and sexual risk behaviours. Male college students were found to send and receive more sext than female college students. Also, college students in dating relationship were engaged in significantly more sexting behaviours than those who were single. Severe sexters significantly engaged in sexual risk behaviours than mild, moderate and non-sexters. Male college sexters were significantly pressured by their peers to sext more than female college students. These findings are discussed in the light of existing literature. The study concludes that a multidisciplinary and holistic approach is needed to eradicate or reduce the incidence of sexting in contemporary Ghanaian society especially among the youth.
DEDICATION

I dedicate this work to my family.
ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

PW  Psychological Wellbeing
SRB  Sexual Risk Behaviour
STI  Sexually Transmitted Infection
SLT  Social Learning Theory
NCPTUP  The National Campaign To Prevent Teen and Unplanned Pregnancy
USA  United State of America
EU  European Union
UK  United Kingdom
LGBTQ  Lesbian, Gay, Bisexual, Trans and Queer
AP-MTV  Associative Press- Music Television
SBS  Sexual Behaviour Survey
UEW  University of Education, Wineaba
IRB  Institutional Review Board
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Barkacs and Barkacs (2010) reported that on the third day of July 2008, Jesse Logan committed suicide by hanging herself just at the age of 18 years. Jesse Logan sent her nude pictures to her boyfriend and after sometime Logan ended the relationship with him and he forwarded the nude pictures to Logan’s friends. Logan’s friends oppressed her and in response to the oppression, Jesse Logan committed suicide. It means that Jesse Logan died as a result of her boyfriend sharing her nude images.

Cell phones and other mobile modern communication technologies which include Facebook, Twitter, Instant Messaging, Facetime, Skype etc. allow people to get contact or access to others at anytime and anywhere provided they get access to the internet. Young people between the ages of 18-34 are more likely to use these technologies to get connected to others (Pew Internet & American Life Project, 2011) followed by young teens between the ages of 12-17 (Pew Internet & American Life Project, 2013). Young people now have a specific way of connecting with others which is known as sexting.

Sexting is best understood as the practice of sending, sharing and/or receiving sexually explicit messages, images and videos through the use of cell phones in order to get connected to others. Although sexting may include either words or pictures, the primary concern has been with the visual component and some hidden powers in personal photographs that offer ample evidence of how pictures can cause trouble. According to Chalfen (2014), the very first
recognised published reference to the word sexting was found in an article in the Sunday Telegraph Magazine in the year 2005. In August 2012, the word sexting was listed for the first time in Merriam-Webster’s Collegiate Dictionary (Chalfen, 2014).

With sexting, even if you are comfortable with the person receiving the image or video, you may not know for sure where the image or video will end. Digital images or videos can easily be copied and forwarded using the present technological mobile devices and via the internet which makes the practice of sexting more dangerous and risky. The image can accidentally be forwarded or seen by others who access the sender’s or recipient’s cell phone. Sexting is fairly common and now considered as part of adolescents’ and young adults’ social life as explained by Temple and Choi (2014). According to O’Keeffe and Clarke-Pearson (2011), sexting is increasing among the youth in the world and it should be given a proper attention because there may be associated social and health risk.

Prevalence of young people sexting has been published by some researchers (Mitchell, Finkelhor, Jones & Wolak, 2012; Lenhart, 2009; Gordon-Messer, Bauermeister, Grodzinski & Zimmerman, 2013; Schloms-Madlener, 2013). Their results show that sexting is on the rise and it is highly prevalent among adolescents and young adults mostly in the Western world and other parts of the world. Sexting has been mostly be linked to the Western world because most of the sexting research works that exist were done in the Western culture. Agustina and Gomez-Duran (2012) opined that sexting is a social phenomenon and so differences in culture can be anticipated as these can predict different attitudes and perception toward the practice of sexting.

Mobile phones are now vague in our culture specifically among the young people and the Pew Research Centre global attitude survey 2015 revealed that in Ghana more people use a
mobile phone (83%) based on the population that took part in the survey but the figure was only 3% when the same survey was conducted in 2002. The Pew Centre survey also revealed that young people are more likely to use their mobile phones for texting, taking pictures or video and share with others. This shows how young people who use mobile phones are likely to engage in sexting.

A survey of mobile phone usage in Ghana and four other African countries has shown the rise of Internet access via mobile phones. The Mobile Africa 2015 study, led by mobile surveying company called Geo Poll and World Wide Worx surveyed 3,500 mobile phone users in five of Africa’s major markets, which include South Africa, Nigeria, Kenya, Ghana and Uganda. The most significant and relevant finding in this study is that Internet browsing via mobile phones now stands at 40 percent across these 5 markets, with 51% of respondents in Ghana reporting that they use their mobile phones to access the internet. The Mobile Africa 2015 study data postulates that most people in the country (Ghana) are now using mobile phones to access internet, text messages and take pictures and this helps to explain that mobile phone has been transformed from a technological tool to a social device because it is now an integral part of peoples’ daily life, especially college students and young people in general.

Ogbada (2013) studied determining factors of sexual risk behaviours among young people in the Greater Accra Region in Ghana and found that nearly (92.7%) of all young people owned a mobile phone and about half (49%) on the average spend 4 hours daily using their mobile phones. Ogbada (2013) reported from his study that more than half (63.5%) of mobile phone users have been involved in sexting and 30.7% of these users are still soliciting for sext. Ogbada (2013) found that sexting has some sort of influence on sexters’ sexual desire.
Sexting has received attention because some young people are creating and sharing images and videos that meet the definition of child pornography which is punishable by the laws of the country. However, sexting may be a means of how young people are discovering their sexuality, engaging in sexual testing, identity and self-development, and discovering their moral and sexual ideals (Katzman, 2010). Health professionals may also perceive college students’ sexting as a way of sexual development and exploration but there may be some psychological and sexual risks associated with the practice of sexting.

Though the exchange of nudity is not a new phenomenon, technological developments have spread the availability of this content and weakened boundaries to the access of such content (i.e., age confirmation) so young people get access to such materials or contents with little or no effort. Sexting content is different from other types of sexually explicit contents because of the ease with which an individual can generate and extensively distribute content via digital devices. It is more problematic when a minor engages in this act with an adult which can be described as child pornography which is a serious offence and punishable by the laws of most countries in the world including Ghana where victims are prosecuted because sexting is treated as a criminal offence. However, not all sexting behaviours can be considered as a criminal offence. A typical example can exchange of nude images between marriage couples or consenting adults in a romantic relationship.

1.1.1 Sexting and Psychological well-being

Sexting may be detrimental to young people because of the possibility that sexually explicit material will be quickly shared throughout young people’s technological dynamic social groups. Some are even uploaded to special social network sites (Facebook, Twitter, etc.) where it
will be available for the whole world to see or watch it. Those involved are likely to show depressive symptoms, suicide and suicidal ideologies, substance use problems and general mental health problems which can be summed to say it affects young peoples’ psychological wellbeing. When adolescents or young adults feel pressured to sext, it affects them psychologically as reported by (Gorden-Messer et al., 2013). Psychological harm can also be experienced by the young adults when sext is accidentally sent to the wrong person (Gorden-Messer et al., 2013). Psychological effects of sexting can last for long since it can ruin the reputation of those that engage in sexting especially when it happens the content leaks to the public or when the recipient is not comfortable with the content (Dake et al, 2012; Mitchell et al, 2012).

1.1.2 Sexting and sexual behaviours

Prior to the arrival of sexting as a discrete issue of concern, a substantial body of literature examining technology facilitated risky youth behaviours suggested a strong association between “online” risks and behaviours and “offline” risks and behaviours. In line with this finding, research conducted to date has shown that young people who participate in sexting behaviours are more likely to be sexually active (Englander, 2012; Ogbada, 2013; Levine, 2013; Temple & Choi, 2014; Ybarra & Mitchell, 2014). Sending a nude image or video of oneself may communicate to the recipient a level of openness to sexual activity. It can communicate to the recipient that sexual activity is expected and escalate sexual advances which can predict the chance of future sexual conduct (Ybarra & Mitchell, 2014; Temple & Choi, 2014). It could also mean that engaging in sexual activities with others enhance the level of relief and intimacy which may end in sexting behaviours (Temple & Choi, 2014; Ybarra & Mitchell, 2014).
Temple and Choi (2014) asserted that sexting may serve as a predictor to real sexual conduct or specifies a sexts’ readiness to take intimacy to the next level. Rice, Rhoades, Winetrobe, Sanchez, Montoya, Plant, and Kordic, (2012) found a link between sexting and engaging in sex with the influence of drug or alcohol and this study helps to explain that sexting is mostly done by sexually active people who may engage in other risky sexual behaviours. In fact, a more recent literature analysis by Klettke, Hallford, and Mellor (2014) shows that all published studies about the association between sexting and sexual behaviours found a positive and significant association and also found that sexters are more likely to engage in sexual activities than their non-sexting colleagues. A current longitudinal research by Temple and Choi (2014) explained that young people who sexted were more likely to be sexually active in the following year even without any previous sexual history.

Sexting does not pose a direct risk for the spread of STIs or unwanted pregnancy, and could, in fact, be considered a harmless substitute for real sexual behaviour only when sexting behaviour remained strictly online. Some youth or young people who engage in sexting may not necessarily engage in problematic behaviours (Ybarra & Mitchell, 2014). Ybarra and Mitchell (2014) explains that to some young people, sexting may play a significant role in their healthy sexual relationship.

1.2 Statement of the Problem

Sharing of nude images and videos of oneself may be reflective of usual sexual expression in romantic relationships among college students and also, may be a marker for involvement in a larger continuum of risky sexual behaviours which need to be studied. There is an evidence of sexting among adolescents in Ghana and how this practice influences their sexual
desire (Ogbada, 2013). Sexters whether adolescents or adults have been found to have sexual partners and engage in sexual intercourse (Ogbada, 2013). This explains that there are sexual risk behaviours that may be associated with sexting since sexting has already been linked to sexually active people and sexual behaviours. An empirical study is needed to help show the association between sexting and sexual risk behaviours to help draw a concrete conclusion that sexting falls on the spectrum of sexual risky behaviours in our context.

According to Mitchell, Finkelhor, Jones and Wolak (2012), irritating circumstances such as blackmail, lack of consent, and sexual abuse that typically surround the practice of sexting that have come to the notice of law enforcement agencies further raise related health and social risk concerns which need to be tackled empirically. It is common to hear on the social and mass media in Ghana the released of some private nude pictures and videos of college students, some celebrities and other prominent people in the country. Others upload these images and videos on social networking sites to help spread the content fast. Those people involved in the content may be affected psychologically, especially with their social relationships with others, school, family, workplace, and religious denomination.

The media and other researchers have also raised concern over the psychological consequences of sexting (Englander, 2012; Mitchell et al., 2012). The spread of nude images or videos beyond the original recipient and pressure to sext are both common occurrences and may be related to subsequent psychological problems and therefore, demands to be studied empirically. It is now evident that sexting behaviours have received some degree of attention and calls for increased awareness of behavioural and psychological factors thought to be linked with sexting (Katzman, 2010).
1.3 Aims and Objectives of the Study

The following were the specific objectives that the study sought to address.

1. To identify the association among sexting behaviours, sexual risk behaviours, and psychological well-being among college students in the Greater Accra Region.

2. To examine the mediating role of peer pressure in the relationship between sexting behaviours and psychological wellbeing in the Greater Accra Region.

3. To find out the mediating role of self-control in the relationship between sexting behaviours and sexual risk behaviours in the Greater Accra Region.

4. To compare male and female college students on sexting behaviours.

5. To match college students in a dating relationship and those who are not in a dating relationship on sexting behaviours.

6. To determine the differences that exist among mild sexters, moderate sexters, severe sexters and non-sexters on psychological wellbeing and risky sexual, behaviours.

1.4 Relevance of the Study

This study will help parents, educationists, social commentators, counsellors and health professionals to understand the complex nature of sexting and its associated risk factors as well as mediators and develop possible and effective strategies to reduce or curb the occurrences of sexting behaviours. Specifically, this study would be useful for professionals working with young people in clinical and school settings to help provide support for this category of people (sexters) and provide expert advice to help those who have not engaged in sexting or still soliciting for a sext.
The study will also aid the legislature and the law enforcement agencies in their work since the research that was done by Agustina (2010) clearly explains that experts in the law field have laid emphasis on the lack of empirical studies on the prevalence of sexting as well as its associated risk factors.

Furthermore, the study will help the media to lay hands on facts in order to help educate the public about this social and health problem and help curb the situation and reduce unnecessary reportage of sexting issues by the media. Finally, this work will enable policymakers in tackling issues of media exposure and mobile phone usage among college students to help tackle the issue from the broad structural level.

Finally, this study will add up to literature and knowledge since researchers have raised concern about the scarcity of empirical studies in the area of sexting research specifically in Ghana.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains the theoretical framework, review of related literature, rational for the study, statements of hypotheses and the researcher's hypothesised model. Three relevant theories that provide the explanation of sexting behaviours were discussed under the theoretical framework. The next section of this chapter is the review of related studies where prior studies related to sexting, sexual risk behaviours and psychological well-being were discussed. During the review of the relevant literature, significant contributions made by this study and theories were also discussed. A comprehensive review of literature is important because it provides an up-to-date understanding of the subject and its’ significance. It also identifies the methods used in prior related studies. Furthermore, it identifies gaps that need to be filled and provides comparisons of your own research works findings. Rational for the current study was explained followed by statements of hypotheses and a hypothesised model.

2.2. Theoretical Framework

2.2.1 The Bioecological Model

The bioecological model by Bronfenbrenner and Ceci (1994) which has been adopted for this study is an expansion of Bronfenbrenner’s ecological system theory of human development. The Bioecological model was developed because of over-reliance on the environment in the context of development as considered in the ecological theory of human development (Bronfenbrenner & Ceci (1994). Bronfenbrenner (1998) explained that a child’s development
occurs through processes of increasingly complex interaction between an active child and the persons, objects, and symbols in the immediate environment. This model posits that human development is influenced by four (4) components namely process, person, context, and time (Wachs & Evans, 2010).

**Process**

Bronfenbrenner coined the term ‘proximal processes’ which refers to the interaction between the developing individual or person and the immediate environment. This immediate environment may be parents, teachers, grandparents and many others. The immediate environment can also be objects which can be a video game, digital tablets, smartphones etc. The interaction between the individual and immediate environment influence development and has direct effect on the developing person and examples include the appropriate behaviours that the child is thought, parenting styles the child is showed, child’s protection from physical and psychological harm by parents or guardian and whether the child gets parental involvement in understanding cultural and religious issues. These have a direct effect on the developing person. Child’s early introduction to objects such as smartphones, pornographic video content and inappropriate parenting can expose the child to sexting practices with the lack of cultural and religious values. For example, study done by Livingstone, Haddon, Görzig and Ólafsson (2010) shows that children between age 11 and 16 have engaged in sexting and this behaviour was attributed ownership of cell phones and freedom these children have both at home and in school and other factors.
The person was added to the ecological theory of human development when Bronfenbrenner realised that personal characteristics greatly impact how people develop or interact with their immediate environment. Physical appearance, age, gender, personality and other psychological traits determine how people interact with their immediate environment. Individuals’ response to stress, their attention span, self-control or impulsive nature, temperament etc. also impacts on their development. For example, a young person who is impulsive and owns an object like a smartphone with less religious commitment and parental supervision is likely to engage in sexting to seek for immediate pleasure and gratification (Livingstone et al., 2010; Kerstens & Stol, 2014; Chalfen 2014).

Context

The context in this model refers to the various venues modifying the proximal processes, and they include environments in which the developing person is found in continuous interaction with it, whether it is physical, social, or economic interaction. According to Bronfenbrenner, the context comprises four distinct concentric systems: micro, meso, exo, and macro, each having either direct or indirect impact on the developing person.

**Microsystem:** Bronfenbrenner defines the microsystem as a context that includes the young person’s peers, family, school, and neighbourhood that have direct contact with the young person and the proximal process occurs in this context. Chalfen (2014) posits that an analysis of sexting reveals a complexity of this context resulting in a range of sexting-related problems and troubles that are frequently cited in the press.
Sexting usually, however not exclusively includes male-female couples that are linked in either flourishing or on-going romantic relationships. Two of the most common patterns for young people are that either a male partner will ask his female partner to send photographs (often described as pressure) or a young girl will start the process by sending a few nude images or videos to entice a boyfriend bond and these nude images and videos will remain private and restricted to viewing by both partners. Peers, for example, can expose young developing people to sexting through influences they exert of their colleague peers to accept sexting practices. Chalfen (2014) further explains that sex education for the young people has been left for their peer and asks who is responsible for providing information about the pros and cons of sexting practices which include the moral and legal aspect of sexting? This question helps explain the roles that traditional socialisation agents in the microsystem are supposed to play to help ensure appropriate behaviours of the developing person.

**Mesosystem:** Bronfenbrenner describes this level as all the interactions that members in a young person’s microsystem have with each other. The mesosystem connects microsystems and examines how experience and influences in one microsystem affect the experience in another microsystem. For example, family life, peer group experiences, school living or even religious practice are intertwined. Generally supposed to be developmentally positive and supportive, such connections can also be negative if the young person has done something wrong because the news would travel quickly to many people through these connections. For example, leakage of nude image or picture of a college student in the school will be heard by his or her family, peers and religious organisation which will affect the young person negatively and this may affect the young person psychologically.
**Exosystem:** This concentric circle comprises another set of important factors which are very influential. In this ring of settings, unlike relationships with parents, peers and teachers, the young person does not have direct contact. At this level, there are fewer immediate face-to-face contacts and more at-a-distance connection. These ecological settings indirectly affect the young person development as they serve as sources of influence, regulation and control.

The explicit and implicit impact from various mass media sources, specifically the visual content of modern media must be taken into consideration as media forms part of the exosystem level. This pornographic media content may have an effect on the developing person or an adult. Sexting activity has become part of talk shows, morning and evening news segments etc. Thus, the sexualized media culture found in contemporary media reportage may attack young people with sexualized images and videos and generated pressure on young people to engage in sexting practices. Entertainment celebrities also provide sufficient connections and convincing relationships between sexting activities and young people. Some young people are found following some of these celebrities and some are found in an intense Para-social relationship with celebrities that upload their semi-nude images or videos online. Other celebrities also get their private nude images or videos leaked. All these could create pressure on young people to send or share nude images or videos of themselves since the practice is done by famous and popular people they see in the media.

Sexting has caught the attention of the legal system and now Legal systems serve as a source of regulation and influence that now surrounds the Internet and related electronic activities. The legal systems regulation of sexting activities constitutes part of the exosystem. Policy decisions may include imposing fines, incarceration, or school expulsion etc. which may
help deter or prevent people from production, possession and/or distribution of nude images or videos.

**Macrosystem:** According to Bronfenbrenner, macrosystem involves a larger setting, namely the culture, sub-culture, the general beliefs, values and expectations of the culture of where the young person lives. Bronfenbrenner explains that the macrosystem exerts influence over the nature and scope of the interactions among the various levels of the total social system. Bronfenbrenner further explains that the macrosystem also includes the attitudes, ideologies, behaviour patterns, and other products of the world around the young person. Morality has declined and sometimes society is blamed when a child exhibits deviant behaviours such as sexting behaviours. This is because sexting has now found its way into our society.

Obviously, sexting is not part of Traditional Ghanaian culture, but then again neither is technology. This shows that Traditional Ghanaian society frowns on sexting and expects young people to behave appropriately but sexting has hit our culture because nudity is abundant in our media which keeps changing behaviour pattern of young people and this is observable in how young people dress, take nude images and send or share, upload nude images on social networking sites etc. Also, technological changes have now made it possible to send and receive image and videos on mobile phones.

**Time**

The time factor of Bronfenbrenner’s model covers various aspects, such as chronological age, duration and nature of periodicity. Society need to recognise and indeed expect change. For example, we are gradually taking justification of how the availability of electronic devices has altered a range of behaviour patterns and belief of young people. It is now evident in our society
that over a short period of time, a variety of opinions about sexting have been changing on several fronts and young people may now consider sexting to be part of romantic relationships. Sexting is now common in our society and young people may see nothing wrong with sending or distributing nude images or videos to romantic partners or friends met on social networking sites.

Young people who leave their immediate family to attend colleges meet peers from different background who may have accepted sexting to be a normal aspect of youthful behaviour and with the availability of technologies and media reportage may pressure young people to engage in a deviant behaviour such as sexting.

The bioecological model is the first theory to embed the context in which young people live by biological dispositions. It is based on the theory that young people do not develop in a vacuum, but, develop instead in a variety of contexts or environments in which they interact continuously. Development is not only moulded by the immediate environment, but also by contact with the larger environment in which the young person lives.

A better understanding of sexting and the complexity of sexting is an important task. Sexting is a troublesome problem, perhaps more so for young people. There are very serious problems attached to sexting that needs to be explored. The researchers’ point is that the practice of sexting cannot be understood until observers adopt a more holistic perspective.

The bioecological model fails to address children development in their physical environment. The effectiveness of the bioecological model has also not been tested for people with distinct culture backgrounds. Also, the chronosystem and macrosystem are too broad for an investigator to comprehend unless the investigator understands several sociological,
environmental and time factors that affect children. Bronfenbrenner (1994) encourages researchers to go “beyond the simple labels of class and culture to identify more specific social and psychological features at the macrosystem level …” (p. 40). The bioecological model lays much emphasis on children’s development which makes it difficult to apply the model study adults.

However, the bioecological model presents a holistic perspective in understand young person’s behaviour within a complex ecological framework. The model’s explanation concerning the time one develops in and the passage of time that both influence psychological development is an important concept. Furthermore, the bioecological model emphasis on both internal (personal) and external (environmental) factors that affects development make sense. Though the bioecological model is simple in terms of multi-level factors, it provides the stage to expand features of the environment setting including meso-level facilities and services, institutions and broader macro-level policies.

2.2.2 Self-control Theory

The self-control theory by Gottfredson and Hirschi (1990) explains that individuals with low self-control are more likely to commit a crime or to engage in risky behaviours and delinquency. The trait (self-control) is the fundamental explanation for crime, risky behaviours, deviancy and other behavioural outcomes such as poor school performance, divorce, etc.

Gottfredson and Hirschi (1990) explain that self-control is characterised by impulsivity, lack of diligence, risk seeking, self-centeredness, preference for physical activity and low tolerance for frustration and this trait becomes very consistent after age 8. Individuals with such trait are likely to engage in sexting and may lead to other risky and dangerous behaviours which
may impact on their health adversely. For example, individuals who are impulsive are likely to seek for immediate gratification and have difficulty in postponing what they desire at a specific time and such individuals do not think about the future consequences of their actions. These people act quickly when there is an opportunity to gratify their selfish desires.

Applying this theory to sexting behaviours, an individual with low self-control may send their nude image or photos to his or her romantic partner or newly met romantic partner or probably engage in exchange of nude photos in the heat of the moment without thinking about the damages the nude photos sent or exchanged can cause if it happens that the image was sent to unintended persons or seen by others. The creator of the content will then experience psychological problems as a result of failure to think about the consequences of sending his or her nude photos and desire to seek for immediate gratification.

Gottfredson and Hirschi (1990, p.89) asserted that people with low self-control lack diligence, tenacity or persistence in the course of action. Individuals with low self-control may send their nude pictures to others carelessly or without given proper attention to the trustworthiness of the intended recipient. In addition, individuals with low self-control prefer simple task so these people may send their nude pictures or videos to their newly met romantic friends or romantic partners as a simple way to ask for sexual intercourse or activities.

Another issue of concern is that, low self-control correlates with risk-taking behaviours as explained by Gottfredson and Hirschi (1990). Individuals with this trait may follow risky behaviours and consider these risky behaviours as exciting and risk-free behaviours. Such individuals may engage in sexting for excitement and consider sexting as a risk-free behaviour. Sharing nude pictures or videos may contain an element of risk since the one sending the picture
or video may not know for sure where the image may end. The intended or unintended recipient can reject such content and even treat it as sexual harassment which is punishable by laws of most countries. In case the picture ends in the hands of an unintended person, then the sender may go through psychological distress.

Lenhart (2009) also explained that because of excitement, individuals may sext with someone they are not in a romantic relationship, with the aim of engaging the person in sexual conducts which may be risky except the sexual conduct is safely done. Hagan (2011) summarises the self-control theory by saying that self-control combined with pursuit of interest leads to risk taking or engagement in deviant behaviours in society. In the face of opportunity, self-control may become a good predictor of risk-taking behaviours. Sexting behaviour can be used as an opportunity by a college student to engage in risky behaviours such as sexual risky behaviours and others.

The self-control focuses much on personal factors that makes one prone to engaging in risky behaviours such as sexting. The self-control theory has ignored the environment in which the person lives and develops and other external factors that may cause a person to engage in risky behaviours. One pertinent criticism of the self-control is that it is tautological (Arneklev, Elis & Medlicott, 2006). Arneklev et al. (2006) explain that Gottfredson and Hirschi did not give operational definition of self-control but rather used participants’ involvement in crime as an indicator of low self-control. Schulz (2004) posits that, the general theory of crime is undeveloped and under-theorised due to the ideological bias approach used by Gottfredson and Hirschi (1990) in its formulation. Finally, Pratt and Cullen (2000) explain that Gottfredson and Hirschi (1990) used a cross-sectional survey to formulate the self-control theory. The problem with the cross-sectional survey is that other mechanisms can cause the relationship between
crime and self-control and causality cannot be assumed. Gottfredson and Hirschi (1990) also equated their cross-sectional survey to longitudinal studies but Pratt and Cullen (2000) found that effects decreased when using longitudinal studies to replicate Gottfredson and Hirschi (1990) study.

However, scholars and some researchers explain that the general theory of crime has been extensively used, tested and received empirical support as a useful theory for explaining criminal behaviour, delinquency, deviance, risk-taking behaviours and criminal victimization (e.g. Pratt & Cullen, 2000; Rebellon & Waldman, 2003; Schreck, Stewart & Fisher, 2006; Piquero, MacDonald, Dohin, Diagle & Cullen, 2005). For example, Rebellon and Waldman (2003) agree that for most crimes and risky behaviours, an element of low self-control exist.

2.2.3 Social Learning Theory (SLT)

Social learning theory incorporated behavioural and cognitive theories of learning in a way to provide better model for explaining learning experiences that occur in the real world as this was initially outlined by Bandura and Walters (1963). The idea of social learning theory was further detailed by Bandura (1977) in his social learning theory. Akers Social Learning Theory helps to explain deviant behavior and criminal behaviours in our society. Akers theory is not just made up of his own ideas but he brought in concepts from other sources of learning theories such as Bandura social learning theory as well as from Sutherland’s Differential Association Theory.

Akers’ social learning theory posits that crime or deviant behaviours are learned behaviours and the learning process involves four parts: differential association; definitions; imitations and reinforcement (Akers, 1998). Differential association means individuals fundamental interactions with others in a specific group. Definition as a component in this theory
refers to individuals’ attitude to a specific behaviour. Imitation as an element in Social Learning Theory also refers to witnessing someone else performing that specific behaviour (sexting) and reinforcement refers to likely and actual rewards of engaging in that specific behaviour (e.g. sexual intercourse). In the following paragraphs, the different components of the social learning theory and how they relate to adolescents’ and adults’ sexting have been discussed.

Definitions

Definitions are attitudes that people hold towards a particular type of behaviour. People are “influenced by an individual’s justifications, excuses, and attitudes that consider the commission of a particular act as being more right or wrong, good or bad, desirable or undesirable, justified or unjustified, appropriate or inappropriate” (Akers and Jennings, 2009: p.326). Akers makes a distinction among three different types of attitudes towards a conduct: positive beliefs, negative beliefs and neutralizing beliefs. Positive beliefs grip the view that committing a deviant act is acceptable and morally just. Negative beliefs also express that a behaviour is unwanted, unacceptable and wrong. Lastly, neutralizing beliefs involve rationalising and justifying a deviant behaviour (Akers & Jennings, 2009).

Previous empirical studies have found a positive association between the magnitude to which youth specified that they had engaged in sexting and their positive attitudes towards sexting behaviours (Lee, Moak & Walker, 2013; Strassberg, Mckinnon, Sustaita & Rullo, 2013; Walrave, Ponnet, van Ouytsel, van Gool, Heirman & Verbeek, 2015). For example, Strassberg et al. (2013) found a positive relationship between young people’s engagement in sexting and their positive attitudes towards sexting behaviour. Similarly, students who held negative attitudes, were less likely to have been involved in sexting behaviours (Strassberg et al., 2014). The study
by Walrave et al. (2015) submits that positive attitudes towards sexting were associated with a higher intention to engage in sexting behaviour. In the same way, in a study among South Korean youth, Lee et al. (2013) also reported in their study that adolescents’ involvement in sexting was influenced by their positive view of sexting behaviour.

**Differential association**

Akers and Jennings (2009) assert that the persons with whom people interact and associate themselves according to the social learning theory, play an important role in the creation of the social setting in which social learning takes place. Through interaction with others such as their peers, the individual is opened to deviant behaviours and the norms and values that approve or disapprove of these behaviours. These values and behaviours will have an impact on whether they will engage in it (Akers & Jennings, 2009). The differential association element of the Social Learning Theory means that individuals are likely to learn how to sext when associated with a specific peer group that engage in sexting or encourage sexting behaviours.

Qualitative studies that focused on sexting behaviours have point out that sexting behaviours are influenced by peer pressure and the perceived attitudes of the peer group towards sexting (Lippman & Campbell, 2014; Ringrose, Harvey, Gil & livingstone, 2013; Walker, Sanci & Temple-smith, 2013). These findings have been backed by various quantitative empirical studies. Lee et al. (2013) reported that pressure from peers was positively related to individuals’ involvement in a range of sexting behaviours. Also, in a study with a sample of at-risk youth, involvement in sexting was connected to a higher approval for sexual activity from peers, family and the media (Houck, Barker, Rizzo, Hancock, Norton & Brown, 2014). In addition, Walrave et
al. (2015) established that the subjective norms, the perceived attitudes of individuals’ romantic partners and friends, were related to their intention to participate in sexting behaviours.

**Differential reinforcement**

The element differential reinforcement explains the expected outcomes of a deviant behaviour. The perceived current and possible future rewards and punishments will influence the chance that an individual will engage or avoid a behaviour such as sexting. Differential reinforcement might also comprise the legal consequences of the deviant behaviour (Akers & Jennings, 2009).

Although sexting can have negative consequences, such as reputational damage when sexting messages or images are leaked or sent to the unintended person (Ringrose et al., 2013; Walker et al., 2013), it may also hold some benefits for people who engage in sexting behaviours, which enables them to experience positive reinforcement. Lippman and Campbell (2014), reported that within the environment of a romantic relationship, sexting may play a significant role in the way in which young people experience this intimate relationship. Similarly, some researchers have asserted that in this context of a romantic relationship, sexting can be used to build up the intimate bond with one’s romantic partner (Albury & Crawford, 2012; Walker et al., 2013) or as a way to be sexually active without the risks of unwanted pregnancy or any sexual diseases (Lippman & Campbell, 2014).

Outside romantic relationship, involvement in sexting can also offer perceived rewards. Some studies have emphasised that involvement in sexting is connected to peer group status, for both boys and girls (Lippman & Campbell, 2014; Ringrose et al., 2013). Qualitative research by Lippman and Campbell (2014) shows that some girls sensed that they had to employ sexting in
order to get attention from boys (Lippman & Campbell, 2014). Similarly, a study found that some boys competed with each other to pull together as many sexting messages from girls as possible in order to gain peer approval and attention (Ringrose et al., 2013).

Imitation

The last element of the social learning theory is called imitation. Imitation occurs when individuals model their behaviour on another person’s behaviour (Akers, 1990). Imitation can either occur in a direct way through role models and in an indirect way through the media (Akers and Jennings, 2009). A study conducted by Rice, Gibbs, Winetrobe, Rhoades, Plant, Montoya and Kordic (2012) reported that high school students who had sent a sexting message, were more likely to know someone else who had sent a sexting message than students who had never engaged in sexting.

Some scholars have highlighted that sexting behaviours among young people could also be influenced by the current media and social media culture in which representations of sex and sexuality are increasingly prevalent (Curnutt, 2012; Theodore, 2010). Modern media provide a platform to celebrities to display sexy pictures of themselves and to symbolise or objectify their bodies. Observing celebrities in this way could influence adolescents’ prospect to engage in sexting behaviour. A study that sampled teenagers in 5 different countries also found that pornography consumption was significantly connected to sending and receiving sexting images and messages among adolescents between 14 and 17 years old (Stanley, Barter, Wood, Aghtaine, Larkins, Lanau & Overlien, 2016).

Akers (2008, p. 637) explains that social learning theory provides comprehensive explanations of deviance in society. Some researchers have asserted that the differential
association element of the theory is the most supported aspect of the theory (Pratt, Cullen, Sellers, Winfred, Madensen & Daigle, 2010). This indicates a support for the Social Learning theory. However, Akers’ social learning theory did not explain the origin of definition as an element in his social learning theory. Finally, the idea of differential association used in Akers’ social learning theory does not always hold. This is because people with criminal past and exhibit deviant behaviour may end up associating themselves with group with same or similar behaviour.

The fact that sexting is viewed as a deviant or risky behaviour in the current study does not mean that it does not play a reasonable role within young persons’ development. Studies on other forms of risk behaviours, such as alcohol use, has reported that these risky behaviours can play a constructive role within persons’ development and can help them to fulfill certain developmental tasks (Noack & Silbereisen, 1989). In this manner, involvement in sexting could also help certain young people to express romantic feelings and recognise their sexual identity (Smahel, Wright, & Cernikova, 2014; Walrave et al., 2015).

2.3 Review of Related Studies

2.3.1 Introduction

In the context of this study, sexting is defined as the sending and receiving of a nude image or video via mobile phone devices. Researchers who have conducted sexting studies have been using various definitions which make studies and articles very difficult to compare (Klettke et al., 2014; Cooper, Quayle, Jonsson & Svedin, 2016). In spite of these inconsistencies in definitional issues, sexting studies have produced notable findings and review of such studies gives the impression of what has already been done and the gaps that exist to be filled. During
the review of related studies, strengths and weaknesses of the existing studies have been highlighted to give a clearer picture.

2.3.2 Prevalence of Sexting

Sexting is a highly publicised social and health issue in recent times however meta-analysis shows that only a few empirical studies exist and with those ones that exist, most were conducted in the western culture (Klettke et al., 2014; Reynolds, Henson, & Fisher, 2014; Cooper et al., 2016).

In the United States, the National Campaign to Prevent Teen and Unplanned Pregnancy (NCPTUP, 2008) conducted a survey using an online sample of 1280 participants between ages 13 and 26 years from a national representative sample. The age group was categorised into two: 13 -19 years (adolescents) and 20 – 26 years (young adults). The study revealed that 20% and 33% of the teens respectively sent their nude image or videos of themselves to others and 48% and 64% of teens and young adults respectively also received such sexual content. In another national representative sample, Lenhart (2009) adopted a telephone survey and sampled 625 respondents aged 12-17 randomly selected from phone numbers and residential address and 14% and 15% reported had sent and received sext respectively. Furthermore, a telephone survey was conducted by Mitchel et al., (2012) using a national representative sample of 1560 internet users aged 10-17. Mitchel et al., (2012) reported that 2.5% and 7.1% had sent and received nude or nearly nude images and 1% and 5.9% had sent and received sexually explicit messages respectively.

In another study from the USA, Benotsch, Snipes, Martin and Bull (2013) sampled 763 undergraduates between the age 18 to 25 years through convenient sampling technique and it
was reported that 43.8% and 44.7% of women had engaged in sexting though the content of the material sent or received respectively was not stated. From the Southwest USA, Perkins, Becker, Tehee and Mackelprang (2014) studied the prevalence of sexting behaviours among 287 volunteered students attending university. Based on the researchers’ measure of sexting as the transmission of sexually suggestive image or video, the study found 38% of the study participants as sexters and they have sexted in the last 6 months before the study.

Similarly, a study was conducted by Reyns, Henson, and Fisher (2014) using 974 undergraduate college students in the age group 18-24 years attending a public university in the Midwest. Data for this study was collected online based on a measure that explains sexting as sending of sexually suggestive nude or nearly nude image and 20% and 36% reported sending and receiving such sexual content respectively. Among same college students Strassberg et al, (2014), recruited 1130 college students from the University of Utah and found 19%, 38% and 7% of the college students have sent, received and shared nude pictures respectively.

Also from the United State, Gordon-Messer et al., (2013) conducted an online survey with 3447 young adults between the age group 18 -24. In this study, a snowball sampling technique was used to select internet users across the USA and the study found that 43% of the participants had engaged in sexting behaviours. Also, the study revealed that out of the sexters, 28.2%, 12.6% and 2% were two-way sexters, receivers and senders respectively and similar to the study by Benotsch et al., (2013), the sexting content was not stated. Another sexting study was conducted by Ybarra and Mitchell (2014) using 3715 online participants across the USA. The participants were between the age 13 and 18 years and 7% of the participants had sexted which was measured as sending and sharing sexual photos online via text messages and in person. Dake, Price, Maziarz, and Ward (2012) wanted to know about the sexting practices
among 1279 middle and senior high school students across three Midwestern states, administered
the questionnaire in class through stratified sampling technique and found 17% engaging in
sexting.

From the United Kingdom, the EU kids online project conducted interview with a
national representative sample of UK children in their home about sexting (Livingstone, Haddon,
Görzig & Ólafsson 2010). The study found that 12% of the sample between age 11 and 16 years
olds in the UK has received sexual images online. A previous study was done in the UK by
Cross, Richardson & Douglas found that one in three UK teenagers had received sexually
suggestive messages (Cross, Richardson & Douglas, 2009). Using a non-representative UK
sample through an online survey to ask teenagers between age 11-18 about their sexting practices
(sharing personal images), Phippen (2009) found that 40% know friends who share such sexual
content of themselves and 27% reported that their friend sext on a regular basis.

In the Czech Republic, Kopecky (2011) used self-selected sample of 9,353 basic and
senior high school students between age 11 and 18 across the country, the study reported that
only 9.7% have engaged in sharing of nude images prior to the study. In Australia, Boulat,
Caddaye D'Souza, Glyde, Hatwal, Jansz, Stephen, & Zoppos (2012) recruited a sample of 1012
through a self-selected procedure for the age groups 10-15, 16-20, 21-25 and 26 and above. The
study found that prior to the study, participants representing 18.42%, 33.70%, 48.84%, and
34.87% respectively sent their nude pictures to others and 21.43%, 41.85%, 54.26% and 41.03%
respectively also received such images from others.

In Peru, West, Listen, Hall, Crookston, Snow, Zvietcovich and West (2014) studied
sexting behaviours among Peruvian adolescents with a sample of 949 high school students from
53 schools in Cusco, Peru. In this study where students self-volunteered to be part of it reported that 20% of the students have sent sexual messages via their mobile phone. In another study done in Belgium, Walrave, Heirman and Hallman (2013) applied the theory of planned behaviour to study adolescent sexting. The study was completed by 498 from two senior high school pupils aged between 15 and 18 years and the researchers reported that 26% of the teens have swapped sexually intimate text or images prior to the study. Samimi and Alderson (2014) selected 525 undergraduate psychology students in the department of psychology at Calgary University and the participants claimed that 60.8% of them have sent erotic or sexy messages, photos or videos via cellphone.

Prevalence of sexting behaviours in Africa is hard to obtain because of the scarcity of literature and especially scarcity of empirical studies on sexting behaviours in Africa. In her dissertation, Schloms-Madlener (2013) found that sexting behaviours among adolescents and adults sample from Cape Town, South Africa, is at least, prevalent as represented in International studies, though comparison would be difficult to make. Schloms-Madlener (2013) sampled 451 adolescents high school, 319 undergraduate psychology students from the University of Cape Town and 82 adults who were recruited online. Schloms-Madlener (2013) reported that 5.3%-20.1% and 6.1%-35.8% had created and sent nude photos.

In Nigeria, Dauda (2012) purposively selected 171 undergraduate students from the University of Maiduguri. Dauda (2012) reported from the study that 31% of the participants had sent sexy messages or nude images of themselves and 56.1% of the same participants had received same sexy content from people they know personally and friend they have met on social networking sites.
Finally, from Ghana, Ogbada (2013) studied determining factors of sexual risk behaviours among 422 young people between ages 14-19 who were sampled through multi-stage stratified random sampling technique among senior high students in La Dade-Kotopon Municipality in the Greater Accra Region, Ghana. Ogbada (2013) reported that more than half (63.5%) of mobile phone users have been involved in sexting (sexually suggestive photos or messages via mobile devices) and 30.7% of these users are still soliciting for a sexting message.

The sexting prevalence shows that sexting is a global issue where both teens and adults create, send and/or share and receive sexually suggestive messages, nearly nude photos, nude photos and videos. Studies that used national representative sample (e.g. NCPTUP, 2008; Lenhart, 2009; Mitchel et al., 2012; Livingstone et al., 2011 etc.) recorded fewer prevalence rate than studies that use non-national representative sample (e.g. Benotsch et al., 2013; Perkins et al., 2014; Reyns et al., 2014; Gordon-Messer et al., 2013; Samimi & Alderson, 2014 etc.).

Prevalence tends to be low for studies that recruited younger participants below age 19 years (e.g. Ybarra et al., 2014; Lenhart, 2009; Dake et al., 2012; Kopecky et al., 2011; Mitchel et al., 2012; Livingstone et al., 2011 etc.) and higher for studies that used adult samples above the age 17 years (e.g. Strassberg et al., 2014; Benotsch et al., 2013; Perkins et al., 2014; Reyns et al., 2014; Samimi & Alderson, 2014 etc.). This explains that young people show higher prevalence with increasing age. The explanation to this may be that the young people who are above 18 years of age may own and use their own cellphones which aid the transmission of such content. Another possible explanation may due to the fact that laws governing juvenile possession of such nude pictures are prohibited which may limit adolescents’ practice of sexting. Further explanation may be that most young people above 18 years are in colleges where there have
much freedom where some are found in romantic or dating relationship which creates the opportunity to engage in sexting behaviours.

Furthermore, most studies that used online samples show higher prevalence rate (e.g. Benotsch et al., 2013; Reyns et al., 2014; Gordon-Messer et al., 2013; etc.) and even studies that used online samples but the samples were below 19 years (e.g. Cross, Richardson & Douglas, 2009 etc.) showed higher prevalence rate. This could be the reasons that most young people sample that are recruited via the internet may be familiar with sexting behaviours which are likely to increase the prevalence rate when such samples are used in a study.

Prevalence of sexting practices varies by study due to inconsistencies in the way researchers have defined the content of the sexting material (sexy messages, nude, semi-nude and video), the medium used to sext, the situational factors such as peer pressure, pressure from sexual or romantic partners, sexting expectancies and study aims adopted by various researchers (Cooper, Quaylea, Jonsson & Svedin, 2016). Also, prevalence varies by study depending on characteristics of samples studied and the data collection procedures.

2.3.3 Socio-demographic Correlates of Sexting

2.3.3.1. Age

Although findings vary across studies, there is a linkage between age and sexting behaviours. Studies that used a representative sample of adolescents (Rice et al., 2012; Mitchel et al., 2012) have reported age as a positive predictor of higher prevalence of sexting behaviours. Among studies that used a non-representative adolescent samples (Kopecky, 2011; Strassberg et al., 2013; Dake et al., 2012) found older age as a predictor of increasing sexting practices. Other studies that sampled adults (Benotsch et al., 2013; Dir et al., 2013; Gorden-Messer et al., 2013)
and considered age as a factor of sexting behaviours found no significant relationship between adults and sexting behaviours. This means findings in terms of age as a predictor of sexting is still inconsistent across studies.

### 2.3.3.2 Gender

A study has found that adolescent males are less likely to send sexts as compared females (Mitchell et al., 2013). Another study which sampled adolescents found that females, unlike males, are less likely to receive nude images (Strassberg et al., 2013). Others studies have found that there is no gender difference in terms of sexting behaviours among adolescents (Dake et al., 2012; Kopecky, 2011; Temple et al., 2012). Furthermore, a study found that there is no gender difference among adolescents for sending a sext (Rice et al., 2012) and Lenhart (2009) found that there is no gender difference among adolescents for sending or receiving sexts.

Among adults’ samples studies have found that adult males are less likely to send sext than females (Englander, 2012; Wysocki & Childers, 2011). Other studies that used adults sample have also found that adult females are less likely to receive sext than adult males (Dir et al., 2013; Gordon-Messer et al., 2013) and finally, some researchers have found that among adult samples there is no gender difference in sexting behaviours (Benotsch et al., 2013; Dir, Cyders et al., 2013).

Studies in the area of sexting have found males more likely to receive sexts than females and females are more likely to send sexts than males among all age groups. Other studies also reported no difference between males and females in sexting behaviours and these findings make gender as a correlate of sexting unclear which demands further exploration.
2.3.3.3 Sexual orientation

A study has found that young people that belong to sexual minority groups such as lesbian, gay, bisexual transgender or queer sexual orientation (LGBTQ) are more likely to engage in sexting behaviours than those young people that belong to a heterosexual group (Rice et al., 2012). A study that used adult samples reported that women who belong to LGBTQ are more likely to send or receive sext (Wysocki & Childers, 2011) but Gordon-Messer et al. (2013) found no effect. Few studies have considered sexual orientation as a correlate of sexting and findings are not consistent with what Gordon-Messer and colleagues reported.

2.3.3.4 Relationship Status

Studies that have considered relationship status as a correlate of sexting behaviour have found that people who are in relationship are likely to engage in sexting behaviours unlike others who are not in relationship (Dir et al., 2013; Dir, Cyders et al., 2013; Drouin et al., 2013; Weisskich & Delevi, 2012). Explanation to this could be that those in a dating relationship or romantic relationship share such sexy content via mobile phone consensually, to please each another or to satisfy one's sexual desire. Drouin and Landgraft (2012) reported that marital status is not related to sexting practices. A study has also found that years in marriage does not correlate with sexting prevalence (Drouin & Landgraft, 2012). Perker et al. (2013) found that the length of a relationship negatively correlates with the explicit nature of sext content sent to romantic partners. The explanation to Parker and colleagues finding could be that the more time one spends with a romantic partner the less they send sext because they may be having series of physical sexual contacts that leaves sexting not a regular option in such a relationship.
2.3.3.5 Educational Status

A study has reported that women with a lower level of education were related to the likelihood of engaging in sexting behaviours (Wysocki & Childers, 2011). The possible explanation could be that women with lower educational status used sexting to communicate sexuality. It could also mean that men would send sexts to such women in order lure them into sexual activities. Thus, women with lower educational status are vulnerable to receiving or sending a sext. Other studies have also found no relationship between educational status and sexting behaviours (Benotsch et al., 2013; Gordon-Messer et al., 2013). This shows that studies that have given attention to educational status have found inconsistent results which need to be explored further.

2.3.3.6 Religious Affiliation and Internet Use Time

Wysocki and Childers (2011) considered religious affiliation as a correlate of sexting but found no association with prevalence of sexting. This means that religious affiliation alone cannot predict engagement in sexting behaviours but religiosity may be essential. Gordon-Messer et al. (2013) explored participants’ daily hours on the internet and found that daily internet use hours have no association with sexting behaviours. More studies are needed to explore religious affiliation, religiosity and the internet use time in sexting studies.

2.3.4 Sexting as a Pressure from Partners or Peers

A survey by AP-MTV (2009) found almost 61 percent of the participants in the survey had sexted based on the pressure they received though the source of the pressure was not stated. Walrave et al. (2014) who wanted to address the gap in AP-MTV (2009) study reported that
pressure from friends and partners which were specific to girls was a reason why females engage in sexting. The findings of AP_MTV (2009) were confirmed by the findings of Englander (2012) that girls are most often pressured to sext. Recent studies have also suggested that females in romantic or dating relationship engage in sending their self-nude image or videos in order to sustain their relationship because the pressure that male partners may use to solicit for sext in a romantic relationship can also use be used to solicit sext from others outside the romantic relationship (Drouin & Tobin, 2014; Renfrow & Rollo, 2014). This study finding suggest that females, in particular, produce sexy content unwillingly to help maintain their relationship with their romantic partners and this could explain why females are more likely than men to send sext and men are more likely than females to receive a sext. Pressure to sext may produce some psychological challenges in the creator of the sext content since such content was produced unwillingly.

Vandeen Abeele, Campbell, Eggermont and Roe (2014) in their pursuit to understand the motivation behind boys and girls sexting behaviours, the researchers reported that boys and girls involve in sexting specifically gaining popularity and peering respect. This means that the way young people view group norms can influence their involvement in risky behaviours without thinking of the possible effects of their behaviours.

### 2.3.5 Personality Risk and Young People Sexting

People with certain personality traits are likely to engage in sexting behaviours. Some researchers have reported that young individuals that engage in sexting may possibly be impulsive (Dir, Cyders et al., 2013). The impulsivity as explained by General Crime Theory may make such individuals seek immediate gratification and ignore the possible future consequences
of their actions. High levels of neuroticism and low levels of agreeableness have been found to be a predictor of self-creation and sharing of nude images and videos (Dir, Cyders et al., 2013). Findings from Kerstens and Stol (2014) and Reyns et al. (2014) suggest that low self-control may explain why young people create and share sexual materials online without thoroughly thinking about the future effects of such behaviour.

2.3.6 Sexting, Sexual Behaviour and Sexual Risk Behaviour

There is a large body of literature that has laid emphasis on the connection between sexting and sexual behaviours. Studies have reported that people who engaged in sexting had sexual intercourse prior to when these studies were conducted (Dake et al., 2012; Rice et al., 2012; Temple et al., 2012). A recent study by Houck et al. (2014) sampled at risk adolescents and reported that engagement in sexting is related to sexual behaviours such as oral sex and vaginal sex. Houck and colleagues posit that these adolescents sexted with the motive of engaging in sexual activities with the recipients (Houck et al., 2014).

Dake et al. (2012) reported a significant relationship between engagement in sexting behaviours and having unprotected sex during participants’ last sexual meeting but Rice et al. (2012) found a relationship between sexting behaviours and unprotected sex but the relationship was not significant. Dake and colleagues also found that young individuals that practice sexting are more likely than those who do not practice sexting to have multiple sexual partners (Dake et al., 2012). Temple et al., (2012) also found among female participants an association between the practices of sexting and having multiple sexual partners and females sexters were more likely to use the substance (alcohol or drugs) before having sex prior to the study.
A recent study by Temple et al. (2014) reported that majority (78.8%) of the participants who had sexted had been using substances such as alcohol, marijuana, cocaine, and other illicit drugs. The deduction that can be made from this finding is that those sexters that use alcohol or other substances are also vulnerable to being sexually abused or engaging in physical sexual behaviours and this was emphasized by Dir and Cyders (2015) who explain that young people may make themselves prone to possible risk when they engage in sexting behaviours and consume alcohol or other substances in addition. In Ghana, Ogbada (2013) found that those who had engaged in sexting have the desire to have sex. This shows the relevance of testing whether engaging in sexting may predict risky sexual activities or not.

2.3.7 Sexting and Psychological Well-being

Dake et al. (2012) further reported that young people who have engaged in the creation and sending of sexts felt sad and hopeless had contemplated suicide and attempted suicide. Englander (2012) who sampled undergraduate students found that individuals that had engaged in sexting (whether pressured or freely) reported signs of depression than those who had never sexted and those who sexted with pressure from others reported extreme anxiety and dating violence whiles in senior high school than those who had never sexted and those who sexted with no pressure from others. Mitchell et al. (2012) also further reported that 21% of the participants that were involved in the creation of nude content reported feelings of anger, embarrassment and/or fear. Sorbring, Skoog and Bohlin (2014) sampled Swedish adolescents and found specifically with adolescent girls that engagement in online sexual activities is related to the poor relationship with immediate family (father, mother and siblings) and peers.
Other studies conducted have found no relationship between engagement in sexting behaviours and psychological well-being (Gordon-Messer et al., 2013; Temple et al., 2014). With regards to the finding of Sorbring et al. (2014) that online sexual activities are related to the poor relationship with family, Jonsson, Priebe, Bladh and Svedin (2014) found that there is no association between sexting and problematic family relationship. Cooper et al. (2016) explain that there are limited research works that have explored the relationship between sexting and psychological well-being and such studies only provided a tentative explanation for the possible link between sexting, risk and personality. This means exploring the relationship between sexting and psychological well-being in the current study is relevant.

2.4 Rationale for the Study

Review of sexting literature shows that studies that have examined the relationship between sexting behaviours and wellbeing variables such as psychological well-being are rare with very few studies having explored this relationship (Klettke et al., 2014; Ouytsel et al., 2014; Gomez & Ayala, 2014) and with the very few studies, findings across literature appear to be inconsistent (Klettke et al., 2014). A Recent meta-analysis that was done by Cooper et al. (2016) also confirms the scarcity of studies examining the relationship between sexting and psychological well-being and further explains that studies only offer an explanation about the possible association among sexting behaviours, risk and personality and fails to empirically provide a link between sexting and psychological well-being.

Almost all of the few studies that have explored the relationship between sexting and well-being variables are done in the Western culture because meta-analysis shows that majority of studies have utilised samples from the United State (Klettke et al., 2014). The association
between sexting and the psychological variables are likely to be varied across individuals in different cultures and also dependent on the circumstances surrounding the sexting behaviour (Klettke et al., 2014). Circumstances in this regard refer to the outcome of previous sexting behaviour or sexting expectancies and pressure to sext from peers. This shows that more research works are needed to utilise wider variables as correlates and mediators of sexting behaviours to understand the complexity nature of sexting in our society as this has been expressed by Klettke et al., 2014.

There have been some ambiguities in the operational definition of the term sexting across studies (Lounsbury, Mitchell & Finkelhor, 2011). The sexting label has been linked to a wide range of conducts and situations, as shown by the variety of definitions across various studies (Lounsbury et al., 2011; Klettke et al., 2014; Cooper et al., 2016). According to Lounsbury et al., (2011), definitions are at times not clear enough and some studies combine messages, photos and videos, others also combine descriptors such as creation, receipt, sending, and sharing in a single definition which makes it very vague to study. A definition based on one or two permutations and descriptors may help clarify and make the study more focused such as defining sexting using “nude image” may make it clear to estimate prevalence rate as explained by Lounsbury and colleagues (2011) and using such clearer definition creates standard where studies can easily be compared and evaluated (Lounsbury et al., 2011).

Reviews of sexting studies also show some sort of methodological constraints (Lounsbury et al., 2011; Klettke, et al., 2014 etc.). For example, several studies done have relied on self-selected samples and lack of validated measures which may reduce generalizability and explanatory power of some of their findings (Klettke, et al, 2014). Studies have combined minor samples (people below age 17) with adult samples which also make estimate not specific as
related to young people or adults (Lounsbury et al., 2011). This means focusing on a specific group either minors or adults may help report findings and further recommend appropriate measure, if possible, to help deal with such group of people.

The meta-analysis by Cooper et al. (2016) emphasis the importance of theoretically informed research about sexting and also studies that will help people understand the complex nature of sexting behaviour such as the specific context in which the sexting occurred (pressured or not pressured) and the risk and consequences that follow the sexting behaviour or experiences. This current study seeks to address these shortfalls.

This current study defines sexting as sending and receiving of nude images and videos on oneself. This makes the study unique because it has limited its focus on only nude images and videos to make it easy to be compared to other studies that used similar definition. It also draws samples from adult population than focusing on only adolescents which has been done by the majority of studies conducted to understand sexting behaviours. This study also used a validated and a reliable measure of sexting behavior rather than a single item measure as evident in sexting literature (Klettke et al., 2014; Cooper et al., 2016). Furthermore, the study draws sample from Ghanaian culture (Africa) which is different from most studies because sexting literature has shown over reliance on samples from the ‘Western Culture’. This study has introduced psychological variables as mediating variables that may help in intervention planning. Psychological wellbeing relationship with sexting has been examined in this study because of lack studies finding this relationship in sexting literature. Finally, the study is well grounded in theories which give better and holistic explanation of sexting behaviours.
2.5 Statements of Hypotheses

**H1a:** Sexting behaviours would have a significant positive association with sexual risk behaviours.

**H1b:** Sexting behaviours would have a significant negative relationship with psychological wellbeing.

**H2a:** Peer pressure will play a mediating role in the relationship between sexting behaviours and sexual psychological well-being.

**H2b:** Self-control would play a mediating role in the relationship between sexting behaviours and sexual risk behaviours.

**H3a:** Male college students will significantly send more sext than female college students.

**H3b:** Male college students will significantly receive more sext than female college students.

**H3c:** College students who are in dating relationship will significantly engage in sexting behaviours more than college students who are not in relationship.

**H4a:** Mild sexters, moderate sexters and frequent sexters will significantly have poorer psychological wellbeing than non sexters.

**H4b:** Severe sexters will significantly engage in more sexual risk behaviours than non-sexters, mild sexters and moderate sexters.
2.6 Hypothesized Model

![Conceptual model diagram]

2.7 Operational Definition of Terms

1. Sexting behaviours: Sending and receiving of nude images or videos by the use of mobile phone. In this study, sexting behaviours refer to their scores on sexting behaviours scale by Dir, Coskunpinar and Cyders (2011a).

2. Sexual Risk Behaviours: these are sexual behaviours that increase ones’ vulnerability of contracting sexual transmitted disease or having unwanted pregnancy. These behaviours include, early sexual initiation, changing sexual partners frequently, multiple sexual partners and sexual intercourse without the use of condom etc. In this study, sexual risk behaviours refer to scores on sexual risk survey by Turchik and Garske (2009).
3. Psychological well-being: This is about participants’ self-acceptance, the formation of quality ties to other, a sense of independence in thought and action, the capacity to manage multifaceted environments to suit personal needs and values, the chase of meaningful goals and a sense of purpose in life, continuous growth and development as a person based of Ryff’s psychological wellbeing scale. In this study, psychological wellbeing refers to scores on Ryff’s 54-item psychological wellbeing scale.

4. Peer pressure: This is the pressure college students get from their peer which coerced them to participate in sexting behaviours. In this, peer pressure refers to college student scores on peer pressure scale by Santor, Messervey and Kusumakar (2000).

5. Self-control: This refers to college student’s ability to exert control or manage his or her impulses in the face of external demands in order to prevent future regret of responding to impulses. In this study, college student scores on self-control scale by Tangney, Baumeister and Boone (2004) represents self-control.

6. College students: These are people reading undergraduate programmes in the University of Ghana in the Greater Accra Region.

7. Non-sexter: This refers to a college student who scored 6 on the Sexting Behaviour Scale in this study. Scoring six on the scale means that college student has never sexted.

8. Mild sexter: Mild sexter refers to a college student that scored from 7 to 9 on the Sexting Behaviour Scale.

9. Moderate Sexter: moderate sexter refers to a college student that scored from 10 to 13 on the Sexting Behaviour Scale.

10. Severe sexter: severe sexter refers to a college student that scored 14 and above on the Sexting Behaviour Scale.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter gives detailed information on how the study was conducted. This chapter contains seven (7) sections. The first section contains information on population and sample that were selected for the study. The next section also contains the sampling technique which explains how participants were recruited. The third section contains the design employed in conducting the study. The next section gives detail information about the instruments or measures used in collecting data for the study. The details information on the pilot study conducted is also found in the fifth section. The sixth section further gives details information on procedures that were followed in conducting this study and the final section in this chapter summarises the ethical considerations that were employed for this study.

3.2 Population

There are nine public universities in Ghana in addition with nine professional institutions that have been accorded public university status and 51 other university colleges and private universities (National Accreditation Board, Ghana, 2011). The premier and the largest university in Ghana (University of Ghana) and the University of Professional Studies are the two public universities found in the Greater Accra Region. The Greater Accra Region is also the hub for most private universities in the country.

College students from public universities in the Greater Accra Region were used as the population for this study. College students were selected as a target population because the
researcher wants to report findings from adult population and such age group is mostly found among college students. Also, college students are allowed to possess and use mobile phone while on campus. Finally, students are used because they can read and respond to questionnaires with no or few instructions from the researcher. Klettke et al. (2014) have also shown that, studies that samples from adults’ population would be useful since there is over reliance on teen samples in sexting studies and combination of both teen and adult samples in sexting studies.

3.3 Sampling Technique

The University of Ghana was purposively selected for this study because it offers various academic programmes and has a greater geographical representation of students from the 10 regions in the country. Cozby (2007) explains that college students are diverse and representative of the society in general and selection of college students from colleges that have a good geographic representation of students from a whole society, in this case, University of Ghana, for scholarly work like this provides a safeguard against restricted generalisation.

Quota sampling technique was used to create categories where students were conveniently selected for the final study. The University of Ghana has four colleges (College of humanities, College of education, College of health sciences and College of basic and applied sciences) and each college was given a quota of 25 percent to help ensure that students from each of the four colleges in the university took part in the study. From the university’s website, the enrolments as at 2015/2016 academic year were 3:1 which means females make one-third of the total population (over 37,940) and based on that, the second quota was established where 67 percent males and 33 percent females were selected from each college. This was done to make sure there is gender representativeness in the final study. Cozby (2007) also explains that some
non-probabilistic sampling technique may be more representative than others. Using a quota sampling technique to create quota for the four colleges and gender in addition with convenient sampling technique to finally select students from the established quota may be more representative than using only convenient sampling technique to select college students from the University of Ghana.

3.4 Sample

A sample size for the main study was based on what has been proposed by Krejcie and Morgan (1970) since the study population is known. With an enrolment of over 32000 undergraduate students in University of Ghana, a sample size of 380 was deemed appropriate based on Krejcie and Morgan (1970) table for determining sample size of a population which size is known. The sample size of 380 is a fair representation of college students in the Greater Accra region.

Three hundred and eighty (380) questionnaires were distributed among respondents based on the quota created. A total of 332 questionnaires were completed, retrieved and analysed which gives a response rate of 87.4 percent. Based on the quota created, 81, 85, 79 and 87 questionnaires were retrieved from college students in the College of humanities, College of education, College of health sciences and College of basic and applied sciences respectively. Details of the socio-demographic characteristics of the participants were shown in table one. Diagram one also shows the flow of chart of participation.
From table one, out of the 332 total respondents, the majority (62.7%) was males. The majority (72%) of the respondents were also between age 21 and 25 years. The sample has a mean age of 21.84 and standard deviation of 5.68. Most (65.1%) of the respondents were single and were not in any relationship whiles 33.1% were in a dating relationship. Christians were the majority (93.7%) in the study while 4.8% were Muslims.
3.4.1 Flow of chart of response of participation

Target population of over 32000 undergraduate students

380 were selected to participate in the study

332 participants completed the study by responding to questionnaire (87.4%)

48 participants did not complete the study (12.6%)

79 students from College of health completed the study. 48 males and 31 females

81 students from College of humanities completed the study. 52 males and 29 females

85 students from College of education completed the study. 53 males and 32 females

87 students from College of basic and applied sciences completed the study. 32 females and 55 males

Reasons for not completing the study:
1. 29 could not retrieve questionnaire.
2. 10 misplaced the questionnaires.
3. 9 withdrew from the study

Figure 2: Flow of chart of response of participation
3.5 Design

The research design was a cross-sectional survey. According to Cozby (2007), survey studies use questionnaires or interviews to collect evidence from people about themselves such as their attitudes and beliefs, demographics, past or intended behaviour and other facts. This design was used because it helps to consider sub-groups within the considered population (Cozby, 2007; Gravetter & Forzano, 2009). Survey was used because it is designed to measure a certain phenomenon, for example events, behaviour, knowledge and attitude in a population of interest at a point in time (Cozby, 2007; Gravetter & Forzano, 2009).

3.6 Instruments/Measures

3.6.1 Sexting behaviours scale

Sexting was measured using Sexting Behaviour Scale (SBS) created by Dir, Coskunpinar and Cyders (2011a) to assess the frequency and prevalence of the following sexting behaviours: receiving sexts; sending sexts; and content of messages (i.e., pictures or sexually suggestive content). There are also items assessing other behaviours, such as using social networking sites to exchange messages or publicly post sexually suggestive content. The scale consists of 11 items with responses based on a 5-point Likert scale from 1 (never) to 5 (frequently or daily) and has good internal consistency ($\alpha = .883$). Examples of items on the scale are: (1) How often have you sent provocative or suggestive pictures by text message? (2) How often have you received a suggestive or sexually charged text or picture message you sent?” This instrument was adapted for the study and included only six items. The sexting behaviour scale was grouped into two sub themes which are sending sext behaviour and receiving sext behaviour in this current study and has a Cronbach’s Alpha of .834 and .771 respectively. Higher score on the scale means higher
involvement in sexting behaviour. College students were categorised as non-sexters, mild sexters, moderate sexters and severe sexters based on their score on this scale.

### 3.6.2 Sexual Risk Behaviours

Sexual risk behaviours were measured using Turchik and Garske (2009) sexual risk survey that was used to measure sexual risk behaviours among college students. It is a 24-item scale that measures sexual risk on the past 6 months. Responses are given to indicate how often such behaviour has occurred in the last 6 months. It has an internal consistency of .88 for the total scale. It has five (5) sub-scales: Sexual Risk Taking with Uncommitted Partners (8 items), Risky Sex Acts (5 items), Impulsive Sexual Acts (5 items), Intent to Engage in Risky Sexual Behaviours (3 items), and Risky Anal Sex Acts (3 items). For the five subscales, the Cronbach’s alphas were .89, .80, .77, .78, and .57, respectively. Examples of items on the scale include:

1. Sexual Risk Taking with Uncommitted Partner- How many partners have you had sex with that you didn’t trust?
2. Risky Sex Acts- How many times have you had vaginal intercourse without a condom?
3. Impulsive Sexual Acts- How many times have you had a sexual encounter you engaged in willingly but later regretted?
4. Intent to Engage in Risky Sexual Behaviours- How many times have you gone out to bars/parties/social events with the intent of “hooking up” and having sex with someone?
5. Risky Anal Sex Acts- How many times have you given or received cunnilingus (oral sex on a woman) without a dental dam or adequate protection.

This instrument was adapted for the study and included only 20 items out of the 24 items on the original scale. A higher score represents higher risky sexual behaviours.
3.6.3 Psychological Well-being

Ryff’s 54 items Psychological Well-being Scale (Ryff & Keyes, 1995) was used to measure the psychological well-being of the college students who participated in the study. This scale has a subscale of 6 and has 9 items on each subscale. The 6 subscales are autonomy, environmental mastery, personal growth, positive relationship with others, purpose in life and self-acceptance. Respondents rate statements on a scale of 1 to 6, with 1 indicating strong disagreement and 6 indicating strong agreement. The instrument has a good internal consistency of .83, .86, .85, .88, .88 and .91 respectively. The following are example of items from each of the areas of well-being measured by the Ryff scale:

1. Autonomy: I have confidence in my opinions, even if they are contrary to the general consensus.
2. Environmental Mastery: In general, I feel I am in charge of the situation in which I live.
3. Personal Growth: I think it is important to have new experiences that challenge how you think about yourself and the world.
4. Positive Relations with Others: People would describe me as a giving person, willing to share my time with others.
5. Purpose in Life: Some people wander aimlessly through life, but I am not one of them.

This instrument was adopted for the study. A higher score denotes higher psychological wellbeing.
3.6.4 Self-control scale

The self-control scale by Tangney, Baumeister, Boone, (2004) was adopted in this study. The scale has ten items and has an internal consistency of .84. An example of an item on the scale is “Sometimes I can’t stop myself from doing something, even if I know it is wrong”. This instrument is on 5 points Likert-scale from “not all like me” to “very much like me”. The higher score on this scale represents higher self-control.

3.6.5 Peer Pressure

Peer pressure was measured using Santor, Messervey and Kusumakar (2000) peer pressure scale. The Peer pressure scale by Santor, Messervey and Kusumakar (2000) is an 11-item scale with a Cronbach’s alpha of .84. Some items on the scale are (1) I have felt pressured to get drunk at parties. (2) I give into peer pressure easily. This instrument is on 5 points Likert-scale with 1 indicating strong disagreement and 5 indicating strong agreement. This scale was adapted for this study. Some of the items on the original scale were worded to suit the context of sexting. High score on this scale means high peer pressure.

3.6.6 Socio-demographic data

Age was measured with a single item. Responses to this item were (1) 16 – 20 years and (2) 21 -25 years (3) above 25 years. Gender was also measured with a single item. Participants were asked about their gender and responses to this item were (1) male and (2) female. Religious Affiliation was also measured and responses were (1) Muslim (2) Christian (3) Traditionalist (4) others. Relationship
3.7 Pilot Study

The instruments were pilot-tested among undergraduate students from the University of Education, Wineaba (UEW) in the Central Region of Ghana. UEW was conveniently selected for the pilot test. According to Harris (2008), the reasons for pilot-testing a study is to see whether items on questionnaires make sense to participants, to identify any flaws or difficulties that might not have been identified at the design stage and finally to change the procedures that would be used to conduct the main study if possible. The pilot study also helped the researcher to familiarise himself with his role as an investigator and helped establish psychometric properties such as reliability of the study instruments.

Thirty-eight (38) undergraduate students who were conveniently sampled from UEW took part in the pilot test which is considered to be a representative sample of the sample that took part in the final study. Baker (1994) explains that a sample size of 10 – 20% of the total sample size for the final is a rational number of participants that can be recruited for a pilot study and the 38 participants make 10 percent of the final study sample (380). Twenty-four (24) out of the 38 participants were males whiles 14 were females. Thirty-one (31) were between the age 16 to 20 years while the rest of the participants (7) were between age 21 to 25 years. The majority of the participants who took part in the pilot test were in a dating relationship (25) while only 13 of the participants were single. Christians dominated the pilot test with 27 participants while Muslims were 10. Only one participant was a traditionalist. The psychometric properties, standard deviations, mean, Skewness and Kurtosis have been presented in table 2.
Table 2

**Summary of Scales, Reliability, Skewness and Kurtosis values of the predictor and criterion variables from the pilot study**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of items</th>
<th>M</th>
<th>SD</th>
<th>Alpha values</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexting Behaviours Scale</td>
<td>6</td>
<td>12.26</td>
<td>4.86</td>
<td>.842</td>
<td>1.06</td>
<td>.687</td>
</tr>
<tr>
<td>Sexual Risk Behaviour Scale</td>
<td>20</td>
<td>11.63</td>
<td>11.72</td>
<td>.887</td>
<td>.839</td>
<td>-.510</td>
</tr>
<tr>
<td>Psychological Wellbeing Scale</td>
<td>54</td>
<td>238.8</td>
<td>22.72</td>
<td>.844</td>
<td>-.386</td>
<td>-.224</td>
</tr>
<tr>
<td>Self-Control Scale</td>
<td>10</td>
<td>25.79</td>
<td>6.02</td>
<td>.754</td>
<td>.996</td>
<td>.797</td>
</tr>
<tr>
<td>Peer Pressure Scale</td>
<td>10</td>
<td>18.32</td>
<td>6.30</td>
<td>.847</td>
<td>.814</td>
<td>.671</td>
</tr>
</tbody>
</table>
From table 2, all the instruments were reliable with Cronbach’s alpha ranging from .754 to .887. It was also found that all the instruments met the criteria for Skewness and Kurtosis.

Participants were instructed to give comments about the nature of the questionnaires. In general, it found that the questions were easy to understand but sensitive in nature since some scales were measuring sexting behaviours and sexual risk behaviour. Some missing data was recorded on the Ryff’s psychological wellbeing scale (.5%), sexting behaviours scale (.02%) and sexual risk survey (.2%). Participants also complained about the lengthiness of the questionnaire. Participants who took part in the main study were given 5 Ghana Cedis each to compensate them for their participation and their time spent on responding to the questionnaires. This was also done to reduce missing data since most of their complaints were on the lengthiness of the items on the research instruments.

3.8 Procedure

Ethical clearance was sought from the Institutional Review Board (IRB) from Ethical Committee of Humanities, University of Ghana. After ethical clearance was given to the researcher, a pilot study was carried out.

Three Research assistants were employed to help collect data from participants for the main study due to the large sample size. The research assistants were graduate students in the Department of Psychology, University of Ghana. Each research assistant in addition to the researcher was assigned to one college at the University of Ghana. This was done to make sure that data are collected based on established quota (four colleges). Each research assistant was given 95 questionnaires divided into two (63 for males and 32 females) to also help follow the established quota for gender.
Participants were conveniently sampled from their halls of residence. Participants who were conveniently sampled to participate in this study were each given a consent form which informed them about the purpose of the study. Codes were used to identify participants rather than names or telephone numbers. They were also informed about the confidentiality nature of the study. Participants were made aware of the voluntary nature of the study and participants who agreed to participate were made to sign the informed consent form.

Questionnaires were given to participants and questionnaires were left with the participants for a period of three days where participants were supposed to complete the questionnaires. Participants’ room numbers were identified which were used to retrieve the questionnaires. Participants who completed the study successfully were compensated with 5 Ghana Cedis. After the study, participants were debriefed for any psychological distress encountered when responding to the survey items.

Three days following the distribution of the questionnaires, follow-ups were done and questionnaires that were retrieved were all sorted and returned to the researcher the same day. Those who misplaced the questionnaires were given additional two days to search for the questionnaires and 10 participants misplaced the questionnaires, 9 withdrew from the study after they consented and refused to respond to the questionnaires and twenty-nine participants could not be retrieved.
3.9 Ethical Consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of Ethical Committee of Humanities, the University of Ghana. A copy of the ethical clearance can be found in the appendices. Due to the sensitive nature of the study, careful considerations were taken to help protect the participants from any harm that may come as a result of the study.

In the first place, participants consent was sorted. Participants were made to give a written consent after they were briefed about the nature of the study and were encouraged to ask questions regarding any issue concerning the study. Those who agreed to participate and consented were given questionnaires to complete. This was done to make sure that participants out of their own will agree to take part in the study.

The anonymity of the participants was protected through the generated codes that were used to identify participants’ questionnaire. Participants’ codes and room numbers used in the identification process were treated separately from the analysis to help ensure absolute confidentiality.

Participants were made to understand the voluntary nature of participation. Participants were also told that they could withdraw from the study at the time of the data collection process. This was done to make sure that participants have the right to participate or withdraw from the study.
3.10 Data Analysis Strategy

Hypothesis 1(a) stated that sexting behaviours would have a significant positive association with sexual risk behaviours and Hypothesis 1(b) stated that sexting behaviours would have a significant positive association with sexual risk behaviours. These hypotheses were tested using the Pearson’s $r$ (Pearson bivariate correlations). This test was used because the researcher wanted to find the strength and the significance of relationship between two variables that are measured on interval or ratio basis.

Hypothesis 2(a) stated that peer pressure would play a mediating role in the relationship between sexting behaviours and psychological wellbeing. To test for this hypothesis, a three-step model recommended by Baron and Kenny (1986) was used. In step one; the dependent variable (Psychological wellbeing) is regressed on the independent variable (Sexting behaviours). This is done to confirm that sexting behaviour is a significant predictor of psychological wellbeing. In the second step, the mediator (peer pressure) is regressed on the predictor (sexting behaviour). This is also done to make sure that that sexting behaviour is a significant predictor of peer pressure to sext. If sexting behaviour did not significantly predict peer pressure, then it cannot mediate anything. At step three, psychological wellbeing is regressed on both the predictor and the mediator. This is done to confirm that, peer pressure significantly predicts psychological wellbeing while controlling for sexting behaviour. Sobel test was used in this current study to establish whether a full or partial mediation is significant.

Hypothesis 2(b) stated that self-control would play a mediating role in the relationship between sexting behaviours and sexual risk behaviours. Baron and Kenny (1986) steps for testing mediation used to test for this hypothesis.
Hypothesis 3(a) stated that male college students will significantly send more sext than female college students. Hypothesis 3(b) stated that male college students will significantly receive more sext than female college students. Hypothesis 3(c) stated that college students who are in dating relationship will significantly engage in sexting behaviours more than college students who are not in a relationship. Independent samples t-test was used to test for these hypotheses. This test was used because the researcher wanted to compare two groups in randomly distributed sample and data were measured on the interval level.

Hypothesis 4(a) Mild sexters, moderate sexters and frequent sexters will significantly have poorer psychological well-being than non-sexters and (2) Hypothesis 4(b) stated that severe sexters will significantly engage in more sexual risk behaviours than non-sexters, mild sexters and moderate sexters. Two separate One-way ANOVA tests were conducted to test for these hypotheses. One –way ANOVA was used because is a robust test (Field, 2009). Sexual risk behaviours and psychological wellbeing were measured on interval basis and variance was fairly similar among groups. Field (2009) explains that when there is weak association between the dependent variables, then separate one-way ANOVA should be conducted to compare groups on each dependent variable.
4.1 Introduction

This study explored the relationship among sexting behaviours, sexual risk behaviours and psychological wellbeing. The study was guided by six objectives and results were presented in accordance with hypotheses.

4.2 Preliminary Analysis

4.2.1 Data cleaning and screening

Data was analysed using the IBM SPSS, Version 22. Data were firstly inspected to check for missing data. Missing data and outliers were not found. The data was examined to ensure its normality and all the scales met the normality criteria in terms of Skewness and kurtosis. Table three (3) contains the summary of scales and the reliability values for the main study.

Table 3: Summary of scales, reliability and normality estimate values for the main study

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Alpha values</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexting Behaviour</td>
<td>6</td>
<td>.799</td>
<td>1.049</td>
<td>1.107</td>
</tr>
<tr>
<td>Sexual Risk behaviour</td>
<td>20</td>
<td>.814</td>
<td>1.829</td>
<td>2.829</td>
</tr>
<tr>
<td>Psychological wellbeing</td>
<td>54</td>
<td>.896</td>
<td>-.108</td>
<td>-.551</td>
</tr>
<tr>
<td>Self-control</td>
<td>10</td>
<td>.755</td>
<td>-.312</td>
<td>-.347</td>
</tr>
<tr>
<td>Peer pressure</td>
<td>10</td>
<td>.885</td>
<td>1.114</td>
<td>.447</td>
</tr>
</tbody>
</table>
From table 3, all the instruments used for data collection were reliable. All instruments also were also normal based on the Skewness and kurtosis values on table 3.

2.2.2 Prevalence of sexting

Sexting behaviours were categorised into sexters and non-sexters. Sexters were further categorised into receivers and senders of sext content. Receivers were categorised into three (Received image as a text message, received video as a text message and received image and video from Social Networking Sites via phone). Senders of sext were also categorised into three (Sent image as a text message, sent video as a text message and sent image and video from Social Networking Sites via phone). Figure one presents the prevalence of sexting behaviour for the respondents.

Figure 3: Sexting behaviours of respondents (n=332)
Figure one shows that respondents received more sexts than they sent. The majority (73.8%) of the respondents received more sext on the social networking sites via their mobile phones and 22.59 percent of the respondents have sent their nude image to others as text messages via their mobile phones.

**Figure 4: Respondents sexting status (n=332)**

From figure 3, it is evident that most of the respondents have received sext only whiles 2 of the respondents representing 0.6 percent have sent sext only. Also, 24.7 percent of the respondents have both sent and received sext. Fifty-four of the respondents representing 16.3 percent have never sent or received sext.
Table 4

Sexting behaviours based on socio-demographic variables

<table>
<thead>
<tr>
<th>Socio-demographic Variables</th>
<th>Sexters</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild n (%)</td>
<td>Moderate n (%)</td>
<td>Severe n (%)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n=180)</td>
<td>71(39.4)</td>
<td>78(43.3)</td>
<td>31(17.2)</td>
</tr>
<tr>
<td>Females (n=98)</td>
<td>59(60.2)</td>
<td>32(32.7)</td>
<td>7(7.1)</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20 (n=67)</td>
<td>34(50.7)</td>
<td>27(40.3)</td>
<td>6(9)</td>
</tr>
<tr>
<td>21-25 (n=204)</td>
<td>93(45.6)</td>
<td>80(39.2)</td>
<td>31(15.2)</td>
</tr>
<tr>
<td>Above 25 (n=7)</td>
<td>3(42.9)</td>
<td>3(42.9)</td>
<td>1(14.2)</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (n=177)</td>
<td>88(49.7)</td>
<td>70(39.6)</td>
<td>19(10.7)</td>
</tr>
<tr>
<td>Dating (n=97)</td>
<td>40(41.2)</td>
<td>39(40.2)</td>
<td>18(18.6)</td>
</tr>
<tr>
<td>Cohabiting (n=2)</td>
<td>1(50)</td>
<td>-</td>
<td>1(50)</td>
</tr>
<tr>
<td>Married (n=2)</td>
<td>1(50)</td>
<td>1(50)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Religious Affiliation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian (n=260)</td>
<td>124(47.7)</td>
<td>102(39.2)</td>
<td>34(13.1)</td>
</tr>
<tr>
<td>Muslim (n=14)</td>
<td>4(28.6)</td>
<td>8(57.1)</td>
<td>2(14.3)</td>
</tr>
<tr>
<td>Others (n=4)</td>
<td>2(50)</td>
<td>-</td>
<td>2(50)</td>
</tr>
</tbody>
</table>

It is also evident from table 4 that the majority of males (43.3%) were moderate sexters whiles the majority (60.2%) of females were mild sexters.

4.2.3 Correlation among predictor, moderator and criterion variables

Table five (5) presets the correlation matrix among predictor, moderator and criterion variables used in the study.
Table 5

Summary of inter correlation matrix of predictor, mediator and criterion variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sexting behaviour</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-control</td>
<td>-.211**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Peer pressure</td>
<td>.273**</td>
<td>-.443**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SRB</td>
<td>.306**</td>
<td>-.338**</td>
<td>.232**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. PW</td>
<td>-.150**</td>
<td>.546**</td>
<td>-.438**</td>
<td>-.164**</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: **p < .01, PW = Psychological Wellbeing, SRB = Sexual Risk Behaviour

4.3 Hypotheses Testing

**Hypothesis 1(a): Sexting behaviours would have a significant positive association with sexual risk behaviours**

From table 5, sexting behaviours were significantly and positively related to sexual risk behaviours, $r_{(332)} = .306, p < .001$ (see table 5) which indicates that high sexting behaviours correlated with high sexual risk behaviours and the relationship between sexting behaviours and psychological wellbeing was moderately strong (Cohen, 1988). A follow regression analysis shows that sexting behaviours accounted for 9.4% of the variance in sexual risk behaviours. This result shows that hypothesis 1(a) has been supported.

**Hypothesis 1(b) Sexting behaviour would have a positive association with psychological wellbeing**

Also, from table 5, sexting behaviours were significantly and negatively related to psychological wellbeing, $r_{(332)} = -.150, p < .01$ (see table 5). This means that high sexting behaviours correlated with low psychological wellbeing but the correlation was weak (Cohen,
A follow up regression analysis indicates that sexting behaviours accounted for 2.3% of the variance in psychological wellbeing. This result shows that hypothesis 1(b) has been supported.

**Hypothesis 2(a)** Peer pressure would play a mediating role in the relationship between sexting behaviours and psychological wellbeing.

*Table 6: Summary of mediating effect of peer pressure on the relationship between sexting behaviours and psychological wellbeing*

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>Criterion</th>
<th>B</th>
<th>SE</th>
<th>(\beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Psychological wellbeing</td>
<td></td>
<td>-1.296</td>
<td>.472</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peer pressure</td>
<td></td>
<td>.595</td>
<td>.116</td>
<td>.273**</td>
</tr>
<tr>
<td></td>
<td>Psychological wellbeing</td>
<td></td>
<td>-1.704</td>
<td>.204</td>
<td>-.429***</td>
</tr>
</tbody>
</table>

*Note: Sobel test for significant mediation shows: \(Z = -4.3574, p < .001\)

***\(P < .001\), **\(P < .01\), ns\(P > .05\).

As presented in table 6, at step 1 psychological wellbeing (the dependent variable) was regressed on the sexting behaviour (the independent variable). Sexting behaviour significantly predicted psychological wellbeing (\(\beta = -.15, p < .001\)). In step 2, peer pressure (the mediator) was regressed on sexting behaviours (the independent variable). Sexting behaviour was successful in significantly predicting peer pressure (\(\beta = .273, p < .01\)). Since the first two
conditions were met, psychological wellbeing (the independent variable) was regressed on both the sexting behaviour (the independent variable) and peer pressure (the mediator) as explained by Baron and Kenny (1986). Peer pressure significantly predicted psychological wellbeing while controlling for sexting behaviour ($\beta = -.429, p < .001$). Sexting behaviour showed a decrease in variance (.11%) shared in psychological wellbeing in step 3 when compared to the variance (2.3%) shared in psychological wellbeing in step 1. This indicated the presence of mediating effect.

Sobel Test for significant mediation was conducted and it was found that the mediator (peer pressure) significantly transfers the influence of sexting behaviour to the dependent variable which is psychological wellbeing ($Z = -4.3574, p < .001$). Sexting behaviour was not significant at the third step ($\beta = -.033, p > .05$) which means that peer pressure fully mediated the relationship between sexting behaviour and psychological wellbeing. This result shows that hypothesis 2(a) is supported with the current study’s data.
Hypothesis 2(b) Self-control would play a mediating role in the relationship between sexting behaviours and sexual risk behaviours.

Table 7

Summary of mediating effect of self-control on the relationship between sexting behaviours and sexual risk behaviours

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>Criterion</th>
<th>B</th>
<th>SE</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Sexting behaviour</td>
<td>Sexual risk behaviours</td>
<td>.625</td>
<td>.107</td>
<td>.306***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>Sexting behaviour</td>
<td>Self-control</td>
<td>-.457</td>
<td>.116</td>
<td>-.211***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>Sexting behaviour</td>
<td>Sexual risk behaviours</td>
<td>.501</td>
<td>.105</td>
<td>.245***</td>
</tr>
<tr>
<td></td>
<td>Self-control</td>
<td></td>
<td>-.271</td>
<td>.048</td>
<td>-.287***</td>
</tr>
</tbody>
</table>

Note: Sobel test for significant mediation shows: Z = 3.1785, p < .001, ***P < .001

It is evident in table 7 that sexual risk behaviour was regressed on sexting behaviour in step 1. Sexting behaviour (the independent variable) was significant in predicting the dependent variable which is sexual risk behaviour (β = .306, p < .001). Sexting behaviour shared a variance of 9.4% in sexual risk behaviours. In step two, self-control (the mediating variable) was regressed on sexting behaviour. Sexting behaviour was also a significant predictor of self-control (β = -.211, p < .001). In the third step, sexual risk behaviour was regressed on both sexting behaviour and self-control. While controlling for sexting behaviour in the third model, self-control significantly predicted sexual risk behaviour (β = -.285, p < .001). Sexting behaviours
reported a decrease in variance shared (6%) in sexual risk behaviour in step three as compared to variance shared in step one. This indicated a mediation effect.

Sobel Test for significant mediation was conducted and it was found that the mediator (self-control) significantly transmit the influence of sexting behaviour to sexual risk behaviours ($Z = 3.1785, p < .001$). Since sexting behaviour significantly predicted sexual risk behaviour in the third step ($\beta = .255, p < .001$), self-control partially mediated the relationship between sexting behaviour and sexual risk behaviour. This gives support to hypothesis 2(b) with this current data.

Hypothesis 3(a) Male college students will significantly receive more sext than female college students.

Table 8

Summary of independent t-tests indicating differences in receiving sext among male and female college students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive sexting behaviour</td>
<td>Male</td>
<td>208</td>
<td>6.33</td>
<td>2.309</td>
<td>330</td>
<td>3.812</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>124</td>
<td>5.38</td>
<td>1.978</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As evident from table 8, independent t-tests were conducted to compare the mean scores of male and female college students. In terms of receiving of sext content, male college students had a greater score ($M = 6.33, SD = 2.309$) than female college students ($M = 5.38, SD = 1.978$). The difference was significant, $t_{(330)} = 3.812, p < .001$ and the difference between the means was
moderate (eta squared = .042) which means 4.2 percent of the variance in receiving sext was explained by gender (Cohen, 1988, pp. 284-287). This shows that hypothesis 3(a) has been supported.

**Hypothesis 3 (b) Male college students will significantly send more sext than female college students.**

Table 9

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sending sexting behaviour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>208</td>
<td>3.89</td>
<td>1.555</td>
<td>330</td>
<td>3.363</td>
<td>.001</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>3.37</td>
<td>.941</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From table 9, in case of sending of sext content, male college students scored higher ($M = 3.89$, $SD = 1.555$) than females college students ($M = 3.37$, $SD = .941$). The difference was significant, $t_{(330)} = 3.363$, $p < .01$. The difference between the means was small (eta squared = .033) which means 3.3 percent of the variance in sending sext was explained by gender (Cohen, 1988, pp. 284-287). This shows that hypothesis 3(b) has been supported.
Hypothesis 3 (c) College students who are in dating relationship will significantly engage in sexting behaviours more than college students who are not in a relationship

Table 10

Summary of independent t-test indicating differences in sexting behaviours among dating and single college students

<table>
<thead>
<tr>
<th>Relationship status</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexting behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>216</td>
<td>9.39</td>
<td>2.994</td>
<td>324</td>
<td>-2.372</td>
<td>.018</td>
</tr>
<tr>
<td>Dating</td>
<td>110</td>
<td>10.25</td>
<td>3.341</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From table 10, college students in a dating relationship scored had a higher mean ($M = 10.25$, $SD = 3.341$) than college students who are single ($M = 9.39$, $SD = 2.994$). The difference between the two groups means was significant, $t_{(324)} = -2.372$, $p < .05$. The difference between the means was very small that is eta squared = .017 (Cohen, 1988). This means that those in a dating relationship significantly engage in sexting behaviours more than those who are single and not in any relationship. This also confirms that hypothesis 4 has been supported.
Hypothesis 4 (a) Mild sexters, moderate sexters and severe sexters will significantly have poorer psychological wellbeing than non sexters.

Hypothesis 4 (b): Severe sexters will significantly engage in more sexual risk behaviours than non-sexters, mild sexters and moderate sexters.

Table 11 presents the mean and standard deviation of sexting groups score on sexual risk behaviour and psychological wellbeing. The results for both hypotheses are presented in table 12.

Table 11

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Sexting groups</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual risk behaviours</td>
<td>Non-sexter</td>
<td>54</td>
<td>22.67</td>
<td>5.720</td>
</tr>
<tr>
<td></td>
<td>Mild sexter</td>
<td>130</td>
<td>22.97</td>
<td>5.328</td>
</tr>
<tr>
<td></td>
<td>Moderate sexter</td>
<td>110</td>
<td>24.47</td>
<td>6.328</td>
</tr>
<tr>
<td></td>
<td>Severe sexter</td>
<td>38</td>
<td>29.08</td>
<td>8.318</td>
</tr>
<tr>
<td>Psychological wellbeing</td>
<td>Non-sexter</td>
<td>54</td>
<td>239.30</td>
<td>24.824</td>
</tr>
<tr>
<td></td>
<td>Mild sexter</td>
<td>130</td>
<td>243.90</td>
<td>26.480</td>
</tr>
<tr>
<td></td>
<td>Moderate sexter</td>
<td>110</td>
<td>234.89</td>
<td>27.762</td>
</tr>
<tr>
<td></td>
<td>Severe sexter</td>
<td>38</td>
<td>231.63</td>
<td>28.285</td>
</tr>
</tbody>
</table>

From table 11, severe sexters had a higher mean value of 29.08 on the sexual risk behaviour and non-sexters had the least value on the same scale. Mild sexters had a higher mean on the psychological wellbeing scale while severe sexters had a mean value of 231.63.
From table 12, one-way ANOVA showed a statistically significant difference at the $P < .05$ level in psychological wellbeing for the four groups, $F(3, 328) = 3.246$, $p = .022$. In spite of reaching statistical significance, the real difference in mean scores between the groups was small (eta squared = .029) as explained by Cohen (1988). Post-hoc comparison using the Tukey’s HSD test (see table 15) indicated the mean score of mild sexters ($M = 243.90$, $SD = 26.480$) was significantly different from moderate sexters ($M = 234.89$, $SD = 27.762$). Non-sexters ($M = 239.30$, $SD = 24.824$) and severe sexters ($M = 231.63$, $SD = 28.285$) did not differ significantly from mild and moderate sexters, therefore hypothesis 4(a) was not supported.

Again, from table 12, one-way ANOVA indicated a significant difference in sexual risk behaviours for the groups, $F(3, 328) = 10.962$, $p = .000$ and eta squared = .0911 which indicates a moderate difference in mean scores between the groups (Cohen, 1988). Post-hoc comparison using the Tukey HSD test showed that the mean score of severe sexters ($M = 29.08$, $SD = 8.319$)
was significantly different from non-sexters (M = 22.67, SD = 5.720), mild sexters (M = 22.97, SD = 5.328) and moderate sexters (M = 24.47, SD = 6.328). See table 14 for post-hoc analysis. This means that severe sexters engaged in high sexual risk behaviours than mild, moderate and severe sexters. Hypothesis 4 (b) was supported.

4.4 Additional Analysis

Independent t-test was conducted to test for the difference between genders on peer pressure to sext. The result has been presented in table 13.

Table 13

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>208</td>
<td>17.87</td>
<td>7.197</td>
<td>330</td>
<td>4.550</td>
<td>.000</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>14.44</td>
<td>5.570</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13 presents the result of the independent t-test conducted to compare male and female on peer pressure to sext. It is evident on table 11 that male scored higher on the peer pressure scale (M = 17.87, SD = 7.197) than females (M = 11.44, SD = 5.570). The difference between males and females on peer pressure scale was significant \( t(330) = 4.550, p < .001 \). This shows that males were pressured by their peers to sext.
Table 14

*Summary of Post Hoc Analysis (Tukey HSD)*

**Multiple Comparisons**

**Dependent Variable:** Sexual Risk behaviour

**Tukey HSD**

<table>
<thead>
<tr>
<th>(I) sexting category</th>
<th>(J) sexting category</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
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<td>.992</td>
<td>.990</td>
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<tr>
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<td>1.018</td>
<td>.288</td>
</tr>
<tr>
<td></td>
<td>Severe sexter</td>
<td>-6.412*</td>
<td>1.298</td>
<td>.000</td>
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<tr>
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<td>1.130</td>
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<td>4.606*</td>
<td>1.153</td>
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*The mean difference is significant at the 0.05 level.*
Table 15

*Summary of Post Hoc Analysis (Tukey HSD)*

**Multiple Comparisons**

**Dependent Variable:** Psychological wellbeing

**Tukey HSD**

<table>
<thead>
<tr>
<th>sexting category</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
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<tr>
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<tr>
<td>Severe sexter</td>
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<tr>
<td>Moderate sexter</td>
<td>-3.259</td>
<td>5.055</td>
<td>.917</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.
4.5 Summary of Findings

Hypothesis 1(a) stated that sexting behaviours would have a significant positive association with sexual risk behaviours. Sexting behaviours significantly correlated positively with sexual risk behaviours. The hypothesis was therefore supported.

Hypothesis 1(b) also stated that sexting behaviours would have a significant negative relationship with psychological wellbeing. Sexting behaviours were found to correlate negatively with psychological wellbeing and the relationship was significant which makes the hypothesis supported.

Hypothesis 2(a) was that Peer pressure will play a mediating role on the relationship between sexting behaviour and psychological wellbeing. This hypothesis was supported with full mediation effect of peer pressure.

Hypothesis 2(b) self-control will play a mediating role on the relationship between sexting behaviour and sexual risk behaviours. This hypothesis was also supported with partial mediation effect of self-control.

Hypothesis 3(a) stated that male college students will significantly send more sext than female college students. The independent t-test found that male college students significantly sent more sext than female college students. Therefore, the hypothesis was supported.

Hypothesis 3(b) was that male college students will significantly receive more sext than female college students. Also, this hypothesis was supported because college male students were found that they significantly receive sext than female college students.
Hypothesis 3(b) stated that college students who are in dating relationship will significantly engage in sexting behaviours more than college students who are not in a relationship. The independent t-test showed that college students in a dating relationship significantly engaged in sexting behaviours than college students who are single. This hypothesis is supported.

Hypothesis 4(a) stated that mild sexters, moderate sexters and frequent sexters will significantly have poorer psychological well-being than non-sexters. This hypothesis was rejected because it was found that only mild and moderate sexters differed significantly but sexting groups did not differ significantly from non-sexters.

Hypothesis 4(b) stated that severe sexters will significantly engage in more sexual risk behaviours than non-sexters, mild sexters and moderate sexters. This hypothesis was supported because severe sexters were significantly different from, non-sexters, mild sexters and moderate sexters.

Males were found to be pressured by their peers to engage in sexting behaviours than females. This finding was dissimilar to the finding of Walrave et al (2014). They found pressure to sext from friends and romantic partners to be specific to females which is contrary to what was found in this current study.
4.6 Observed Models

Figure 5: Model for the relationship between the predictor and criterion variables

(a) Partial Mediation

(b) Full Mediation

Figure 6: Model for mediation analysis for self-control (a) and Peer pressure (b)
CHAPTER FIVE

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

Sexting is a practice of sending and sharing of self-produced nude images or videos. This practice has become a serious contemporary social and health issue because of its associated effects which are often detrimental to the health of the sexter. Past research on sexting has been inconclusive as whether sexting is associated with psychological wellbeing and sexual risk behaviours. In the present study, the researcher considered sexting and its relationship with sexual risk behaviours and psychological wellbeing among college students in the Greater Accra Region.

5.2 Discussion

5.2.1 Prevalence of Sexting

The study revealed that most of the respondents have received sext only whiles 2 of the respondents representing 0.6 percent have sent sext only. Also, 24.7 percent of the respondents have both sent and received sext. Fifty-four of the respondents representing 16.3 percent have never sent or received sext only. In terms of specific sexting behaviour, the study also revealed that majority of the respondents have received nude image and video as text messages on their mobile phones. The majority (73.80%) of the respondents have also received nude image and video from their social networking sites such as Facebook etc. via their mobile phone. Only 22.59 percent and 18.07 percent of the respondents have sent nude image and video of themselves respectively as text messages to others and 15.64 percent has
sent nude image and video of themselves to other on social networking sites via their mobile phones.

The prevalence rate of sexters as shown in this study is similar to the prevalence rate of studies conducted using undergraduate or college students (e.g. Reyns et al, 2014; Strassberg et al, 2014; Benotsch et al, 2013 & Perkins et al, 2014). Similar prevalence rate has also been recorded by studies that sampled adults (e.g. Gorden-Messer et al, 2013 & NCPTUP, 2008). In these studies, prevalence rates of participants receiving sexts were higher than those sending sext. This prevalence rate is also similar to the study conducted by Dauda (2012) and Ogbada (2013) in Nigeria and Ghana respectively. A review by Klettke et al (2014) shows that adult sample used in sexting studies are likely to record higher prevalence rate of engagement in sexting as recorded in this current study and this can also account for the high prevalence recorded in this current study.

The high prevalence rate among the respondents could be that most college students are adults who have much freedom as they spend more time in school alone without the supervision of their parents. Steinberg (2011) has explained that peers activities and impacts become very important and progressive and college students spend more time outside family and form a broader range of relationships with colleagues or friends and romantic partners. They tend to engage in an intimate relationship (boyfriend & girlfriend relationships) and permanently own mobile phone which makes sexting much easier. College students who move from their families to college are likely to meet peers who have probably accepted sexting to be a normal part of youthful behaviour and therefore exert some level of pressure on others to also accept sexting.
College students may also consider sexting as risk-free behaviour and only focus on the excitement of sending or receiving nude images and videos as a possible explanation by the general crime theory. However, sexting could sometimes be part of a romantic sexual relationship between college students or consensual agreement of college students in a romantic relationship and this could account for the high prevalence rate of sexting among college students. Finally, college students because of peers may have developed positive attitude for sexting because of possible positive outcome (physical sexual pleasure) which may serve as reinforcement for college students to engage in more sexting behaviours as reported by Lee et al. (2013).

Furthermore, it could be that the country (Ghana) and the University of Ghana in particular have not carried out a proper exercise to educate students or adults about the implications of producing, possessing and distribution of nude images or videos. It could also be that the traditional socialisation agents have failed to educate the developing person about the possible effects of engaging in sexting behaviours. The high prevalence rate could also be attributed to the inappropriate reportage of sexting practices in the media. It is also possible that sexting is increasing due to technological advances in modern times.

5.2.2 Relationship between sexting and sexual risk behaviours

Sexting behaviours were found to be significantly and positively related to sexual risk behaviours and the relationship was moderately strong. Some reviewed studies also found same association between sexting and sexual risk behaviours (Dake et al, 2012; Temple et al, 2012). This means that those who engage in sexting are more likely to engage in sexual risk behaviours. The likely relationship may be that those who engage in sexting behaviours may have the goal of engaging in sexual behaviours which may turn out to be
risky. Such college students may have multiple sexual partners to help maintain sexting behaviour. It could also be that college students who engage in sexting behaviour may already have a sexual partner or have a romantic relationship where they engage in regular sexual activities.

One finding that emerged from the review done by Klettke et al. (2014) was that sexting is related with individuals who are sexually active, as well as individuals who are involved in a range of sexual risk behaviours, such as having unprotected sex, indiscriminate sexual activities and abusing alcohol and drugs prior to sexual activity. Though it is not proposed in this study that there is a causal association between sexting and sexual risky behaviours, it may at least represent a behaviour marker of sexual risk-taking in general.

5.2.3 Relationship between sexting and psychological wellbeing

Sexting behaviour and psychological wellbeing were found to be negatively and significantly related. Other studies have had similar findings (e.g. Dake et al, 2012; Englander, 2012; Mitchell et al, 2012). This relationship could be that those who engage in sexting behaviours may have contemplations of possible problems that may come as a result of leakage of their sext content. Pressure to sext could also result in psychological distress as Englander (2012) has affirmed that individuals who sext with pressure from others exhibit severe anxiety. The pressure can come from peers or romantic partners. The weak relationship means that sexting behaviour is weak in predicting psychological well-being. The explanation could be that sexting usually occurs under agreement between two romantic partners who may have trust for each other. This may reduce the frustrations, tension and perception of future threat.
5.2.4 Mediating effect of peer pressure on the relationship between sexting behaviours and psychological wellbeing

It was hypothesized that peer pressure could play a moderating role on the relationship between sexting behaviours and psychological wellbeing. This hypothesis is supported by the current data. What informed this hypothesis was that Englander (2012) reported that college students that sexted with pressure from others were likely to experience severe anxiety. The current data supports the hypothesis which means that peer pressure fully transmitted the influence of sexting behaviour on psychological wellbeing. Thus, peer pressure created an environment where sexting behaviour exerted a greater influence on psychological wellbeing of college students.

College students’ sexting behaviour may impact on their psychological wellbeing but the relationship between sexting behaviour and psychological wellbeing is weak. In a situation where college students experience peer pressure to sext, sexting behaviours are likely to impact on their psychological wellbeing negatively as reported by Englander (2012) that people who are coerced to sext exhibits anxiety problems and other psychological distress. This finding suggests that peer pressure to sext makes college students’ sexting behaviour psychologically distressing.

5.2.5 Mediating effect of self-control on the relationship between sexting behaviour and sexual risk behaviour

The researcher hypothesized that self-control will play a mediating role on the relationship between sexting behaviour and sexual risk behaviours. Self-control theory explains that risk takers lack self-control and prefer simple task. Such individuals will
engage in sexting with the motive of engaging in sexual activities which can be risky. Researchers have also found that adolescents engaged in sexting with the motive of engaging in sexual activities with the recipients (Houck et al., 2014). Sexting behaviour has been a predictor of sexual risk behaviours (Dake et al, 2012; Rice et al, 2012). This could mean that, college students who have low self-control may use sexting behaviours as a motivation to engage in sexual risky behaviours. This informed the hypothesis that self-control will mediate the relationship between sexting behaviour and sexual risk behaviours and the hypothesis was supported with this current data.

Though self-control played a mediating role on the relationship between sexting behaviour and sexual risk behaviour, the mediation was partial. This means that the mediating variable (self-control) accounted for some but not all of the relationship between sexting behaviour and sexual risk behaviours. Thus, the partial mediating effect of self-control implies that there is not only a significant relationship between self-control and sexual risk behaviour but there is some direct relationship between sexting behaviour and sexual risk behaviours. In other words, with the partial mediation, sexting behaviour has both direct and indirect effects on sexual risk behaviour. The direct effect is not mediated by self-control but the indirect effect is transmitted through self-control on sexual risk behaviour. The current finding suggests that sexting behaviour on its own may have a direct effect on sexual risk behaviours as some researchers have found (Rice et al, 2012; Dake et al, 2012).

5.2.6 Gender differences on sending and receiving sext behaviours

Male college students significantly received sext than female college students. Studies reviewed have also reported similar findings that males are more likely to receive
sext than females (e.g. Strassberg et al, 2012; Dir et al, 2013; Gorden-Messer et al, 2013). A possible explanation could be that pressure from friends and romantic partners could be a reason why males college students received a significantly more nude image or videos from females (Walrave et al, 2013). Males are likely to exert pressure on females to send them (males) their nudity because research has found that females are often pressured to sext (England, 2012). Studies have also found that males receive more sext from females because females want to maintain their relationship and sending a nude image to males will help them sustain their relationship (Drouin & Tobin, 2014; Renfrow & Rollo, 2014).

Male college students also significantly sent more sext than female college students and this study goes contrary to the study that found no significant difference between male and females in terms of sending a nude image or video (Mitchell et al, 2012). The explanation could be that males tend to send more sext to females in order to lure females to reciprocate the behaviour or get them to engage in sexting behaviours. Thus, males are likely to use sext as a bait to get females involved in sexting behaviours. It could also be that college male students are likely to send their nude image to females in order to communicate their sexual intent to the females or to get their sexual desire satisfied or engage in physical sexual activity with the recipient.

College male students may send and receive more sext than females because college male students are pressured by their peers to do so because this current data shows that college men are significantly pressured by their peers to sext than females. This explains why college men sent and received more sexts significantly than college female students.
5.2.7 Relationship status and sexting behaviours

The study also found that college students who are in a dating relationship significantly engaged in sexting behaviours than college students who are single (not in any dating or romantic relationship). This finding is similar to previous studies conducted (Dir et al, 2013; Dir, Cyders et al, 2013; Drouin et al, 2014; Weisskirch & Delevi, 2012). Possible explanation could be that college students in dating relationship may consent to sexting as a way of having fun or consider sexting as normal part of a dating relationship (Albury & Crawford, 2012; Walker et al., 2013). College students in a dating relationship share nude images and videos of themselves to help sustain and flourish the ongoing romantic relationship (Lippman & Campbell, 2014). A further explanation could be that college students who are in romantic relationship share sext of themselves regularly to replace real or actual sexual intercourse and sexting become the only alternative when the romantic partner of the college student are not close (Lippman & Campbell, 2014).

5.2.8 Comparing sexting groups (mild, moderate, severe sexters and non-sexters) on psychological wellbeing

With regards to psychological wellbeing, non-sexters did not differ significantly from mild, moderate and severe sexters. This finding is dissimilar to previous studies conducted (Dake et al, 2012; Mitchell et al, 2012). These researchers found that sexters experienced some kind of psychological distress which affected them negatively. This finding could be that situations surrounding college students’ sexting such as blackmail were not significant enough to produce distress among sexters. There could also be a possibility that some college students sexters are ignorant about the laws governing the possessing and distributing of nude image and videos which make them worry less about the distribution of
nudity. Finally, it may be possible that most college students’ sexters have not had their sext content or material leaked which may not pose psychologically problems such as embarrassment, suicide ideations, depression and anxiety to them.

Though mild, moderate, and severe sexters did not differ significantly from non-sexters, mild sexters were significantly different from moderate sexters and moderate sexters were poor on psychological wellbeing than mild sexters. It is likely that mild sexters rarely sext and they enjoy sexting better or have not considered the troubles sexting could cause them than moderate sexters who occasionally sext or have seen sexting becoming part of their life which make them worry about the situation.

5.2.9 Comparing sexting groups (mild, moderate, severe sexters and non-sexters) on sexual risk behaviour

The study found that severe sexters were significantly different from mild, moderate and non-sexters in terms of sexual risk behaviours. This finding is also similar to previous findings that frequent or severe sexters are sexual risk-takers and impulsive (Ferguson, 2011; Dir, Cyders et al, 2013). Frequency in sexting may predict stronger anticipation of sexual enrichment and sexual risk taking as explained by Dir, Cyders et al (2013) and this could make severe or frequent sexters take multiple sexual partners, unprotected sex etc. Severe sexters who sext on a daily basis or frequently may keep multiple partners to exchange sext with them and to satisfy their sexual desire.

5.3 Limitations of the Study

The data is cross-sectional and because of that, directionality or causality cannot be determined or assumed. Social desirability is also possible in survey studies and this current
study being sensitive may make college students under-report their engagement with behaviours such as sexting and sexual risk behaviours. Generalisation of the study findings may be limited since this current study did not use a probability sampling technique.

5.4 Recommendations

The high sexting prevalence rate among college students in this current study explains that sexting should not be conceptualised as ‘Western’ as some studies have shown that sexting is highly prevalent in the western culture (e.g. Schloms-Madlener, 2013; Mitchell et al, 2012; Gorden-Messer et al, 2012). Sexting should be conceptualised as a technological driven change that is increasing among the youth in the world and demands proper attention from various stakeholders (O’Keeffe & Clarke-Pearson, 2011).

Sexting has a relationship with sexual risk behaviours which explains that youth who are engaging in sexting are broadly engaging in risky behaviours across multiple environments. This requires a comprehensive multisystem approach that targets risky behaviours. Interdisciplinary approach to prevention and intervention should be adopted to tackle the complexity nature of sexting in schools.

Sexting is a complex social and health issue and multidimensional in nature so prevention strategies that will lay emphasis on only sexting may be less effective. Strategies that integrate information and situations surrounding sexting such as possible consequences and risk would be more effective. Strategies should also incorporate how to tackle requests for nude images or videos, well established and demonstrated sex education, sexual harassment and other social and learning programmes.
When conducting students’ health and safety assessment surveys, items about sexting should be added to help determine its prevalence rate and its association with other risky behaviours and mental health issues. This may inform schools’ management in planning interventions and prevention programmes to help curb sexting issues in schools.

College students who are in a dating relationship are more likely to engage in sexting behaviour than those who are single which means that this group (college students in a dating relationship) of people demands proper attention and monitoring. Also college male students should be given proper attention since they are likely to be influenced by peer to engage in sexting behaviours.

Sexting should be viewed as dangerous within the academic and public domain and special attention should be given to the risk that college students and specifically females’ students may be experiencing by indulging in sexting behaviours. This is because Ringrose et al. (2012) have explained that sexting may embrace sexual harassment, online grooming, sexual pressures and objectification through creation and exchange of nude images and videos. Since male college students tend to send and receive more sext than female college students it could be that sexting is being used to sexually exploit and harass females to engage in sexting and sexual behaviours (Ringrose et al, 2012).

Due to the sensitive nature of sexting and its associated legal risks, school administrators should work together with other professionals such as nurses, school counsellors and school psychologists to generate protocols and effective procedures when sexting cases are reported. This will make sure that the situation and issues surrounding the sexting behaviour are properly dealt with and to help reduce legal ramifications.
More research works are needed to adopt different study designs to study psychological variables as protective factors, outcomes, moderators, mediators of sexting behaviours. Qualitative approach to studying sexting would also be essential. The situational variables surrounding sexting behaviours and outcome of sexting whether considered as negative or positive signify variables that can moderate wellbeing correlates as Klettke et al (2014) have already emphasized.

Future studies should also use randomized samples to aid representativeness and generalisation. Future studies should also investigate whether sexting has some significance in youthful life or the positive consequences of sexting. Longitudinal studies would also be recommended for researchers who would like to study sexting which may be more effective than cross-sectional studies in establishing causality.

Theories such as the general theory of crime are narrow in their perspective since they point to only self-control (trait) as the possible cause of sexting behaviours. This theory overlooks situational and contextual variables that may be fueling sexting behaviours among college students. The general theory of crime should be reviewed to include broader environmental variables than just focusing on personal factor (self-control) as the only indicator of deviant or criminal behaviour.

5.5 Conclusion

The study explored the relationship sexting has with psychological wellbeing and risky sexual behaviours. It also explored the mediation effect of peer pressure and self-control on the relationship between sexting and psychological wellbeing and also the relationship between sexting and sexual risk behaviours respectively. The study also
compared genders and relationship status of college students on sexting behaviours and finally to compare sexting groups on sexual risk behaviours and psychological well-being. Additional analysis was done to compare genders on peer pressure to sext.

The study found that sexting has a significant relationship with sexual risk behaviours and psychological wellbeing. Male college students significantly received and sent more sext as compared to female college students. College students who are in a dating relationship significantly engaged in more sexting behaviours than single college students. Severe sexters or frequent sexters significantly engaged in risky sexual behaviours as compared to non-sexters, mild and moderate sexters. Peer pressure mediated the relationship between sexting and psychological wellbeing. Self-control also partially mediated the relationship between sexting and sexual risk behaviours. Male college students were found to be pressured by their peers to engage in sexting.

College students’ sexting is a social and health issue that is associated with various types of risky behaviours and psychological wellbeing. Though future studies are needed to explore wider variables, study methods and designs, the findings from this study show that sexting is a complex social and health issue that demands multidisciplinary, multisystem and holistic approach to help design effective intervention and prevention programmes to eradicate or reduce the issue of sexting in our contemporary society.
REFERENCES


APPENDICES

Appendix I: Ethical clearance from institutional review board

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No. .......................... 3rd December 2015

Mr. Mutapha Amoahu
Department of Psychology
University of Ghana
Legon

Dear Mr. Amoahu,

ECH 035/15-16: THE RELATIONSHIP BETWEEN SEXTING, SEXUAL RISK BEHAVIOURS AND PSYCHOLOGICAL WELLBEING

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date: 7/05/16
On Agenda for: Initial Submission
Date of Submission: 20/10/15
ECH Action: Approved
Reporting: Quarterly

Please accept my congratulations.

Yours Sincerely,

Rev. Prof. J. O. Y. Mante
ECH Chair
Appendix II: Introductory letter from department to ECH

UNIVERSITY OF GHANA
DEPARTMENT OF PSYCHOLOGY

Tel.: (233-3032) 800381 Ext. 3754/3310 P. O. Box LG 84, Lagon - Ghana E-mail: psychology@ug.edu.gh
039 905 04 63

Our Ref. No. ........................

PSYC 2/33/01

October 19, 2015

The Administrator,
Ethics Committee for Humanities
Institute of Statistical, Social and Economic Research (ISSER)
University of Ghana
Lagon

Dear Sir/Madam,

LETTER OF INTRODUCTION
MUSTAPHA AMOADU – ID NUMBER 10506665

The above-named is an M.Phil Social Psychology student in the Department of Psychology, University of Ghana, Lagon.

As part of the requirement, Mustapha Amoah has to write and submit an original thesis. The title of his thesis is “The Relationship Between Sexting, Sexual Risk Behaviours And Psychological Wellbeing”. He is planning to conduct his study in Greater Accra.

He is applying to your Board for institutional approval clearance to enable him carry on with his thesis. He has received approval from our department. Your assistance in reviewing his proposal is appreciated.

Yours sincerely,

[Signature]

Prof. C.C. Mante-Kole
(Head of Department)
Appendix III: Informed consent form

PROTOCOL CONSENT FORM

Title of Study: The relationship between sexting, sexual risk behaviours and psychological wellbeing among college students in the Greater Accra Region.

Principal Investigator: Mustapha Amoada
10506665

Section B– CONSENT TO PARTICIPATE IN RESEARCH

Dear Respondent,

General Information about Research
This study aims at examining the relationship between sexting, sexual risk behaviours and psychological wellbeing among college students in the Greater Accra Region. This study is expected to be completed before May, 2016 and hence your support is very crucial in assisting me to meet this deadline. You can be of help by sincerely responding to the questionnaire which is expected to take a maximum of 15 minutes of your time.

This study will help outline some risky sexual behaviours and psychological wellbeing associated with sexting behaviours. There are no significant risks or harms to be caused to the respondents.

You are to note that information given on the questionnaires shall be used for the purpose of research only and hence will be kept confidentially.

Due to your time and effort spent for your participation in the research, you will be given a 5 Ghana Cedis.

Your participation in this research is voluntary and may withdraw at any time without Penalty.
Contact for Additional Information
In case of more clarification and further questions, you may contact the researcher by: Mustapha Amoada, P. O. Box, CO 18, Tema. Phone numbers: 024 878 8445 Email: m.amoada@orangeinc.com if you have any questions about your rights as a research participant in this study you may contact the Administrator of the Ethics Committee for Humanities, ISSER, University of Ghana at ech@isser.edu.gh / ech@ug.edu.gh or 00233- 303-933-866

Section C- VOLUNTEER AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

Name of Volunteer

Signature or mark of volunteer                  Date

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Name of witness

Signature of witness                  Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Name of Person who Obtained Consent

Signature of Person Who Obtained Consent                  Date
Appendix IV: Questionnaire

Section (1): Socio-demographic Data

Please fill in the following information using the choices provided.

1. Gender: Male [ ] Female [ ]
2. Age: 16 – 20 years [ ] 21- 25 years [ ] above 25 years [ ]
3. Current relationship status: Single [ ] Dating [ ] cohabiting [ ] married [ ] Divorced [ ]
4. Religious Affiliation: Christian [ ] Muslim [ ] Traditional [ ] other [ ]
Section (2): Sexting Behaviours Scale

Please respond to the following questions regarding sexting behaviours based on how it has been defined below. Please rate each of the following items using the 1-5 scale.

Never | Rarely | Occasionally | Often | Frequently
-----|--------|--------------|-------|-----------
 1    | 2      | 3            | 4     | 5         

1. How often have you received nude images as text messages? 1 2 3 4 5
2. How often have you received nude videos as text messages? 1 2 3 4 5
3. How often have you received nude image or video via the internet (Facebook, e-mail, twitter etc.) on your phone 1 2 3 4 5
4. How often have you sent nude image as text messages? 1 2 3 4 5
5. How often have you sent nude video as text messages? 1 2 3 4 5
6. How often have you sent nude image or video via the internet (Facebook, e-mail, twitter etc.) on your phone 1 2 3 4 5
Section (3): Sexual Risk Survey

Please read the following statements and record the number that is true for you over the past six months for each question. If the question does not apply to you or you have never engaged in the behaviour in the question, put a "0" on the blank. Please consider only the last six months when answering and please be honest.

In the PAST SIX MONTHS:

1. _________ How many partners have you engaged in sexual behaviour with but not had sex with?

2. _________ how many times have you "hooked up" and engaged in sexual behaviour with someone you didn’t know or didn’t know well but did not have sex?

3. _________ how many times have you gone out to bars/parties/social events with the intent of engaging in sexual behaviour with someone?

4. _________ how many times have you gone out to bars/parties/social events with the intent of “hooking up” and having sex with someone?

5. _________ how many times have you gotten so drunk or high that you couldn’t control your sexual behaviours?

6. _________ how many times have you had an unexpected and unanticipated sexual experience?

7. _________ how many times have you had a sexual encounter you engaged in willingly but later regretted?

For the next set of questions, follow the same direction as before. However, for questions 9-24, if you have never had sex (oral, anal or vaginal), please put a "0" on each blank.

In the PAST SIX MONTHS:

8. _________ How many partners have you had sex with?

9. _________ how many times have you had vaginal intercourse without a condom
10. _______ how many times have you given or received fellatio (oral sex on a man) without a condom?

11. _______ how many times have you given or received cunnilingus (oral sex on a woman) without a dental dam or adequate protection

12. _______ how many times have you had anal sex without a condom?

13. _______ how many times have you given or received analingus (oral stimulation of the anal region, “rimming”) without a dental dam or adequate protection

14. _______ How many people have you had sex that you know but are not involved in any sort of relationship with?

15. _______ How many times have you or your partner used alcohol or drugs before or during sex?

16. _______ How many times have you had sex with a new partner before discussing sexual history, HIV, drug use, disease status and other current sexual partners?

17. _______ How many times (that you know of) have you had sex with someone who has had many sexual partners?

18. _______ How many partners (that you know of) have you had sex with who had been sexually active before you were with them but had not been tested for STIs/HIV?

19. _______ How many partners have you had sex with that you didn’t trust?

20. _______ how many times (that you know of) have you had sex with someone who was also engaging in sex with others during the same time period?
Section (4): Psychological wellbeing Scale

The following set of statements deals with how you might feel about yourself and your life. Please remember that there are neither right nor wrong answers.

<table>
<thead>
<tr>
<th>Circle the number that best describes the degree to which you agree or disagree with each statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Disagree slightly</th>
<th>Agree slightly</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most people see me as loving and affectionate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. I am not afraid to voice my opinion, even when they are in opposition to the opinions of most people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3. In general, I feel I am in charge of the situation in which I live.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. I am not interested in activities that will expand my horizons.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. I live life one day at a time and don’t really think about the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. When I look at the story of my life, I am pleased with how things have turned out.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</tr>
<tr>
<td>7.</td>
<td>Maintaining close relationship has been difficulty and frustrating for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8.</td>
<td>My decisions are not usually influenced by what everyone else is doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>The demands of everyday life often get me down.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10.</td>
<td>I don’t want to try new ways of doing things-my life is fine the way it is.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11.</td>
<td>I tend to focus on the present, because the future always brings me problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12.</td>
<td>In general, I feel confident and positive about myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13.</td>
<td>I often feel lonely because I have few close friends with whom to share my concerns.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>14.</td>
<td>I tend to worry about what other people think of me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15.</td>
<td>I do not fit very well with the people and the community around me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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<tr>
<td>16.</td>
<td>I think it is important to have new experiences that challenge how you think about yourself and the world.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>17.</td>
<td>My daily activities often seem trivial and unimportant to me.</td>
<td>1</td>
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<tr>
<td>18. I feel like many of people I know have gotten more out of life than I have.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>19. I enjoy personal and mutual conversations with family members or friends</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>20. Being happy with myself is more important to me than having others approve of me.</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>21. I am quite good at managing the many responsibilities of my daily life.</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>22. When I think about it, I haven't really improved much as a person over the years.</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>23. I don't have a good sense of what it is I'm trying to accomplish in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>24. I like most aspect of my personality.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>25. I don't have many people who want to listen when I need a talk.</td>
<td>1</td>
<td>2</td>
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<tr>
<td>26. I tend to be influenced by people with strong opinions.</td>
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<td>2</td>
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<td>6</td>
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<tr>
<td>27. I often feel overwhelmed by my responsibilities.</td>
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<td>2</td>
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<tr>
<td>28. I have a sense that I have developed a lot as a person over time.</td>
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<tr>
<td>29.</td>
<td>I used to set goals for myself, but that now seems a waste over time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30.</td>
<td>I made some mistakes in the past, but I feel that all in all everything has worked out for the best.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31.</td>
<td>It seems to me that most other people have more friends than I do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32.</td>
<td>I have confidence in my opinions, even if they are contrary to the general consensus.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33.</td>
<td>I generally do a good job of taking care of my personal finances and affairs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>34.</td>
<td>I do not enjoy being in new situations that require me to change my old familiar ways of doing things.</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
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<tr>
<td>35.</td>
<td>I enjoy making plans for the future and working to make them a reality.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>36.</td>
<td>In many ways, I feel disappointed about my achievements in life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>37.</td>
<td>People would describe me as a giving person, willing to share my time with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>38.</td>
<td>It’s difficult for me to voice my opinions on controversial matters.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>39.</td>
<td>I am good at juggling my time so that I can fit everything in that needs to be done.</td>
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<tr>
<td>40. For me, life has been a continuous process of learning, changing, and growth.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>41. I am an active person in carrying out the plans I set for myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>42. My attitude about myself is probably not positive as most people feel about themselves.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>43. I have not experienced many warm and trusting relationships with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>44. I often change my mind about decisions if my friends or family disagree.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>45. I have difficulty arranging my life in a way that is satisfying to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>46. I gave up trying to make big improvements or change in my life a long time ago.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>47. Some people wander aimlessly through life, but I am not one of them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>48. The past has its ups and downs, but in general, I wouldn’t want to change it.</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>49. I know that I can trust my friends, and they know they can trust me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>50. I judge myself by what I think is important, not by the value of what others think is important.</td>
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<tr>
<td>51. I have been able to build a lifestyle for myself that is much to my liking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>52. There is truth to the saying that you can’t teach old dog new tricks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>53. I sometimes feel as if I have done all there is to do in life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>54. When I compare myself to friends and acquaintances, it makes me feel good about who I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Section (5): Self-Control Scale

First, please read the following statements and for each, check the box that best represents you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all like me</th>
<th>A little like me</th>
<th>Some what like me</th>
<th>Mostly Like Me</th>
<th>Very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have a hard time breaking bad habits.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I get distracted easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I say inappropriate things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I refuse things that are bad for me, even if they are fun.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I am good at resisting temptations.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. People will say that I have very strong self-discipline</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Pleasure and fun sometimes keep me from getting work done.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I do things that I feel good in the moment but regret later on.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Sometimes I can’t stop myself from doing something, even if I know it is wrong.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I often act without thinking through all the alternatives.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Section (6): Peer Pressure Scale

Please read the following questions carefully and see if you agree or disagree to the questions.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither agree or disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. My friends could push me into doing just about anything.  
2. I give into peer pressure easily.  
3. At times, I’ve done dangerous or foolish things because others dared me to.  
4. I often feel pressured to do things I wouldn’t normally do.  
5. I felt pressured to send nude images or videos, because a lot of people in my own age have already sent nude image or videos.  
6. I felt pressured to ask for nude images or videos, because a lot of people in my own age have already received nude image or videos.  
7. I felt pressured by my peer to share my nude images or videos with my romantic partner(s) or people I want to have romantic relationship with.  
8. I felt pressured to have sex, because a lot of people in my own age have already had sex.  
9. I felt pressured to drink alcohol because others have urged me to.  
10. I felt pressured to do drugs because others have urged me to.
## Appendix V: Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N Statistic</th>
<th>Mean Statistic</th>
<th>Std. Deviation Statistic</th>
<th>Skewness Statistic</th>
<th>Kurtosis Statistic</th>
<th>Std. Error Statistic</th>
<th>Std. Error Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexting Behaviour</td>
<td>332</td>
<td>9.67</td>
<td>3.131</td>
<td>1.049</td>
<td>.134</td>
<td>1.107</td>
<td>.267</td>
</tr>
<tr>
<td>Sexual Risk behaviour</td>
<td>332</td>
<td>24.12</td>
<td>6.400</td>
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### Appendix VI: Reliability of Scales

#### Reliability of Scales

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### Appendix VII: SPSS output

#### Correlations

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<th>PSW</th>
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<td>-.211**</td>
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<td>.000</td>
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**Correlation is significant at the 0.01 level (2-tailed).
### Independent Samples Test

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<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
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## Independent Samples Test

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<th>t-test for Equality of Means</th>
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<td>Sig.</td>
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Test of Homogeneity of Variances

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<th>df2</th>
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ANOVA

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Multiple Comparisons

Dependent Variable: Sexual Risk behaviour

Tukey HSD

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<th>Mean Difference (I-J)</th>
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* The mean difference is significant at the 0.05 level.
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<td></td>
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* The mean difference is significant at the 0.05 level.
### Independent Samples Test

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<th>t-test for Equality of Means</th>
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### Model Summary

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<th>Adjusted R Square</th>
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<sup>a</sup> Predictors: (Constant), PEER PRESSURE, Sexting Behaviour

### ANOVA<sup>a</sup>

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<sup>a</sup> Dependent Variable: PSW

<sup>b</sup> Predictors: (Constant), PEER PRESSURE, Sexting Behaviour

### Coefficients<sup>a</sup>

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Model Summary

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a. Predictors: (Constant), SELF CONTROL, Sexting Behaviour

ANOVA

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a. Dependent Variable: Sexual Risk behaviour
b. Predictors: (Constant), SELF CONTROL, Sexting Behaviour

Coefficients

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