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AGE AT FIRST SEX AND LIFETIME SEXUAL PARTNERS

BY

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DECLARATION

I hereby declare that this dissertation is my own work produced from research under the supervision of Dr. Adriana Biney.

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Clara Opoku Agyemang	Dr. Adriana Biney
(Student)	(Supervisor)

DEDICATION

I dedicate this work to my late father, Mr. George Opoku Agyemang. I still cherish your memories. Love you daddy.

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Often it is said that, it is better to try than never try at all, I took the step to pursue postgraduate studies and if I look back, I have never regretted making this move regardless. Some people made this journey possible and therefore needs to be acknowledged.

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ABSTRACT

The literature suggests that globally adolescents initiate sex before age 15. In Ghana, young females initiate sex relatively earlier than males. Studies indicate that the age at which one experiences first sex in itself is not the problem, but rather the challenges resulting from the numerous health and social implications associated with it. One outcome in the literature for early sexual activity is a high number of sexual partners which is associated with a risk of contracting HIV/AIDS, STIs and encountering unintended pregnancies. This study examined the relationship between age at first sex and the number of lifetime sexual partners of men and women in Ghana (ages 15-49) using the 2014 Ghana Demographic and Health Survey men's and women's datasets. The study also factored in psychosocial and behavioural factors and assessed their influence on number of lifetime sexual partners. The sample consisted of 7,720 females and 2,993 males.

Three levels of analysis were conducted, namely univariate, bivariate and multivariate analyses. At the bivariate analysis stage, a statistically significant association was found between sex, type of place of residence, respondent's age, education, religion, ethnicity, marital status and the dependent variable, lifetime sexual partners. Multivariate analyses showed the main independent variable (age at first sex) and other variables such as age, educational level, working status, ethnicity, marital status, STI experience and HIV attitudes were significantly associated with lifetime sexual partners. Some factors differed for males and females.

The findings reveal that early onset of sex increases one's number of lifetime sexual partners, and conversely, a delay in first sex reduces a person's number of lifetime sexual partners. The study recommends the prioritization of policies targeted at delaying sexual debut to reduce adolescents' exposure to multiple sexual partnerships.

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ACRONYMS

CDC - Centre for Disease Control

AIDS – Acquired Immune Deficiency Syndrome

HIV – Human Immunodeficiency Virus

GSS – Ghana Statistical Service

GHS – Ghana Health Service

GDHS – Ghana Demographic and Health Survey

STI – Sexually Transmitted Infections

STD – Sexually Transmitted Disease

AFSI – Age at First Sexual Intercourse

WHO – World Health Organization

UK – United Kingdom

US – United States

ANOVA – Analysis of Variance

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Risky sexual behaviour increases one's risk of contracting sexually transmitted infections (STIs) and experiencing unintended pregnancies (CDC, 2018).These behaviours may include having sex at an early age, having sex under the influence of alcohol or drugs, and unprotected sexual encounters with a non-regular partner (CDC, 2018). Among the youth, in particular, risky sexual behaviours practiced include engaging in sex with older partners, as well as concurrent and sequential multiple sexual partnerships. Risky sexual behaviour is high among youth across the globe (Eaton, Flisher, & Aarø, 2003). The subject of risky sexual behaviours has received much attention but it is still an issue of concern and this is because once these behaviours are established they may be difficult to change (Zuma et al., 2010). In the developed countries, adolescents are most likely to experience their first sex before age 15 (Stanley, 2009). In addition, they tend to have shorter sexual relationships on average, which expose them to the risk of STIs. Risky sexual behaviour in sub-Saharan Africa has been notably higher in poor urban settings and the informal settlements because of the poor socio-economic conditions, especially in settings where women become vulnerable to risky sexual behaviours as a result of high unemployment, and low wages (Greif, Dodoo, & Jayaraman, 2011).

Early initiation of sexual activity among adolescents, whether within marriage or not, has been identified as a major risk factor for a number of negative reproductive health

consequences, including early childbearing and associated complications for maternal and child health outcomes, as well as increased risk for STIs including HIV (Godha, Hotchkiss, & Gage, 2013;Kabiru & Ezeh, 2007). It also exposes the youth to increased risk of unsafe abortion (Biney & Atiglo, 2017). Early sexual initiation may also lead to lower family income, larger family sizes, and disruption of one's education. Age at first sex is an important indicator of sexual risk, as it marks the beginning of one's exposure to infection and it is a key indicator for monitoring response to the HIV epidemic among youths (Zuma et al., 2010). Early sexual debut increases young people's risk to HIV and other STIs because at younger ages they have little knowledge about sex and are not able to negotiate for safe sex (Mazengia & Worku, 2009). Sexual debut among young people is normally unprotected and uniformed, hence its consequences. Early sexual initiation has also been identified as a risk factor for the process of cervical carcinogenesis (Stanley, 2009). Also, studies shows that people who have sexual intercourse early may continue with the behaviour, which puts them at a higher risk than their counterparts who delay their first sex (O'Donnell et al., 2001). Among males especially, early sexual initiation perpetuates high risk sexual lifestyles at a later stage in their lives (Zuma et al., 2010).

There is a general belief that the age at first sexual intercourse in one way or the other is related to the number of life time sexual partners (O'Donnell et al., 2001). Empirically, sex at an early age has been found to be associated with concurrent multiple partnerships (Gupta & Mahy, 2003). Early first sex has been consistently found, from a number of studies, to be interrelated with a higher number of sexual partners as well (O'Donnell et al., 2001; O'Hara et al., 2012). This can be explained by one's exposure to sex after the first early experience and the desire to explore. Also, if one starts sex early, the person will have enough years ahead to accumulate a number of sexual partners relative to one who starts later, and this may

be one of the reasons why some studies highlight delaying of sexual debut as a way of curbing risky sexual behaviours.

In the Western societies, sexually transmitted infections which include chlamydia, gonorrhoea, and HIV continue to be a health challenge irrespective of the preventive strategies (Novak & Karlsson, 2006). In 2016, there were approximately 36.7 million people living with HIV across the globe (WHO, 2016). According to Maswanya (1999), a substantial number of teenagers also believed that condoms could not be trusted, could bring about diseases, and also reduced sexual satisfaction; therefore, they did not want to use condoms. In a study by Agarwal et al. (2013), evidence showed that increased HIV/AIDS knowledge did not always translate into practicing safe sexual behaviour. Also, increases in one's number of sexual partners had a positive relationship with increases in the quality of HIV knowledge (Agarwal et al., 2013). Olawuyi & Falegan (2005) also found that lack of sufficient knowledge and engagement in risky sexual behaviour were the obvious risk factors for the high rate of STDs among Nigerian youth and youth in most developing countries. This calls for a study examining the association between age at first sex and number of lifetime sexual partners and includes the interplay of key psychosocial and behavioural factors.

1.1 Statement of the Problem

One's lifetime number of sexual partners is an issue deemed private, yet earnestly socially regulated. According to World Health Organization's 2014 report on "Health for the World's Adolescent", AIDS is the most common cause of death among adolescents and HIV leading to AIDS is contracted generally through risky sex. Sub-Saharan Africa, the most underdeveloped, poorest region in the world faces the highest rate of HIV infections (World Population Datasheet, 2017;UNAIDSCommunications and Global Advocacy, 2018). They also risk unplanned pregnancy and other sexually transmitted infections (STI's) (Gupta &

Mahy, 2003). Early sexual debut may be associated with a greater likelihood of unprotected intercourse and multiple partners, leaving the adolescent at risk of contracting HIV/AIDs and other STIs, (Blanc and Way 1998; as cited in Gupta & Mahy, 2003). Ghana has a youthful population with every two in five people being under age 15 (GSS, 2013). Notably, most sexual debut happens around this age before they enter adulthood. These under fifteens form part of the dependent population and repercussions from living risky sexual lifestyles do not become a burden to them only, but also affects their households especially the ones they depend on. There have been a number of campaigns to reduce sexual risk-taking behaviours over the years, yet a lot of people, young and old, continue to engage in risky behaviours; and this occurs despite high awareness about HIV and other STIs. In addition, it is unclear about how HIV knowledge, HIV attitudes, experiences with STIs, and condom use – which are important variables to consider when understanding sexual risk-taking behaviour – influences the relationship between age at first sex and number of one's lifetime partners. Therefore, the study will provide an understanding of the role of psychosocial and behavioural factors in explaining the relationship between age at first sex and lifetime sexual partners.

Adolescents in Ghana are known to be sexually active and they employ all kinds of sexual behaviours that can be ascribed to the rapid social, cultural and economic changes occurring at both the local and international levels (Asampong et al.,2013). Studies on sexual knowledge and practices of adolescents reveal that a considerable number of boys and girls in many countries engage in sexual intercourse before their 15th birthday (Jejeebhoy, 1998). However, early and unprotected sexual initiation can elicit a succession of harmful physical, emotional and social outcomes, especially for girls. This is because adolescents are less likely to have the foresight, skills, cognitive maturity, information and the support they need to protect themselves from unwanted pregnancy, HIV and STIs, unlike adults (Doku, 2012). Age at first sex is associated with more lifetime partners (Mazengia & Worku, 2009), more

specifically, sexual debut at younger ages is related to multiple sexual partners which has been noted as the key medium through which many STIs, including HIV, spread. Over the years, education on HIV/AIDS has explicitly focused on the sexual risk-taking behaviours of young people, and very little attention has been paid to the adults, who are seen to be in the higher income groups, who can use their disposable income for multiple sexual partners or risky sexual lifestyles (Awusabo-Asare & Annim, 2008). Studies on risky sexual behaviour have mostly given attention to the 15-24 years age groups since they are the population mostly at risk; however, expanding it to other age groups which includes adults in the reproductive age group, and not limiting it to just 15-24 year olds would generate greater insights on the topic. Therefore, this study will include respondents in the reproductive age range of 15 to 49 years.

The magnitude of the consequences of risky sexual behaviours for men is rarely discussed or considered as compared to women. Reasons for this may be due to the gender-related inequities arising from negative consequences of risky sex. For instance, it is a girl who experiences teenage pregnancy and if there is any termination of education, they are the ones who face this challenge while the males continue with their education. The negative outcomes such as early sexual initiation, pregnancy and early childbearing, push the female adolescent into early adulthood soon after menstruation and before they mature physically (Jejeebhoy, 1998). Moreover, when it comes to female sexual debut, men are usually seen as the perpetrators of the act. In view of this, males are more likely to use a condom at first sex than females because of female's unpreparedness for sex at that stage. This and other reasons have warranted for more studies on risky sexual behaviours among the female population globally, neglecting men's sexual behaviour and the repercussions of their risky behaviour. However, there are reasons to include studies of this nature on men. The literature among men and women in Ghana has shown that women's sexual debut occurs earlier than men's,

however, these values differ across countries in sub-Saharan Africa. Harrison (2005) found in his study conducted in South Africa that men aged 15-24 years experienced sexual debut before age 15. He also found out that men who have their first sex at these younger ages less than 15 years were more likely to report risk behaviours, no use of condom and not feeling they were ready for sex at later ages. These findings highlight the need to explore sexual debut and number of sexual partners among men, however, there is scant quantitative information about men's experiences of sexual debut (Harrison, 2005). Not studying men enough means we are only dealing with the problem halfway. Therefore, this study seeks to fill the gap in the literature by exploring a combination of both men and women's sexual experiences.

1.2 Research Questions

1. What is the association between age at first sex and lifetime sexual partners of men and women in Ghana?

2. How do psychosocial and behavioural factors influence the relationship between age at first sex and lifetime sexual partners?

1.3 Rationale

Early sexual debut tends to have negative implications on adolescent health, education and families. Studies on sexual behaviour show that among young people in sub-Saharan African countries, including Ghana, adolescents have high levels of awareness but little detailed knowledge about pregnancy and HIV prevention (Asampong et al., 2013). Amidst all the educational awareness and campaigns about sexually transmitted infections, some youth still engage in risky sexual lifestyles. With the introduction and continued spread of HIV, adolescent sexual activity has become the focus of interrogation, speculation and fear. These

outcomes necessitate the exploration of this topic in more detail using recent nationally representative data among men and women in Ghana.

Among women who have ever had sex in the 2008 Ghana Demographic and Health Survey (GDHS), the average number of lifetime sexual partners was 2.0 and it increased slightly to 2.3 in 2014 GDHS. Among men who have ever had sex in the 2008 GDHS, the average number of lifetime sexual partners was 5.3 and this increased to 7.3 in the 2014 GDHS. Ages at first sex also differ for men and women, with women debuting earlier than men (GSS, GHS, ICF International, 2015). Therefore, knowledge about the patterns of sexual behaviour among both men and women in this context can be relevant in understanding the preventive strategies needed to promote healthy behaviour among men and women in Ghana (de Sanjose et al., 2008).

Finally, understanding how age at first sex and psychosocial factors are associated with one's number of lifetime partners can help inform existing policies and programs on this aspect of adolescent sexual and reproductive health. It could also inform policy makers about important findings on the subject of risky sexual behaviour that could generate into revising specific policies and interventions that are in place, thereby reducing the aftermath. Furthermore, the knowledge about one's number of lifetime sexual partners coupled with the person's age at first sex can help policy makers have an insight on the subject with which they can formulate the best strategies to put in place to delay sexual debut among males and females in the Ghanaian population.

1.4 Objectives

The study seeks to generally examine the relationships between age at first sex, psychosocial and behavioural factors, and lifetime sexual partnerships of men and women in the reproductive ages in Ghana.

Specifically, the study will:

- Assess the relationship between age at first sex and lifetime sexual partners.
- Investigate the gender differences in age at first sex and lifetime sexual partners.
- Examine the relationship between selected socio-demographic, economic and cultural variables, as well as psychosocial and behavioural factors, and their associations with lifetime sexual partners.

1.5 Organization of the Study

This study is structured into seven chapters. Chapter One, which is the first chapter, gives an introduction of the study by providing a background to the study, statement of the problem, research questions, rationale for the study and the objectives of the study. It is followed by Chapter Two, which consists of a review of appropriate literature pertaining to the study, a conceptual framework as well as hypotheses. Chapter Three throws light on the methodology used for the study.

Chapter Four presents an analysis of the demographic and socio-economic characteristics of respondents. It also presents descriptive information on the samples through charts and tables. Chapter Five presents information on the bivariate results where associations were tested between independent, psychosocial and behavioural factors, and control variables on lifetime sexual partners. Chapter Six presents results from multivariate analyses, which were used to tell the magnitude of influence of age at first sex, controlling for the selected demographic and other key variables, on lifetime sexual partners. Chapter Six also discusses the findings of the study in relation to findings of similar studies conducted elsewhere. Finally, Chapter Seven presents the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Risky sexual behaviours such as early sexual intercourse, multiple sexual partners, unprotected sex and non-contraceptive use expose one to sexually transmitted diseases and unintended pregnancies. Many studies have examined the relationship between age at first sex and lifetime sexual partners along with other factors associated with this form of risky sexual behaviour. This chapter provides a detailed review of the literature on lifetime sexual partners, age at first sex, and psychosocial and behavioural factors, as well as the characteristics of individuals associated with lifetime sexual partners. The conceptual framework underpinning the study and hypotheses guiding the research are also discussed.

2.1 Lifetime Sexual Partners

Understanding the factors that forecast one's number of sexual partners is of importance in a number of ways. It helps us to recognize the variability of human sexual behaviour (Bogaert & Fisher, 1995). Young people who engage in multiple sexual partnerships together with inconsistent condom use are extremely vulnerable to infections. One would argue that accumulating more sexual partners or having more than one sexual partner does not inflict any significant risk if condoms are used with all sexual partners but Binson et al. (1993), found that the frequency of condom use decreases with increasing numbers in sexual partners.

Multiple sexual partnerships are amongst one of the risky sexual behaviours that places people at the risk of HIV. This behaviour has been found to happen not only among the

unmarried, some married people also have multiple sexual partners. A study carried out in Cameroun found that married men engaged in extramarital affair, with 21% of the men reporting that their last sexual intercourse happened outside marriage (Mutenheri, 2014).

Surveys suggest that men report more lifetime heterosexual partners than women. According to Brown & Sinclair (1999)**,** different strategies are used by both sexes in reporting their lifetime number of sexual partners, men normally fall on the past whilst women normally use the latter. They found that the discrepancy in the lifetime sexual partners of men and women are not because they intentionally misreport their sexual histories but because they use different estimation strategies.

Globally, those who have had early sexual debut are more likely to have two or more sexual partners in the past 12 months and 10 or more lifetime sexual partners (Zuma et al., 2010). The commonest of relationship types is the monogamous type of relationship, that is, between a man and a woman, however, many sexually active people, those in Sub-Saharan Africa inclusive, have more than one sexual partner (Todd et al., 2009). According to Brown & Sinclair (1999), if surveys produce precise results from respondents, then both men and women should report the same number of sexual partners because a new sexual partner for a man is also a new sexual partner for a woman. The estimation of lifetime number of sexual partners by men and women differs as a result of some reasons. Men inflate or exaggerate their lifetime number of sexual partners to make them feel powerful and adventurous whilst women underreport their lifetime number of sexual partners (Brown & Sinclair, 1999). This is because society pardons certain behaviours of men with regards to their sexual escapades whilst women are expected to be chaste.

Harrison (2005) conducted a study in South Africa and found that 32.2% of the respondents reported having three or more sexual partners in the past three years whilst 11% reported five

or more partners in the past three years and early first sex was found to be a significant predictor of three or more partners. A study in four African countries on the reported number of sexual partners showed diversity in the number of lifetime sexual partners, but the numbers of lifetime sexual partners for men in all the countries were greater than women. In terms of a previous year, men reported a higher number of recent sexual partners compared to women (Todd et al., 2009). Among men aged 45-49 in Zimbabwe, 8 lifetime sexual partners were reported. However, on average women had 2 or 3 lifetime sexual partners across all the four countries. In almost every country there is some amount of risky sexual lifestyle occurring among the youthful population which varies from country to country. Among sexually active youth in India, about 56% had two or more sexual partners whilst 41% had only one partner.

In Ghana, Doku (2012) found that among sexually active youth, 31% had multiple sexual partners. Studies shows that other factors such as drunkenness, tobacco use, and other drugs increases ones likelihood of engaging in sex and also having one or more than one sexual partner (Doku, 2012). A study conducted in the United States among adolescents and young adults found similar results, where alcohol and drug use were found to be significant determinants of their lifetime number of sexual partners, and alcohol-related behaviour was found to be a key determinant for multiple sexual partners in the recent past (Santelli et al., 1998).

A serious increase in the number of lifetime partners was found between the ages of 14 and 21 in a study among the US population. Those who had had six or above lifetime partners increased from 8% to 31% among females and for males it increased from 14% to 45%.

2.2 Age at First Sex

Early initiation of sex increases the lifetime sexual partners of a person, and the number of non-marital sex partners is associated with negative outcomes including increased rate of out-of-wedlock pregnancy, increased single parenthood, increased abortion, and depression. Globally, age at first sex has been found to have a link with lifetime sexual partners. In an Australian study on attitudes towards sex among adults, premarital sex was accepted by most of the participants who stated that sex was important for a sense of wellbeing. This high level of approval of premarital sex called for a decreasing age at first sex in Australia (Rissel et al., 2003). In the United States, adolescents are most likely to experience their first sex before age 15. Among developed countries, US teenagers have more sexual partners than teenagers in other countries. This means they are at a higher risk of getting STIs (Stanley, 2009). In Western Europe in the 20th century, the United Kingdom had the highest teenage birth rates. The prevalence of genital human papillomavirus was also seen in young women aged 15-19 soon after sexual initiation (Stanley, 2009).

Younger youths (15-19) are significantly more likely to report early sexual debut than adult youths (20-24) (Zuma et al., 2010). This has been consistent in most literature on sexual debut. In a study by Harrison (2005), 13.1% of men aged 15-24 reported they had their first sexual encounter before age 15. Also, Durbin et al. (1993) found in his study that those who had their first sex before age 13 were nine times more likely to have had three or more sexual partners compared to those whose first sex happened at age 15 or 16. In households where there is an alcohol dependent biological parent, or a relative like an aunt, uncle, or grandparent, or being born to a teenage mother, the risk of early age at first sex increases (Cavazos-Rehg et al., 2010).

A study carried out in China among female undergraduate Fine Arts students showed a strong association between lifetime number of sexual partners and age at first sex. Multiple lifetime sexual partners increased with an earlier onset of sex (Zou et al., 2013). Young age at first coitus for males increased the odds of having multiple sexual partners. In a study in Ghana, 25% of adolescents reported ever having sex, and 41.3% of them had their first sexual intercourse even before age 15. Also, the mean age for first sexual intercourse was 14.8 years. Results also showed that age at first sex had a positive association with number of sexual partners, and substance use was also found to have an association with first sex and number of sexual partners (Doku, 2012).

Choosing to abstain from sex or delaying its debut may be one of the major challenges facing young people, given the widespread exposure to sexually explicit materials, peer pressure, and social norms that to some extent "exalts" risky sexual behaviour, including multiple sexual partners (Kabiru & Ezeh, 2007).

2.3 Sex/Gender

Studies suggest that more males engage in sex than females but not all empirical evidence supports this. For instance, Zuma et al. (2010) found that among their study sample, out of all those who have ever had sexual intercourse, 41% were males and 59% were females, meaning more females were sexually active than the males. On the other hand, unlike females (35.1%), males (44.6%) were significantly more likely to report early sexual debut. Consistently, some studies shows similar results where more teenage boys report sexual experience, are frequently having sex and have more sexual partners than their female colleagues (Doku, 2012). Overall, across various contexts, adolescent males are more likely to report multiple sexual partners in their lifetime than females. Ostovich (2004) found that the sex drive of men was higher than women in their sample, but regardless of this the men

were more likely to report being virgins compared to women. De Sanjose et al. (2008) also found a strong correlation between age at first sex and number of sexual partners among women, that is, a higher number of sexual partners was more likely to be reported among women with an early age at first sexual intercourse (AFSI).

Recent times in Ghana suggest sexual risk-taking behaviour has been an issue regardless of the numerous promotions of awareness and campaigns against it, and which mostly take place among the youth. Many of these young people are not mature enough to handle the consequences and hence are at risk. Out of ten Ghanaian young women aged 15-19, four have ever had sex and out of ten Ghanaian young men of the same age group, two have ever had sex. Also four out of the ten women who have ever had sex have more than one sexual partner whereas six out of ten men who have ever had sex have more than one sexual partner (The Alan Guttmacher Institute, 2004). Among women aged 25-29 in Ghana, 11% had their first sex by age 15, 44% by age 18 and 68% by age 20 whilst among men age 25-29, 5% had their first sex by age 15, 27% by age 18 and 52% by age 20 (GDHS, 2014). These point to the fact that women in Ghana initiate sex earlier than men which puts them at a higher risk. There are also issues of young people dealing with early pregnancies and HIV/AIDS infections. In Agbogbloshie, 37% of men said they had more than one sexual partner in just the last year whilst 9% of women had more than one sexual in the last year as well (Cassels et al., 2014). In Ostovich's (2004) study, lifetime sexual partners for men were more than that of women and they had less restricted socio-sexual orientations. A socio-sexual orientation is the individual difference in the tendency to have casual uncommitted sexual relationships.

2.4 Age

Findings from a study in Ghana and Kenya indicate that sexual risk-taking was higher among young people (15-24 years) and was lower among older females in the two countries

(Awusabo-Asare & Annim, 2008). These young people are less likely to be married and even if in a relationship, they are more likely to live apart, which could make a sexually active individual turn to other sexual relationships because the absence of a regular partner can increase risky sexual behaviour. A contrasting result was found in another study where earlier birth cohorts reported a higher number of sexual partners than those in the later cohorts. Also, ten lifetime sexual partners were reported on average among men below age 35 (Harrison, 2005). Bogaert & Fisher (1995) argue that older people should have a higher number of sexual partners in their lifetime because they have had a long enough period to be sexually active. Also amongst men, relatively older people may have had the possessions and qualities that may have been of value to attract women leading to multiple partnerships.

2.5 Type of Place of Residence

The type of place of residence can increase people's vulnerability to risky sexual behaviour. In Dodoo, Zulu, & Ezeh, (2007), the urban poor were significantly more likely to have early first sex and a higher incidence of multiple sexual partnerships than those in the rural settings.

Some other studies found a conflicting result. For instance, Doku (2012) found that rural teenagers tend to engage in sex earlier than their urban counterparts and in view of that, they have a higher number of sexual partners than urban teenagers. This could be explained by the inequalities that exist between rural and urban settings in terms of social amenities and services, for example, poor health services, and poor education. Most urban settings have reproductive health centres, and awareness campaigns against risky lifestyles unlike in the rural settings.

2.6 Educational Level

In Awusabo-Asare & Annim's (2008) study, females with higher levels of education was about five times more likely to engage in sexual risk-taking behaviours than people of the same gender with no formal education. In Ghana, among males, the same results still hold but the probability for males was twice as high as compared to females. Among females with secondary education in Kenya, sexual risk taking was highest whiles the lowest was among those with no education. For males, those in the primary and higher education category were more likely to be involved in risky sexual behaviours.

On the contrary, Addai & Addai (2010) empirical evidence showed that women with secondary or higher education did not initiate sex early, which could be explained by one's perceived idea and determination to have a good future in life. This could discourage someone from early initiation sex, and the consequent result of having more lifetime sexual partners.

2.7 Marital Status

Different studies have found contrasting results concerning marriage and multiple sexual partnerships or risky sexual behaviours. From studies, married people report less sexual partners (Santelli et al., 1998). Rissel et al. (2003) also found that extramarital affairs were unacceptable in the Australian population, so once one is married, he or she is expected to remain faithful to their partner, but a study in Cameroun by Mutenheri {2014), most men were engaged in extramarital affairs.

In another study, sexual risk taking was high among the never married in both Ghana and Kenya as compared to those that were married. In Ghana, it was about 15 times and in Kenya about 12 times higher than those who were married. Participants in a relationship who were

not living with their partner, divorcees and widows were associated with more sexual partners (Awusabo-Asare & Annim, 2008).

2.8 Working Status

Santelli & Lowry (2000) found that young men who were working for more hours were more likely to be active sexually. In South Africa, a study found that men that were working in the mines had lots of sexual partners, precisely with sex workers, which increased the risk of STI amongst both men and women in that setting (Williams et al., 2003). In other contexts, studies have found that relatively older men who may be working may have the possessions and qualities that are of value to attract women. These men would use their material and financial influence resulting from them being employed and exhibiting a better socio-economic status than their unemployed counterparts. A study in South Africa found that young people's sexual relationships are often reinforced by a financial exchange and they are lured into having sex for gifts (Kaufman & Stavrou, 2004). From focus group discussions and in-depth interviews with women in a study, a relationship was established with the aim having material gain from men and for unemployed women, the main brain behind being in a relationship was financial support and nothing else (Ankomah, 1999). The author argued that improving women's economic status is not enough to empower women but modern-day societal norms which support sexual exchange must be changed.

2.9 Ethnicity

Studies conducted in the US indicate that race and ethnicity are associated with multiple sexual partnerships. In a study, a considerable number of people who were blacks had multiple sexual partners (Peterson et al., 1992). In a study by Durbin et al. (1993), non-Hispanic Blacks had a higher number of multiple sexual partners than non-Hispanic Whites. Zuma et al. (2010) found that Blacks in South Africa were significantly more likely to report

early initiation of sex than the Whites and Asians. Adimora, Schoenbach, & Doherty (2007) also in their study found that among non-Hispanic Blacks and Hispanic men, there was a higher incidence of concurrent sexual partnerships and it was seen as the contributing factor for the high rate of HIV infection among non-Hispanics and Hispanics in the United States of America. In a study in Ghana, the Ga/Dangme ethnic group was one of the ethnic groups where sexual initiation happened before age 17 and Akan's were also found to have a likelihood of initiating sex before age 17; however, ethnic groups that practice the patrilineal system which includes Guan, Mole-Dagbani's and others were not likely to initiate first sex before age 17 (Addai & Addai, 2010). This may suggest that these groups of people are more traditional, hence, sexual taboos are observed by them more than the matrilineal group (Akans) or the Ga/Dangmes which studies indicate as being more sexually permissive (Biney & Dodoo, 2016; Henry & Fayorsey, 2002). For the patrilineal group such as Mole-Dagbani's and Guan's, a woman's marital status is very important at birth (Addai & Addai, 2010). These socio-cultural norms restrict women from engaging in multiple sexual partnerships.

2.10 Condom Use

Condom use is a key element in the prevention of STIs, the contracting of HIV and unwanted pregnancies. It has been mentioned as the most often used and safest sex strategy (Hillier, Harrison, & Warr, 1998). In most studies, more males are found to use condoms than females. About 70% of men and women in Wulfert and Wan's (1993) study were inconsistent condom users or even not at all. They also found that certain beliefs and expectations about using condoms determined whether sexually active men and women practiced safe sex. In a study among American teenagers, evidence suggests that there was less use of condoms than their counterparts in Great Britain and Canada.

Misconceptions about condom use such as: condoms reduce the enjoyment of sex, cause sores on the penis, can get stuck inside a woman's vagina, and it is a sin to waste semen are widespread in sub-Saharan Africa, and for this reason prevents some people from using condoms during their sexual encounters. This is one contributory factor to residents of developing countries non-use of condoms even though they may be sexually active.

Among sexually active people, males have been found to be consistent condom users than females. In Shokoohi et al. (2016), 26.1% of males vs. 7.1 of females were consistent condom users. Also in their study, around one third of the respondents said they used condoms in their last sexual intercourse, where 38.2% males vs. 25.9% females used it. Hillier, Harrison, & Warr (1998) also found that among sexually active participants, about 45% were not using condoms to protect themselves which exposed them to the risk of contracting STDs.

Studies have found that embarrassment prevents the acquisition and use of condoms. In a study in England, young people admitted a feeling of embarrassment when seen by an adult in the process of purchasing a condom, others also admitted a feeling of embarrassment when purchasing it at a public place (Bell, 2009). Girls also found it difficult to negotiate condom use, especially when they are expected to be inexperienced when it comes to sexual matters (Hillier et al., 1998). Hillier, Harrison, & Warr (1998), again found that lack of anonymity was the main reason why girls feel hesitant to get condoms. Some young people rather preferred condoms to be obtained from vending machines in an obscure place because according to them, the vending machine 'does not look at you'. With regards to number of sexual partners, Exavery et al. (2011) found no association between condom use and multiple sexual partnerships. Adolescents were engaging in sexual activity without the use of condom, whether in multiple sexual partnerships or not. Contrary to other studies, about half of both men and women with multiple sexual partners reported always using condoms with

secondary heterosexual partners (Oss et al., 2019). In addition, Shafii et al. (2004) in their study found an increased likelihood of subsequent condom use if an adolescent used a condom at their sexual debut.

2.11 STI Experience

The commonest STI in the UK is genital warts caused by the Human Papilloma Virus (HPV) and in 2006, close to 84,000 cases were reported from sexual clinics. In a study carried out in Agbogbloshie, an urban poor locality in Accra, Ghana, HIV prevalence was 5.5% (Cassels et al., 2014). A greater number of sexual partners increase the risk of acquiring sexually transmitted infections thus an association exists, thus, someone with an STI is likely to report having has several sexual partners. In a study by Fatusi and Wang (2009), experiencing an STI was significantly associated with multiple sexual partnerships which was a major mediator of the association between early sexual debut and STI's (Fatusi & Wang, 2009). Karata & Mkoma (2007) found that the risk of being infected with STIs is associated with engaging in multiple sexual partnerships.

2.12 HIV Attitude

The literature is scarce on the association between HIV attitudes and number of sexual partners, however, the few studies suggest positive attitudes resulting in acceptance and no fear of risk of acquiring HIV which may lead to more sexual partnerships and vice versa. In an Iranian study, there was a belief among most respondents that people living with HIV should be supported (88%). About 54% said they would not end their friendship with people living with HIV, that is, having HIV would not make them not want to associate with you (Shokoohi et al., 2016). This suggests that people with such positive attitudes about people living with HIV could not see themselves at risk of HIV and thus not curb behaviour to engage in sex with more partners, whether concurrently or sequentially. On the other hand,

Maswanya (1999) found that there was prejudice against people who have contracted HIV/AIDS, 16% of respondents said they could not take care of a person with the infection without worries and 50% could not be a friend to a person with HIV/AIDS (Maswanya, 1999). This could infer that people with these negative attitudes would not want to engage in sexual relationships with several people in order not to acquire HIV.

2.13 HIV Knowledge

Wulfert &Wan (1993) found that men and women were knowledgeable about the facts and myths of HIV transmission; In spite of their knowledge and awareness, there was no significant effect of knowledge on safer sex behaviour. Most of the men and women in their study who were well-educated did not feel at risk of contracting the AIDS virus and so engaged in risky sexual behaviours that could possibly lead to HIV infection.

In a study conducted in Iran, most of the respondents had knowledge about the main route of HIV transmission, nevertheless, there were some misconceptions about the transmission of HIV through mosquito bites (Shokoohi et al., 2016). Williams et al., (2003), found in their study that respondents had good knowledge about HIV and its consequences but still the numbers that were using condoms were not impressive and encouraging. In a school survey, students who had good knowledge about HIV and had high knowledge HIV transmission were less likely to report having had two or more sexual partners (Kolbe et al., 2019). Maswanya, (1999) on the other hand found a discrepancy between student's with good HIV knowledge and their sexual behaviours. Students with good knowledge regarding HIV transmission and its consequences still engaged in multiple sexual relationships or had two or more sexual partners. They knew they were at high risk but still engaged in the behaviour.

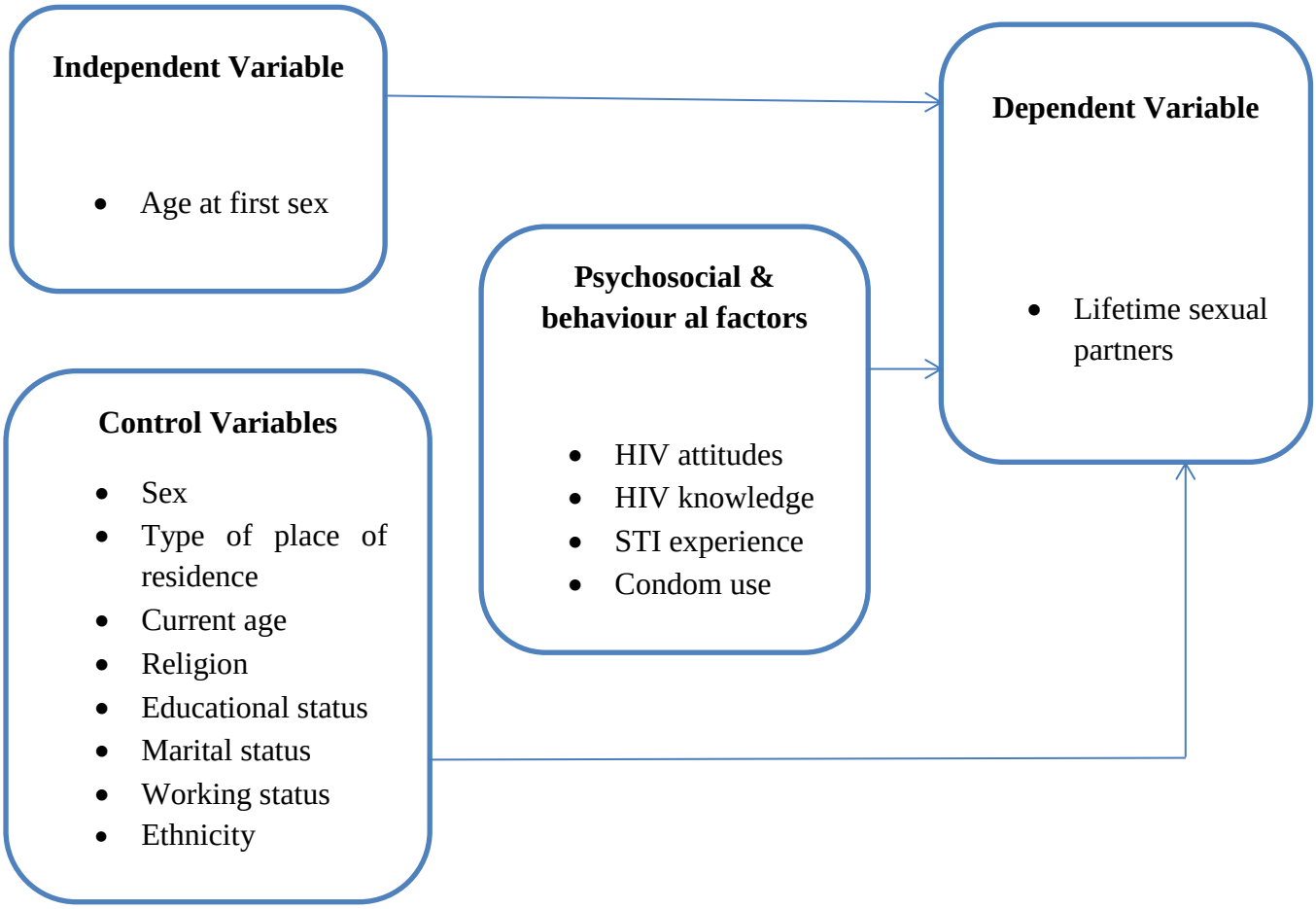
2.14 Theoretical Framework

This study is adapting the Social Cognitive Theory (SCT), which was propounded by Albert Bandura in 1986. The theory postulates that learning occurs in a social milieu or environment. It considers past experiences which determine whether or not a behavioural action will occur, and these past experiences influence reinforcements and expectations. All these influence an individual's behavioural actions and also the reason why an individual employs that behaviour. Thus, risky sexual behaviour established at a young age may be that past experience that will also influence reinforcements and expectations of sexual behaviour in adult life. This also suggests that beginning sex at a young age may reinforce the need to continually practice sex throughout one's adult life, resulting in more partnerships for both men and women; however, social norms may result in less access to partners for women than for men.

2.15 Conceptual Framework

Based on the SCT theoretical framework and frameworks gathered from the reviewed literature, the following conceptual framework was developed. This framework proposes that age at first sex is associated with lifetime sexual partners. The framework also proposes that males and females have different lifetime sexual partners and so in this study we control for sex of the respondents; thus, the study results will be examined by sex. This conceptual framework will therefore help us understand the relationships between the selected independent variable, psychosocial and behavioural factors, control variables and lifetime sexual partners of men and women.

Figure 1: Conceptual Framework



Author's Construct, 2018.

As the literature suggests when age at first sex increases, the number of lifetime sexual partners will decline. In terms of psychosocial factors, a positive HIV attitude will be associated with a higher number of partners. HIV knowledge is classified as low and high; the literature indicates that high knowledge will result in fewer partnerships. Behavioural factors are also important in examining number of lifetime sexual partners. A prior STI experience in the last 12 months is likely to result in a higher number of partners while condom use during most recent sex in the last 12 months suggests more lifetime partners. For the control variables, being employed may be associated with a higher number of sexual partners. Being married will be associated with fewer number of lifetime sexual partners and

type of place of residence would also be associated with lifetime sexual partners where rural residents have fewer lifetime partners than urban residents.

2.16 Hypotheses

1. People who begin sexual activity early will have a higher number of lifetime sexual partners than those who initiate sex at later ages.
2. Males will have a higher number of lifetime sexual partners than females.
3. People with good HIV knowledge will have fewer lifetime sexual partners than people with poor HIV knowledge.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents a synopsis of the study area. It also discusses the source of the data used, research design, sample selection design and the data analysis strategy. A description of how variables are measured in addition to data limitations of the study are also discussed.

3.1 Study Area

The West African nation of Ghana has a total population of 27 million (GDHS, 2014). The major cities in the country are Kumasi in the Ashanti Region and Accra in the Greater Accra Region (which is Ghana's capital city). The Greater Accra, Ashanti and Eastern Region form about fifty percent of the country's population (GDHS, 2014). Ghana is a developing country with approximately 57% of the population being under age 25, depicting the country's young age structure. This youthful age structure suggests a high fertility rate which stands at approximately 4 births per woman. Ghana's sex ratio is 103 females per 100 males. Among this population, risky sexual behaviour is high regardless of the many awareness and campaigns curbing it.

3.2 Source of Data

The datasets used in this work were from the 2014 Ghana Demographic and Health Survey (GDHS). The Ghana Demographic and Health Survey was implemented by Ghana Statistical Service (GSS), the Ghana Health Service and other international and national health organizations. Technical assistance was provided by ICF International through the DHS Program. The survey was designed to provide data for monitoring the health situation of

Ghana's populace. Precisely, it provides demographic and health indicators such as fertility, sexual activity, marriage, family planning, breastfeeding practices, maternal and child health, nutrition, mortality, HIV/AIDS, malaria treatment and prevention, smoking, tuberculosis, blood pressure among adults and others.

3.3 Sample Selection and Design

The sampling frame used was an updated frame from the 2010 Ghana Population and Housing Census by Ghana Statistical Service. A two stage sampling design was used. With the first stage, 427 clusters were selected (216 in urban areas and 211 in rural areas). The second stage involved a systematic sampling of households, where households were randomly selected to be part of the survey. From each cluster, about 30 households were selected to form the total sample size of 12,381 households. Men and women in their reproductive ages, 15-59 for men and 15-49 for women were eligible for the survey.

Three questionnaire types were employed in the GDHS, including; the Household Questionnaire, Women's Questionnaire and Men's Questionnaire. In the 2014 GDHS, 9396 females and 4388 males responded to the questionnaire, nonetheless, for the purposes of this study, only men and women who had ever had sex were selected for the study. They were included because they had a sexual debut and so were at risk of having ever had one or more partners.

3.4 Sample Size

The study had a sample of 10,713 respondents out of which 2,993 (27.9%) were males and 7,720 (72.1%) were females. Respondents were aged between 15 and 49 years. Hence, men aged 50 to 59 were excluded for the purposes of comparative analysis. The unit of analysis was men and women aged 15-49 who had ever had sex.

3.5 Measurement of Variables

Variables in this study have been grouped into four: independent, dependent, control, and psychosocial and behavioural variables.

3.6 Dependent Variable

The dependent variable is lifetime sexual partners and respondents were asked how many sexual partners they've had in total in a lifetime. The question specifically asked: **In total, with how many different people have you had sexual intercourse in your lifetime**? The dependent variable was left as a continuous one, where the respondent was left to mention or estimate his/her number of lifetime sexual partners. The highest number of sexual partners was 95 or more but for the purposes of this study it was kept at 95 exactly. In addition, respondents mentioning 'don't know' were taken out of the sample.

3.8 Independent Variable

With age at first sex as the independent variable, only people who have ever had sex were considered for the purposes of this study. Age at first sex was left as a continuous variable. The question asked, **how old were you when you had sexual intercourse for the very first time?** Respondents who had never had sex were taken out of the sample, as well as those who said they "didn't know" or their responses were deemed as inconsistent. Also, for respondents who initiated sex at first marriage, their age at first marriage were used as age at first sex.

3.9 Control Variables

Age at first sex alone cannot explain one's lifetime sexual partners, there are other demographic and socio-economic variables that may affect the relationship between the dependent (lifetime sexual partners) and the independent variables (age at first sex).

Demographic and socio-economic variables that were included as controls were: respondent's current age, type of place of residence, educational level, religion, ethnicity, working status and marital status. Sex was not treated as the other control variables in the study but rather due to the comparative study design, males and females were analysed separately. As mentioned earlier, for the purposes of comparison among the sexes, male respondents over 50 years were excluded from the sample.

In the dataset, ethnicity was categorized as Akan, Ga/Dangme, Ewe, Guan, Mole-Dagbani, Grusi, Gurma, Mande, and Other but for the purposes of this study, Guan, Grussi, Mande and other were recoded as "other ethnic groups" because their percentages were small. Thus, ethnicity was re-categorized as Akan, Ga/Dangme, Ewe, Mole-Dagbani, Gurma, and Other ethnic groups.

Religion in the dataset was categorized as Catholic, Anglican, Methodist, Presbyterian, Pentecostal/Charismatic, Other Christian, Islam, Traditionalist, No religion, and Other, but for the purposes of this study, Catholic, Anglican, Methodist, Presbyterian, Pentecostal/charismatic, and other Christians were categorized as "Christian". The categories were Christian, Islam, Traditionalist, no religion, other religion.

Marital status was measured as never married, married, living with partner, widowed, divorced, no longer living together/separated but for the purposes of this study, married and living with partner were categorized as "married/cohabiting", widowed, divorced and no longer living together/separated were combined into the "formerly married" category and never married remained on its own.

Education in the dataset was measured as no education, primary, secondary and higher but in this study the secondary and higher education categories were recoded as "secondary or

higher" and no education and primary remained as they were. Therefore education was measured in this study as no education, primary and secondary or higher.

All other variables were used as measured in the GDHS.

3.10 Psychological and Behavioural Factors

Psychosocial (HIV knowledge and HIV attitudes) and behavioural factors (condom use and STI experience) were used to see if they could alter the effect of the independent variable on the dependent variable.

Questions that were asked to determine respondents' HIV knowledge were 'ever heard of AIDS', 'can get HIV from mosquito bites', 'can get HIV from sharing food with person who has AIDS' and 'can get HIV by witchcraft or supernatural means'. The knowledge questions, consisting of these statements, were treated from a positive direction, that is, when a respondent answers correctly (no to the statement) they were assigned a '1' but if they answer wrongly, they are assigned a '0'. A reverse coding was done since a 'yes' to the statement is rather a wrong response and a 'no' is the right response. Thus, if a respondent said 'yes' to any of these statements, they received a '0' and likewise if the respondent said 'no' to any of them, they received a '1'. Yes to the statement depicts 'low knowledge of HIV and a 'No' depicts a 'high knowledge'. Those who said 'don't know' and also missing cases were all added to the Yes category since those who did not know truly had no knowledge about HIV acquisition. For ever heard of AIDS, those who said they had never heard of AIDs were included as 0 and those who said they have heard about it as 1.The variables were summed and scores ranged from 1 to 4 which were then categorized into two groups, 1 to 2 were categorized as 'low knowledge' and 3 to 4 were categorized as 'high knowledge'.

Had any STI in the last 12 months', 'had genital sore/ulcer in the last 12 months' and 'had genital discharge in the last 12 months' were the questions that were used to find out if respondents have had any STI experience in the last 12 months. These questions were measured as a dichotomous variable, whether you've 'experienced STI' was coded as '1' or you've 'not experienced STI' was coded as '0'. 'Don't know' responses were added to 'No'. If a respondent answered any of them, it meant that he or she may have had some sort of illness resembling an STI in the last 12 months.

The following four statements were used to assess HIV attitudes: 'Would want HIV in family to remain secret', 'willing to care for relatives with AIDS', 'a female teacher infected with HIV, but not sick, should be allowed to continue teaching', and 'would buy vegetables from vendor with AIDS'. These questions were straight forward and had a 'Yes' and 'No' response. Those who said they 'don't know' were all added to 'no' as well as missing cases which were just few. After summing the variables, scores ranged from 0 to 4. The values 0 to 2 were categorized as 'negative attitude' and 3 to 4 were categorized as 'positive attitude'.

Condom used during last sex with most recent partner was the condom use variable selected. The variable initially had several missing cases, signifying those who had never used a condom before. These missing respondents were all added to the 'no' category since they did not use a condom during their most recent sexual encounter. This question was measured as a dichotomous variable and had 'Yes' coded as '1' and 'No' coded as '0' responses.

Table 1: Measurement of Variables

Variable	Measure
Lifetime sexual partners	Continuous 1 to 95
Age at first sex	Continuous 6 to 42
Age of respondent	Continuous 15 to 49
Sex	Males
	Females
Educational level	No education
	Primary
	Secondary/higher
Marital Status	Never married
	Married/cohabiting
	Formerly married
Religion	Christianity
	Islam
	Traditionalist
	No religion
	Other religion
Working status	Not working
	Working
Condom use	Did not use condom
	Used condom
STI Experience	Not experienced
	Experienced
HIV knowledge	Low knowledge
	High knowledge
HIV attitude	Negative attitude
	Positive attitude

3.11 Methods of Analysis

Analysis of this study was done using the Statistical Package for Social Sciences (SPSS) version 23 and Microsoft Excel for tabular and graphical presentation of results. Analyses were conducted at three levels namely; the univariate, bivariate and multivariate levels. Univariate analyses were used to show the samples in summaries of means, median, range, standard deviations, minimum, maximum and also frequencies. Bivariate analyses were used to examine the relationship between two variables such as the association between the independent variable (age at first sex) and the dependent variable (lifetime sexual partners). In addition, bivariate analyses were conducted between the psychosocial, behavioural and control variables and the dependent variable to see if there are some significant differences between them. Particularly, at the bivariate level, the analyses performed were Pearson Correlation, T-test and Analysis of Variance (ANOVA). Pearson's Correlation was used to test the relationship between two continuous variables. ANOVA was used to examine the relationship between variables with three or more categories and the continuous variable whilst the T-test was employed for a dichotomous categorical variables and the outcome variable. Finally, multivariate analyses, in the form of multiple linear regression models, were run to assess the relationship between age at first sex and lifetime sexual partners whilst controlling for various characteristics. At the multivariate analysis level, categorical variables were turned into dummy variables in order for it to be used in the linear regression model. Assumptions such as linearity, normality, independence, residuals and homoscedasticity underlying multiple linear regressions were tested.

3.12 Weight

Sample weights were applied to the dataset because the sampling from regions, rural and urban areas were not proportional. Applying the sampling weight ensures the findings will be

representative of the entire national population (GDHS, 2014). The weighting variable was derived by dividing the sample weight variable (v005) by 1,000,000. The result was then applied in the analysis.

$$\text{Weight} = \frac{v005}{1{,}000{,}000}$$

3.13 Data Limitations

Sexual activity, sexual experiences and number of lifetime sexual partners are sensitive data being requested from respondents. Subjects of sexual nature are considered as one's private affair in sub-Saharan Africa, including Ghana and so respondents, especially the women, may feel unenthusiastic and embarrassed to provide some answers. In certain circumstances, these behaviours are seen as unacceptable, mostly among women, and as a result social desirability may occur resulting in an underestimation of lifetime partners. The reverse of this could occur where men will overestimate their number of sexual experiences. Memory recall of one's lifetime sexual partners has also being identified as a problem leading to a limitation for the study.

Cross-sectional surveys that ask about respondent's lifetime sexual partners do not distinguish between sequential and concurrent partnerships. Another limitation is that with this cross-sectional survey data, the association between behaviours may be identified but conditions will not enable me to prove causal linkages between the variables of interest.

In addition, from the literature, there were certain variables such as substance use (marijuana, cocaine, tobacco use, and drunkenness) which were found to increase the likelihood of engaging in risky sexual behaviour, which is, having multiple sexual partners and practicing unsafe sex. However, information on these variables could not be found in the data which could have added an interesting dimension to the study.

CHAPTER FOUR

CHARACTERISTICS OF RESPONDENTS

4.0 Introduction

This chapter describes the background characteristics of the respondents taking into consideration socio-demographic, socio-economic, socio-cultural, psychosocial and behavioural characteristics. These characteristics are number of lifetime sexual partners, age at first sex, sex of respondent, current age, marital status, ethnicity, educational level, type of place of residence, religion, working status, HIV knowledge, attitudes towards HIV, STI experiences and condom use.

4.1 Lifetime Sexual Partners

An accumulation of a high number of lifetime sexual partners constitutes risky sexual behaviour whether the multiple partnerships were sequential or concurrent. This is because people find themselves in unstable relationships and this increases their lifetime number of sexual partners. This behaviour exposes one to the risk of contracting STIs. From Table 2, the mean total number of lifetime partner was 3.7 with a standard deviation of 6.95.

Table 2: Descriptive Statistics for Total Lifetime Sexual Partners and Age at First Sex

	N	Mean	SD	Min	Max
Total Lifetime Partners	10713	3.7	6.95	1	95
Age at First Sex	10713	18.11	3.66	6	42

Source: Computed from GDHS 2014

The minimum total lifetime number of partners was 1 and the highest was 95. Comparatively, from Table 3, among males, the mean total lifetime number of sexual partners was 7.31, with

a standard deviation of 11.99 whilst the mean total lifetime number of sexual partners for women was 2.30 with a standard deviation of 2.09.

Table 3: Descriptive Statistics for Total Lifetime Sexual Partners and Age at First Sex by Sex

	N	Mean	SD	Min	Max
Total Lifetime Partners					
Males	2993	7.31	11.99	1	95
Females	7720	2.3	2.09	1	95
Age at First Sex					
Males	2993	19.15	4.27	8	42
Females	7720	17.71	3.31	6	38

Source: Computed from GDHS 2014

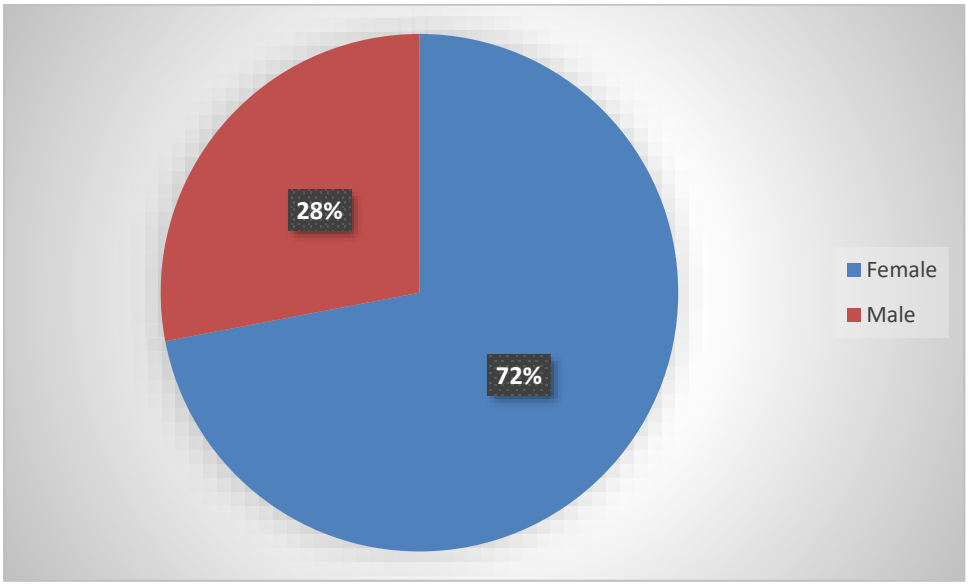
4.2 Age at First Sex

Ideally in most societies**,** especially in the traditional African setting, exposure to sex and pregnancy is determined only in marriage, especially among girls. Young girls are expected to remain virgins till they are married, but in recent times, this norm along with values associated with sexual behaviour have changed as young people are marrying at older ages but continue to engage in premarital sex at the same early ages and thus are exposed to premarital pregnancy at younger ages. This may be as a result of modernization and urbanization. From Table 2, the mean age at first sex was 18.11 years with a standard deviation of 3.66. The minimum age at first sex recorded was 6 years and the maximum age at first sex was 42. Comparing males and females, as indicated in Table 3, the mean age at first sex for males was 19.15 years, with a standard deviation of 4.268, and minimum age of 8 years whereas the mean age at first sex for females was 17.71, with a standard deviation of 3.31. The minimum age at first sex for females was 6 years. This indicates females have an earlier initiation of sex than males.

4.3 Sex of Respondent

From Figure 2 below, females constituted more than seven-tenths of the respondents (72.1%) whilst males were 27.9%.

Figure 2: Sex of Respondent



Source: Computed from GDHS 2014

4.4 Age of Respondents

From Table 4, the mean age of all respondents was 31.78. The mean age for males was 32.42 and for females the mean age was 31.52. The minimum and maximum ages for both were 15 and 49 years.

Table 4: Age of Respondent

Age of Respondent	N	Mean	SD	Min	Max
Total	10713	31.78	8.95	15	49
Males	2993	32.42	8.96		
Females	7720	31.52	8.93		

Source: Computed from GDHS 2014

4.5 Education

Education serves as a knowledge acquisition medium and it influences the behaviour of people. From Table 5, most respondents had been through some formal education (82.8%). Out of this, majority of the people have had secondary or higher education (66.5%), followed by those with no education (17.2%). The next group were who had attained primary education (16.3%). More males (76.9%) than females (62.5%) have had secondary or higher education. On the other hand, 17.7% of females have had primary education whilst 12.7% of males have had primary education. Few of the males have had no education (10.5%) whereas more females had no education (19.8%).

4.6 Religion

Religion is the belief in supernatural powers, giving reverence to divinity. It's also a particular system of faith and worship. In Ghana, religion is an integral part of people's lives. Most people identify themselves with at least one of the major religious groups, namely; Christianity, Islam, and Traditional. From Table 5, majority of respondents identified themselves as Christians (79.0%), followed by those who identified themselves as Muslims

(14.9%). Approximately four percent belonged to the other group and few of them said they were traditionalists (2.3%). Christian women were more (81.1%) than Christian men (73.5%). About 17% of male respondents reported that they were Muslims whilst 14.3% of female respondents were Muslims.

Males reporting to be traditionalists were 3.3% and just 1.8% of females reported they were traditionalists. About seven percent of males said they didn't belong to any religion whereas 2.7% of females also reported no religion. The 'other' category among both genders had very few respondents.

Table 5: Descriptive Analysis of Selected Socio-Demographic and Socio-Economic Variables

Characteristics	Total (%)	Male (%)	Female (%)
Education			
No education	17.2	10.5	19.8
Primary	16.3	12.7	17.7
Secondary or Higher	66.5	76.9	62.5
Religion			
Christians	79	73.5	81.1
Muslims	14.9	16.6	14.3
Traditionalist/spiritualist	2.3	3.3	1.8
No Religion	3.8	6.5	2.7
Other religion	0	0	0
Ethnicity			
Akan	51.2	50.1	51.7
Ewe	13.7	13.7	13.6
Ga/Dangme	8.8	8.8	7.9
Mole-Dagbani	14.2	13.7	14.3
Gurma	4.7	5	4.6
Other	8.1	8.6	7.9
Type of Place of Residence			
Urban	54.1	54.2	54.1
Rural	45.9	45.8	45.9
Marital Status			
Currently married	62.9	60.2	64
Formerly married	10.1	5.6	11.9
Never married	27	34.2	24.2
Working Status			
Not working	17.5	8.1	21.2
Working	82.5	91.9	78.8

Source: Computed from GDHS 2014

4.7 Ethnicity

Ethnicity defines people's membership in a group and it is central to the human experience and identity. It is also the differences in human groups embedded in factors such as tribe, language, race, culture, history and religion. Akan's were more than half, just a little above half (51.2%). Mole-Dagbani's were the second largest ethnic group (14.2%), followed by

Ewes (13.7%). Approximately, 8% were Ga/Dangme's and the other ethnic groups were also 8.1%. Only 4.7% were from the Gurma ethnic group. Similar proportions of males and females were Akan (50.1% and 51.7% respectively) And Ewe (13.7% and 13.6% respectively). There was a slightly higher proportion of female Mole-Dagbani's (14.3%) than male Mole-Dagbani's (13.7%). Among Ga/Dangme's, males were 8.8% and females were 7.9%. Five percent were Gurma males whilst 4.6% were Gurma females. Also, 8.6% of males belonged to the other ethnic groups whilst 7.9% of females also belonged to the other ethnic groups (see Table 5).

4.8 Type of Place of Residence

Results from Table 5 show that urban residents were 54.1% whereas 45.9% were rural residents. These results indicate how urbanization is inevitable in Africa. Sub-Saharan Africa is urbanizing rapidly than any other region in the world ((Dodoo et al., 2007). There were similar proportions of females and males residing in rural and urban areas.

4.9 Marital Status

The most celebrated ceremony in the African culture is marriage. In Ghana, there are three forms of marriage recognized by the law which are customary/traditional marriage, marriage under the Marriage Ordinance and Islamic marriage under the marriage of Mohammedan Ordinance. From Table 5, more than half of the people were married/cohabiting (62.9%). Followed by those who were never married (27%) and only a few (10.1%) were formerly married. More women (64%) than men (60.2%) were married/cohabiting. About 34% of males were never married whilst 24.1% of women were never married. Fewer men (5.6%) than women (11.9%) were formerly married.

4.10 Working Status

From Table 5, we see that more than half of the respondents were working (82.5%) and a few of them (17.5%) were not working. The majority of males (91.9%) compared to females (78.8%) were working.

Table 6: Psychosocial and behavioural Variables

Characteristics	Total (%)	Male (%)	Female (%)
HIV Attitude			
Negative attitude	59.2	56.1	60.4
Positive attitude	40.8	43.9	39.6
HIV Knowledge			
Low knowledge	34.3	29.7	36.1
High knowledge	65.7	70.3	63.9
Condom Use			
No	91.6	84.6	94.3
Yes	8.4	15.4	5.7
STI Experience			
Not Experienced	80	91.8	75.4
Experienced	20	8.2	24.6

Source: Computed from GDHS 2014

Table 6 shows the psychosocial and behavioural variables (HIV attitude, HIV knowledge, Condom use and STI experience) with their gender disparities in percentages. Higher proportions of males and females had negative HIV attitudes (56.1% versus 60.4%) and high HIV knowledge (70.3% versus 63.9%). Condom use was low, but use was higher among males (15.4%), while higher proportions of females had experienced an STI at some point within the 12 months preceding the survey (24.6%).

CHAPTER FIVE

ASSESSING BIVARIATE RELATIONSHIPS BETWEEN AGE AT FIRST SEX, PSYCHOSOCIAL, BEHAVIOURAL, AND CONTROL VARIABLES AND LIFETIME SEXUAL PARTNERS

5.0 Introduction

This chapter presents results on the relationship between the independent variable, psychosocial, behavioural and control variables, and the outcome variable (lifetime sexual partners) and tested for significant associations between them. Pearson's correlation coefficients were generated for the two continuous variables. Analysis of Variance (ANOVA) was used to examine the relationships between variables with three or more categories and the outcome variable and also to test the significance of the association. T-tests were also conducted among the control and psychosocial variables with two categories and the outcome variable. The T-test was used to assess whether the means of two groups were statistically different from each other.

5.1 Age at First Sex and Lifetime Sexual Partners

Early age at first sex exposes one to risky sexual behaviours, including a higher number of sexual partners in a lifetime. If sex is started early, the period from that time and marriage (assuming sex occurred outside marriage) could expose the person to accumulating a high number of sexual partners, especially among sexually active people. Results from Table 7 show there is a slight negative relationship between age at first sex and lifetime number of sexual partners among males. There was also a slight negative relationship between age at first sex and lifetime number of sexual partners among females. This confirms the results

from other studies that found that men and women with an early sexual debut are more likely to report a higher number of sexual partners and vice versa (de Sanjose et al., 2008).

Table 7: Correlation between Age at First Sex and Lifetime Number of Sexual Partners for the Total and by Sex.

Lifetime Number of Sexual Partners			
Age at First Sex	Pearson R	Sig. (2 tailed)	N
Male	-0.162	p<0.001	2993
Female	-0.103	p<0.001	7720

Source: Computed from GDHS 2014

5.2 Sex and Lifetime Sexual Partners

According to studies, men have a higher number of sexual partners than women. Findings from a comparative study in four African longitudinal studies in Eastern and Southern Africa, found that averagely men reported around 10 lifetime sexual partners whilst women reported 2 or 3 lifetime sexual partners (Todd et al., 2009). The sex of respondents and lifetime sexual partners were statistically significance p<0.001. The mean number of sexual partners for males was 7.31 and 2.30 for females (see Table 8).

Table 8: T-test showing a comparison between the means by sex

	N	Mean	SD	F	Sig.
Males	2993	7.31	11.988	1917.75	p<0.001
Females	7720	2.3	2.089		

Source: Computed from GDHS 2014

5.3 Age of Respondents and Lifetime Sexual Partners

From Table 9, results indicate a slight positive relationship between age of respondent and number of lifetime sexual partners among both sexes.

Table 9: Correlation between Age of Respondent and Lifetime Number Sexual Partners.

Lifetime Number of Sexual Partners			
Age of Respondent	Pearson R	Sig. (2 tailed)	N
Male	0.15	p<0.001	2993
Female	0.11	p<0.001	7720

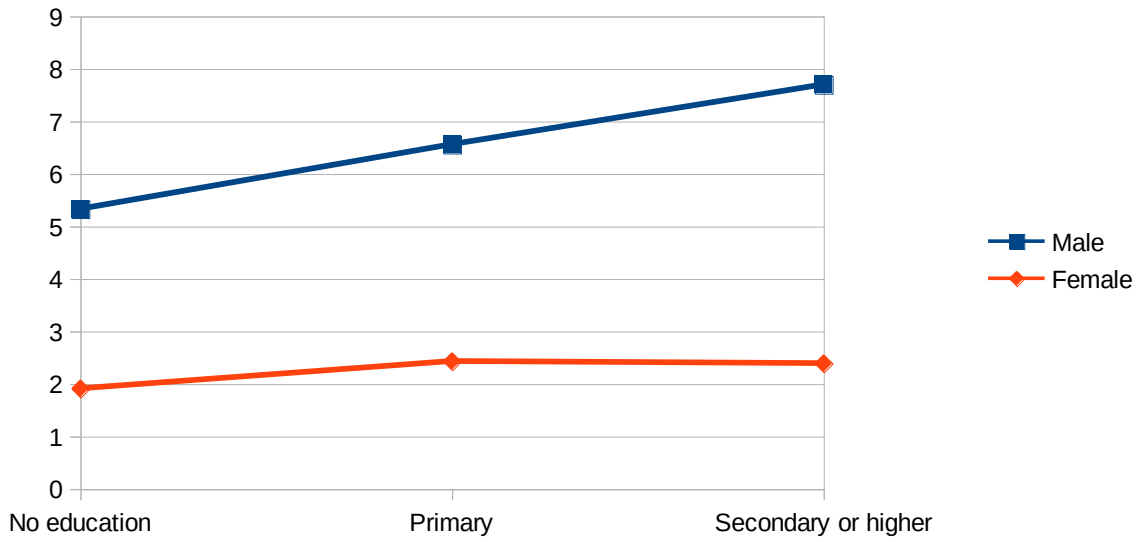
Source: Computed from GDHS 2014

****Correlation is significant at the 0.01 level (2-tailed).

5.4 Education and Lifetime Sexual Partners

There was a significant relationship between education and lifetime number of sexual partners for both males and females at 95% confidence level with the males having a P-value of 0.002 and the females p<0.001. Figure 3 displays the mean number of partners across the various educational attainment categories for males and females. We observe that for males, number of lifetime sexual partners increases with an increase in level of education with those who have attained secondary or higher having the highest and those in the primary category having the least. For females it appears that those that have primary education have the highest number of lifetime sexual partners followed by those who have secondary or higher education but there is just a slight difference in those with primary and secondary or higher education.

Figure 3: Mean number of lifetime number of sexual partners by educational level.



Source: Computed from GDHS 2014

5.5 Religion and Lifetime Sexual Partners

There was a significant relationship between religion and lifetime number of sexual partners for both male and female at 95% confidence level with the males having $p<0.001$and the females $p<0.001$. Comparing their mean differences, men with no religion had the highest number of lifetime sexual partners (11.5), followed by those who belonged to the other religion category (9.77). Christian men were the next group with more lifetime sexual partners (7.59), followed by Muslims (4.92) and then Traditionalists (4.77). Christian women had 2.4 number of lifetime sexual partners, followed by Traditionalists who had 2.31 number of partners, and then those with no religion having 2.28 number of partners. Islamic women had 1.76 number of sexual partners whilst women who belonged to other religions had the least number of lifetime sexual partners which was 1 (see Table 10).

Table 10: ANOVA results showing the mean for the different categories.

Variable	Males	Mean	Females	Mean
Religion	Christian	7.59	Christian	2.4
	Islam	4.92	Islam	1.76
	Traditionalist	4.77	Traditionalist	2.31
	No religion	11.51	No religion	2.28
	Other religion	9.77	Other	1
	Total	**7.31**	**Total**	**2.3**
	F=12.584, p<0.001		**F=22.264, p<0.001**	
Ethnicity	Akan	8.55	Akan	2.48
	Ga/Dangme	7.72	Ga/Dangme	2.49
	Ewe	7.56	Ewe	2.58
	Mole-Dagbani	3.98	Mole-Dagbani	1.66
	Gurma	4.64	Gurma	1.77
	Other ethnic groups	6.09	Other ethnic groups	1.99
	Total	**7.31**	**Total**	**2.3**
	F=11.916, p<0.001		**F=39.063, p<0.001**	
Marital Status	Never married	5.11	Never married	2.2
	Married/cohabiting	8.26	Married/cohabiting	2.23
	Formerly married	10.5	Formerly married	2.9
	Total	**7.31**	**Total**	**2.3**
	F=29.39, p<0.001		**F=43.638, p<0.001**	

Source: Computed from GDHS 2014

5.6 Ethnicity and Lifetime Sexual Partners

There was a significant relationship between ethnicity and lifetime number of sexual partners for both males and females at the 95% confidence level with the males having a p-value less than 0.001 and females a p-value of less than 0.001. From Table 10, Akan men had the most number of lifetime sexual partners (8.55), followed by Ga/Dangmes who had 7.72 number of sexual partners and Ewe men with 7.56 partners. Mole-Dagbani men had 3.98 lifetime sexual partners, followed by men in the 'other' ethnic groups which comprises of Grussi, Mande and

other groups which was 6.09 number of sexual partners. Gurma men comparatively had the lowest number of lifetime sexual partners (4.64). On the other hand, Ewe women had 2.58 number of lifetime sexual partners, followed by Ga/Dangmes which was 2.49 partners and Akan's had 2.48 number of sexual partners. Women in the 'other' ethnic groups had 2.3 number of sexual partners, followed by Gurma's which was 1.99 partners. Mole-Dagbani women had the lowest number of lifetime sexual partners (1.77).

5.7 Type of Place of Residence and Lifetime Sexual Partners

Type of place of residence and lifetime sexual partners were statistically significant at $p<0.001$ for both sexes. The result in Table 11 indicates that for both sexes, numbers of partners for urban dwellers were higher than that of rural dwellers. Men who were urban dwellers had 8.02 lifetime sexual partners compared to their rural counterparts who had 6.46 lifetime partners. Women in urban areas had 2.52 lifetime sexual partners whilst those in rural areas had 2.06 partners.

Table 11: T-Test Table showing the mean number of lifetime sexual partners by place of residence

		N	Mean	SD	F	Sig.
Males	Urban	1622	8.02	13.974	36.459	p<0.001
	Rural	1371	6.46	9.027		
Females	Urban	4178	2.52	2.514	56.973	p<0.001
	Rural	3541	2.06	1.393		

Source: Computed from GDHS 2014

5.8 Marital Status and Lifetime Sexual Partners

There was a significant relationship between marital status and lifetime number of sexual partners for both males and females at a 95% confidence level, with both males and females indicating significant levels less than <0.001. From Table 10, among males, formerly married

men had the highest mean number of lifetime sexual partners which was 10.50, followed by married or cohabiting men with 8.26 number of lifetime sexual partners. Men who were never married had the lowest number of lifetime sexual partners which was 5.11. According to the same table, the number of lifetime sexual partners for formerly married women was 2.90, followed by married or cohabiting women which was 2.23 and never married women had 2.20 mean number of partners in their lifetime.

5.9 Working Status and Lifetime Sexual Partners

The relationship between working status and lifetime sexual partners was statistically significant for males $p<0.001$. For females, the relationship between working status and lifetime sexual partners was not statistically significant since the significance level was 0.340. Overall, this result shows that men who were working had significantly higher numbers of lifetime sexual partners which was 7.59 than those who were not working who had 4.11 number of lifetime sexual partners (see Table 12).

Table 12: T-test showing the mean number of lifetime sexual partner by working status.

		N	Mean	SD	F	Sig.
Males	Not working	242	4.11	9.408	18.916	p<0.001
	Working	2752	7.59	12.15		
Females	Not working	1638	2.15	1.921	0.911	0.34
	Working	6082	2.35	2.13		

Source: Computed from GDHS 2014

5.10 STI Experience and Lifetime Sexual Partners

STI experience and lifetime sexual partners was statistically significant for males and females with 0.005 and $p<0.001$ significance levels, respectively. Results in Table 13 indicate that men who said they had had an STI experience in the last 12 months had significantly more

partners than those who said they had not had an STI experience in the last 12 months. Females had a similar result and their relationship was also significant.

Table 13: T-test showing the mean number of lifetime sexual partner by STI experience

		N	Mean	SD	F	Sig.
Males	Not experienced STI	2747	7.09	11.756	7.724	0.005
	Experienced STI	247	9.75	14.118		
Females	Not experienced STI	5824	2.24	2.061	23.251	p<0.001
	Experienced STI	1896	2.5	2.16		

Source: Computed from GDHS 2014

5.11 HIV knowledge and Lifetime Sexual Partners

From Table 14, the relationship between HIV knowledge and lifetime sexual partners was statistically significant for females at p<0.001. For males, HIV knowledge and lifetime sexual partners were not statistically significant. Among females, those with low HIV knowledge had a significantly higher number of partners (2.37) compared to those with high HIV knowledge who had 2.27 number of lifetime sexual partners.

Table 14: T-test showing mean number of Lifetime Sexual Partners by HIV knowledge

		N	Mean	SD	F	Sig.
Males	Low knowledge	889	7.92	12.638	2.765	0.096
	High knowledge	2104	7.05	11.695		
Females	Low knowledge	2785	2.37	2.707	13.173	p<0.001
	High knowledge	4936	2.27	1.64		

Source: Computed from GDHS 2014

5.12 HIV Attitude and Lifetime Sexual Partners

The relationship between HIV attitudes and lifetime sexual partners was statistically significant for males at a p<0.001. For females, HIV attitude and lifetime sexual partner was

not statistically significant at a significance level of 0.267. Results from Table 15, show that males with negative attitudes, signifying more stigmatizing attitudes towards people living with HIV, had a lower mean number of partners.

Table 15: T-test showing mean number of lifetime sexual partners HIV attitude

		N	Mean	SD	F	Sig.
Males	Negative attitude	1680	6.85	10.624	13.249	p<0.001
	Positive attitude	1313	7.89	13.516		
Females	Negative attitude	4664	2.26	2.213	1.233	0.267
	Positive attitude	3056	2.37	1.882		

Source: Computed from GDHS 2014

5.13 Condom Use and Lifetime Sexual Partners

The relationship between condom use and lifetime sexual partners was statistically significant for males at a p<0.001. For females, condom use and lifetime sexual partners' relationship was not statistically significant with a p-value of 0.141. The results further show that men who reported not using a condom the last time they had sex with their most recent partner had significantly more lifetime partners than those who used a condom the last time they had sex with their recent partner (see Table 16).

Table 16: T-test showing mean number of lifetime sexual partners and condom use at last sex

		N	Mean	SD	F	Sig.
Males	Not used condom	2193	8.17	12.642	17.87	p<0.001
	Used condom	462	5.79	9.793		
Females	Not used condom	5862	2.4	2.279	2.172	0.141
	Used condom	441	2.2	1.468		

Source: Computed from GDHS 2014.

CHAPTER SIX

MULTIVARIATE ANALYSIS

6.0 Introduction

In this chapter, all the selected variables, the dependent variable (lifetime sexual partners), the independent variable (age at first sex), and the psychosocial and behavioural factors (HIV knowledge, HIV attitude, STI experience and condom use) as well as the control variables were analysed. The dependent variable was continuous and in view of that multiple linear regression modelling was appropriate for the multivariate analysis. There were three models: model 1 explained the relationship between age at first sex and number of lifetime sexual partners, while model 2 examined the relationship between the control variables (respondent's age, education, ethnicity, religion, currently working and type of place of residence) on lifetime sexual partners. In model 3, HIV knowledge, HIV attitudes, STI experience and condom use were included in the model.

6.1 Findings

In the three models, the beta coefficient (B) was used to explain the relationships between the indicator variable and the dependent variable. The P-value showed the significance level (p-value <0.05) of the categories. Values for reference categories were not incorporated into the model. A beta coefficient greater than zero represents a greater number of lifetime sexual partners and a value less than zero represents fewer lifetime sexual partners.

Table 17: Three multiple linear regression models showing the relationships by sex between 1) age at first sex and lifetime sexual partners, 2) includes controls, and 3) includes psychosocial and behavioural factors and controls.

		Females			Males		
Model 1	**Indicator**	**Beta**	**Std error**	**Sig.**	**Beta**	**Std error**	**Sig.**
	Constant	**3.456**	**0.129**		**15.996**	**0.994**	
	Age at First Sex	-0.065	0.007	p<0.001	-0.454	0.051	p<0.001
		R^2 (1.1%)			**R^2 (2.6%)**		
Model 2	Constant	**0.814**	**1.388**		**8.802**	**9.546**	
	Age at First Sex	-0.095	0.007	p<0.001	-0.641	0.052	p<0.001
	Current age	0.031	0.003	p<0.001	0.21	0.032	p<0.001
	Place of Residence						
	Rural (rc)	0			0		
	Urban	0.432	0.049	p<0.001	1.879	0.442	p<0.001
	Educational level						
	No education (rc)	0			0		
	Primary	0.305	0.08	p<0.001	-0.088	0.921	0.924
	Secondary/higher	0.342	0.073	p<0.001	1.029	0.815	0.207
	Ethnicity						
	Akan (rc)	0			0		
	Ga/Dangme	-0.074	0.088	0.402	-1.284	0.769	0.095
	Ewe	0.162	0.07	0.022	-1.268	0.64	0.047
	Mole-Dagbani	-0.467	0.085	p<0.001	-2.926	0.776	p<0.001
	Gurma	-0.412	0.122	0.001	-2.662	1.066	0.013
	Other groups	-0.253	0.096	0.008	-1.415	0.862	0.101
	Marital Status						
	Never married (rc)	0			0		
	Married/cohabiting	-0.133	0.066	0.044	1.998	0.607	0.001
	Formerly married	0.265	0.093	0.005	3.562	1.032	0.001
	Currently Working						
	Not working (rc)	0			0		
	Working	0.094	0.06	0.12	2.075	0.83	0.013
	Religion						
	Other Religion (rc)	0			0		
	Christian	1.777	1.377	0.197	-0.251	9.441	0.979
	Muslims	1.583	1.377	0.25	-0.922	9.466	0.922
	Traditional	1.968	1.388	0.156	-1.961	9.525	0.837
	No religion	1.722	1.384	0.213	2.945	9.475	0.756
		R^2 (7.2%)			**R^2 (10.5%)**		

Table 17 continued

Model 3	**Constant**	**0.609**	**1.386**		**7.808**	**9.512**	
	Age at First Sex	-0.093	0.007	p<0.001	-0.627	0.053	p<0.001
	Current age	0.034	0.003	p<0.001	0.222	0.032	p<0.001
	Place of Residence						
	Rural (rc)	0			0		
	Urban	0.412	0.049	p<0.001	1.932	0.444	p<0.001
	Educational level						
	No education (rc)	0			0		
	Primary	0.31	0.08	p<0.001	-0.131	0.918	0.887
	Secondary/higher	0.35	0.074	p<0.001	0.815	0.827	0.324
	Ethnicity						
	Akan (rc)	0			0		
	Ga/Dangme	-0.076	0.088	0.39	-1.321	0.768	0.086
	Ewe	0.136	0.07	0.053	-1.175	0.638	0.066
	Mole-Dagbani	-0.488	0.085	p<0.001	-2.99	0.777	p<0.001
	Gurma	-0.446	0.122	p<0.001	-2.876	1.066	0.007
	Other groups	-0.271	0.096	0.005	-1.414	0.863	0.102
	Marital Status						
	Never married (rc)	0			0		
	Married/cohabiting	-0.111	0.067	0.096	1.975	0.626	0.002
	Formerly married	0.277	0.093	0.003	3.52	1.032	0.001
	Employment Status						
	Not working (rc)	0			0		
	Working	0.083	0.06	0.165	1.905	828	0.021
	Religion						
	Other Religion (rc)	0			0		
	Christian	1.827	1.374	0.184	-0.106	9.409	0.991
	Muslims	1.634	1.375	0.235	-0.753	9.434	0.938
	Traditional	1.998	1.386	0.149	-1.87	9.494	0.844
	No religion	1.774	1.382	0.199	3.003	9.443	0.751
	STI Experience						
	Not experienced STI (rc)	0			0		
	Experienced STI	0.307	0.054	p<0.001	3.333	0.712	p<0.001
	HIV Attitude						
	Negative attitude (rc)	0			0		
	Positive attitude	0.09	0.049	0.068	1.064	0.451	0.018
	HIV Knowledge						
	Low knowledge (rc)	0			0		
	High knowledge	-0.094	0.05	0.056	-0.434	0.45	0.335
	Condom Use						
	Did not use condom during last sex with most recent partner (rc)	0			0		
	Used condom during last sex last sex with most recent partner	0.019	0.101	0.852	-0.032	0.62	0.958
		R^2 (7.7%)			**R^2 (11.3%)**		

Source: Computed from GDHS 2014

Model 1 focuses on age at first sex and lifetime sexual partners. From Table 17, we observe a significant relationship between age at first sex and lifetime sexual partners among both men and women. A delay (unit increase) in age at first sex reduces the total lifetime partners a female would have by -0.065. The same holds for males where a delay in age at first sex reduces lifetime partners by -0.454. Similar results were observed at the bivariate level, where age at first sex and number of lifetime sexual partners had an inverse relationship.

For females, the adjusted R^2 value shows that 1.1% of the variation in the number of lifetime sexual partners is explained by age at first sex. For males, the adjusted R^2 value shows that 2.6% of the variation in having lifetime sexual partners is explained by age at first sex. The variations in the model can further be explained better by including the other variables.

In Model 2 from Table 17, age at first sex and lifetime number of sexual partners was still significant at 95% confidence level for both sexes. Type of place of residence was highly significant for males and females. From the model we observed that urban men and women had more lifetime sexual partners than rural men and women. Current age was also statistically significant for both males and females ($p<0.001$) but the men's beta value was higher than the females. From the model, a unit increase in age is associated with more partners for males than females. Educational level was also statistically significant for females. Women with secondary or higher education had more lifetime sexual partners than women with no education, while women with primary education also had more lifetime partners compared to those with no education. However, educational attainment was not significant for males.

In addition, being married or cohabiting was statistically significantly associated with number of lifetime partners for both males and females. In model 2, it was observed that women who are married or cohabiting had less lifetime sexual partners as compared to women who have

never married. However, for men, being married or cohabiting resulted in an increase in their lifetime sexual partners compared to the never married. Both formerly married men and women had significantly higher number of partners compared to those who were never married. With ethnicity, both Ewe men and women had more lifetime sexual partners than Akans. Mole-Dagbani, Gurma and women in the other ethnic group had less lifetime sexual partners but on the contrary Mole-Dagbani and Gurma men had more lifetime sexual partners than Akan men. Religion was not significantly associated with lifetime sexual partners for both sexes.

The R^2 value shows that 7.2% of the variation in the number of lifetime sexual partners was explained by these other factors amongst females. For males, the R^2 value shows that 10.5% of the variation in having lifetime sexual partners was explained by the included factors.

In Model 3, when age at first sex along with all the psychosocial, behavioural and control variables were included in the model, the married or cohabiting category was not significant for females but remained significant for males. Still in model 3, married or cohabiting men still appeared to have the greater number of lifetime sexual partners compared to the never married men. Amongst both men and women, formerly married people had more lifetime sexual partners but men have 3 more lifetime sexual partners than women. For men, working status was statistically significant but was not significant for females. Men who are working had a higher number of sexual partners than men who are not working. Also, the significance between Ewe men and women and their lifetime sexual partners disappeared in model 3. Apart from the difference mentioned earlier, in Model 3, when all variables were included in the model, the results remained the same. Most especially, age at first sex was still significantly associated with lifetime sexual partners.

Among the psychosocial and behavioural variables, STI experience was statistically significant for both sexes. For both males and females, those that had experienced an STI during the last 12 months had more sexual partners. HIV attitude was statistically significant for males at both the multivariate and bivariate analyses stages. Both results suggest that men with a positive HIV attitude have more lifetime sexual partners compared to those with a negative attitude. HIV knowledge and condom use were not statistically significant for both sexes in model 3. The inclusion of the psychosocial and behavioural variables in model 3 did not influence age at first sex – the beta coefficient slightly declined from -0.095 to -0.093. When placed in the model, the variables HIV knowledge, HIV attitude, STI experience and condom use during last sex did not have much of an effect on the relationship between age at which sex starts and the number of sexual partners in a lifetime.

Amongst females, the R^2 value shows that 7.7% of the variation in number of lifetime sexual partners was explained by the psychosocial and behavioural factors as well as control variables. For men, the R^2 value shows that 11.3% of the variation in having lifetime sexual partners is explained by all the other factors considered in the study.

6.2 Discussion

An accumulation of sexual partners through multiple sexual partnerships, whether simultaneously or serially, predisposes one to the risk of contracting HIV/AIDS and other sexually transmitted infections. Having more than one partner increases the likelihood of acquiring infections. Observing from all the models, it appears that as age at first sex decreases, the number of lifetime sexual partner's increases. This means that an early initiation of sexual intercourse increases one's number of lifetime sexual partners and likewise a delay in first sex reduces one's number of lifetime sexual partners. The result confirms the first hypothesis that people who begin sexual activity early are likely to have

more lifetime sexual partners. The result from this study is in agreement with other study findings (Durbin et al., 1993; de Sanjose et al., 2008; Todd et al., 2009; Zuma et al., 2010; Zou et al., 2013). In addition, the findings fall in line with the social cognitive theory where initiating this learned behaviour at young ages perpetuates the sexual behaviour and this results in additional partners throughout one's lifetime. From the theory, the learned behaviour determines whether an individual will take an action or not. The results show that if sex is started early, the person will develop the habit of accumulating a higher number of sexual partners in a lifetime and this action is driven by the age at first sex.

Results from the multivariate analysis confirm the known gendered stereotype that men have more lifetime sexual partners than women (Santelli et al., 1998; Ostovich, 2004; Todd et al., 2009; Doku 2012). This could be explained by the fact that men over report or exaggerate their number of lifetime sexual partners to exercise their sexual prowess and to feel adventurous whilst women underreport their number of lifetime sexual partners because of social desirability. Women are condemned when it comes to such behaviours whereas men are pardoned, and in some instances admitting to a greater number of sexual partners increases their social status. Ostovich (2004) found that the sexual drive of men is higher than that of women and they have less restricted socio-sexual orientation and this could also be another reason for this result. This result confirms the second hypothesis that males are likely to have more lifetime sexual partners than females.

The study also found that women with secondary or higher education have more lifetime sexual partners as compared to women with no education, however, women with primary education are also likely to have more lifetime sexual partners. This could be explained by the opportunity and exposure education offers these women, where they become a part of social networks that have increased socioeconomic statuses. Awusabo-Asare & Annim (2008) found a similar result and concluded that in Ghana, a female with higher education

will be more likely to be involved in risky sexual behaviours than those with no education and for Kenya, it was highest among females with secondary education but in both countries, the probabilities were higher for males than that of females. A contrasting result was found by Addai & Addai (2010), where empirical evidence showed that women with a secondary or higher education had lesser tendency to engage in sex before age 17, thereby reducing their number of lifetime sexual partners.

Among both males and females, relatively older people are likely to have more partners than younger people. This result supports Bogaert & Fisher's (1995) argument that older people should have more lifetime sexual partners because of their longer exposure to sexual activity.

Men and women in urban areas had more lifetime sexual partners as compared to men and women in the rural areas. Dodoo, Zulu, & Ezeh, (2007) found quite a similar result but among the urban poor. In their study, they found that the urban poor were significantly more likely to have higher rate of multiple sexual partnerships compared to those in the rural settings. This could be as a result of societal pressure and expectations from women, high unemployment, and financial difficulties. It could also be as a result of the desire to make life bearable as they reside in the city. For men, their socioeconomic status could influence this behaviour. The wealthier respondents were more likely to live in urban areas and men especially tended to be more mobile and are more likely to engage in sex with non-regular partners in the city. In a study conducted in 26 developing countries, the highest prevalence of risky sexual behaviour occurred among male youth in urban areas (Berhan & Berhan, 2015). A contrasting result was found by Doku (2012), where he found that rural teenagers have a higher number of sexual partners than urban teenagers.

In the results from Model 2 and 3, we observe that married or cohabiting women have less lifetime sexual partners and this could be as a result of the importance society attaches to

married women and the expectations from them. The fear of being stigmatized when caught having an extramarital affair could discourage these women from doing that. These women may rely on their partners for their needs and so they would not risk that for the fear of losing everything if caught. Women with no or fewer sexual partners may also be more desirable as wives and thus will get married and remain in a monogamous relationship with their low lifetime numbers of sexual partners.

In model 2, married or cohabiting men had more lifetime sexual partners. In model 3, findings indicate that when all variables were included in the model, married or cohabiting men still had more lifetime sexual partners than never married men. Similar results were found in Dintwa (2012), a study where the married and the living together had a significantly higher chance of more than one sexual partner compared to those that were not married. For men, this could be because society is less strict on them or pardons such behaviours amongst them. They have less fear of societal stigmatization if they commit adultery. Dintwa (2012) argues that the masculinity and feminism belief often encourages men to have higher numbers of sexual partners and women to be passive and naïve about matters of sexuality and reproduction. Sexual intercourse tends to be more frequent in marriage than in non-marital relationships and condom use also tends to be lower. If a spouse is infected, the partner who is uninfected may be at greater risk in the marriage (Zaba et al., 2004). The relationship could also work in the other direction as men accumulated a large number of partners prior to getting married. Thus, the never married men may also accumulate a large number before getting in a union.

Among the sexes, formerly married people were found to have more lifetime sexual partners but formerly married men had about 4 more lifetime sexual partners than never married men. This group of people are normally caught in a web of relationships which predisposes them to multiple sexual relationships (Awusabo-Asare & Annim, 2008).

Working status was a predictor of lifetime sexual partners for men in the model, and at the bivariate level it was again statistically significant. Men who were working had more lifetime sexual partners. In a way, being employed could be linked to having a good socioeconomic status which could fuel the behaviour or lifestyle in engaging in a high number of sexual partnerships, whether serially or concurrently. In the African society, more men are employed and so may be more economically active than women. Therefore, women may become vulnerable to risky sexual behaviours, more precisely, they may engage in multiple serial or concurrent sexual partners in exchange for money and other support. This result shows that having more than one sexual partner may be a function of economic status for men. Both at the bivariate and multivariate analysis, working status was not significant for females.

The findings also suggest that Mole-Dagbani women, Gurma women as well as women in the 'Other' ethnic groups had less lifetime sexual partners, however, Mole-Dagbani and Gurma men had significantly more lifetime sexual partners than Akan men. Mole-Dagbani and Gurma are found or located in the Upper and Northern Regions of Ghana and majority of them are Muslims, who believe in polygamous marriage. The men believe that wives and children are part of their personal property (Takyi & Mann, 2016). This could explain the result we have for Mole-Dagbani men and women. The men are allowed to marry more than one woman unlike the women. Also among Mole-Dagbani's, high proportions of men and women believe that wife beating is justified under various circumstance (Takyi & Mann, 2016), therefore, women may not want to transgress certain gender norms that may result in shame and punishment.

Results also indicate that men who have a positive HIV attitude are more likely to have more lifetime sexual partners. This means that they have no stigmatizing attitudes towards people living with HIV and may not really see themselves to be at risk of contracting HIV/AIDS. This may result in them engaging in multiple partnerships. In addition, both men and women

who had experienced sexually transmitted infections in the last 12 months preceding the survey had more lifetime sexual partners. Having this number of sexual partners may have subjected them to experiencing the infections prior to the survey.

Finally, findings on HIV knowledge do not support the third hypothesis since it was not significantly associated with lifetime sexual partners at the multivariate level. One's knowledge about HIV does not predict the practice of safe or unsafe sex. One could have a good knowledge about HIV but will still have unprotected sexual encounters. Studies shows that knowledge alone cannot influence a behavioural change, but successful implementations of interventions in education and performance improvement encompasses more than knowledge gains (Vegas & Lawless, 2004).

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.0 Summary

The purpose of this study was to examine the relationship between one's age at first sex and the number of sexual partners throughout the course of his or her lifetime. The 2014 Ghana Demographic and Health Survey consisting of men's and women's files were the datasets used. The study included both men and women between the ages 15-49 who had ever had sex. There were 7720 females and 2993 males. Three analysis levels were carried out which includes univariate, bivariate and multivariate stages of analysis.

The findings indicate that in Ghana, females initiate sex earlier than males but males have a higher average number of lifetime sexual partners than females. The numbers of sexual partners in a lifetime were very high among males. Early sexual debut increases an individual's number of lifetime sexual partners. Those in the relatively older age groups had more lifetime sexual partners. Marriage or cohabitation was associated with fewer partners among women but for men being married or cohabiting was associated with an increased number of partners. Working status for men was associated with an increase in the number of sexual partners. It was also observed that number of lifetime sexual partners increases with level of education among women. Also, men and women who had experienced an STI had more lifetime sexual partners; this could be the reason why they were susceptible to contracting the STI. HIV knowledge was not significant in the model but was significant for females at the bivariate analysis.

7.1 Conclusion

Having sex at an early age fuels the behaviour of sexual risk-taking at a later stage in life. This is made evident by the significant relationship between early sexual debut and an increased number of partners. The amassing of lifetime sexual partners highly increases the risk of contracting STI's and other negative outcomes. The period between age at first sex and marriage, if wide, could expose a person to engaging in uncommitted sexual relationships which would increase the risk of STI's. Men and women who had had an STI experience had more sexual partners. HIV knowledge was not significant in the model suggesting knowledge about HIV contraction may not lead to a reduction in sexual risk-taking behaviour. The study findings suggest that factors associated with lifetime sexual partners are varied and this presents a major sexual and reproductive health challenge that warrants the attention of policy makers.

7.2 Recommendations

Based on the study's findings, the following are suggested as recommendations:

Policy makers should prioritize policies targeted at delaying age at first sex. This should be targeted at both men and women and could ensure that the number of lifetime partners decline. Women start early in Ghana, hence factors associated with early initiation of sex must be explored.

Educational awareness on sexual risk-taking behaviours and its diverse consequences should not focus only on female adolescents and young adults, but should factor in older populations as well as the men who are employed or working and could be in the higher income group. Women who had attained primary or higher educational levels must be factored in as well.

Campaigns against risky sexual behaviours should be propagated more in the urban areas and also reproductive health centres should be patient friendly so that people will not feel hesitant in visiting these centres to seek for quality information about their sexuality and sexual life when the need arises.

Longitudinal studies are needed to help assess this linkage between the two main variables of interest. Quantitative studies should be complemented with qualitative studies and this mixed method approach will enable us to understand the issue better. This may provide policy makers with an idea of how to solve the issue of sexual risk-taking and its negative consequences.

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