

**DETERMINANTS OF CONDOM USE INTENTIONS AMONG UNIVERSITY
STUDENTS IN GHANA**

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ABSTRACT

This descriptive correlational study was conducted to gain an understanding of how attitudes, subjective norms, perceived behavioural control, self-efficacy, moral norms, role beliefs, perceived risk, and past condom use influenced condom use intentions among a group of 580 undergraduate students in Ghana. An extended version of the theory of planned behaviour guided the study.

The results showed that students had moderate intentions to use condoms in their sexual encounters. Only 46% of all sexually active participants used condoms in their last sexual encounter. The extended version of the theory of planned behaviour explained 56% of the variance in the intention to use a condom during every sexual encounter among participants. In order of decreasing importance, perceived behavioural control, moral norms, attitudes, and past behaviour emerged as significant independent predictors of condom use intention. Thus, those university students who intended to use condoms in their next sexual encounters were more likely to perceive that their personal principles and convictions towards condom use were positive, to perceive that condoms were easy to use, and to evaluate condom use as a positive behaviour. Implications for health promotion, theory, and research include addressing the psychosocial factors associated with condom use.

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Chapter One: Focus and Framing

Despite the growing global attention to reproductive health promotion in recent years, adolescents and young adults in resource-poor countries are still at high risk for many sexual health problems (McIntyre, Williams, & Peattie, 2003; United Nations Population Fund, 2013). In 2013, an estimated 670,000 new HIV infections and 154,000 AIDS-related deaths worldwide were reported among individuals aged 15 to 24 years; over three-quarters of the cases occurred in sub-Saharan Africa (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2013a, 2013b; UNICEF, 2015). Similarly, about one-third of the 5 million young people aged 10 to 24 years living with HIV reside in sub-Saharan Africa.

In the West African country of Ghana, sexually transmitted infections (STIs), including HIV, are major causes of ill-health and death among youth. In 2014, 2.0% of Ghanaians between the ages of 15 and 49 years, and 1.8% of those aged 15 to 24 years were HIV-positive (Ghana Statistical Service, 2014). As is the case in other sub-Saharan Africa countries, reducing the incidence of STIs, among young people in Ghana remains a major challenge to health professionals and policymakers. Despite increased awareness of the effectiveness of condoms to prevent STIs, their use remains low and inconsistent among Ghanaian adolescents and young adults (Appiah-Agyekum & Afi Kayi, 2013; Bankole, Ahmed, Neema, Ouedraogo, & Konyani, 2007). The aim of this study was to examine the factors that influence condom use among young people in Ghana.

Background

With more than 1.8 billion young people in the world in 2015, most of whom reside in sub-Saharan Africa, health professionals, policy makers, and international and national development specialists are giving much-deserved attention to the special needs of this large and crucial population sub-group. Notwithstanding this, observations made over the years, especially in the 1994 International Conference on Population and Development's Programme of Action (United Nations Population Fund, 2014), showed that, as a group, the sexual and reproductive health needs of young people have hardly been given the needed attention by existing reproductive health programs and services. The main concern has been the increasing exposure of adolescents to risks, vulnerabilities, and pressures on an unprecedented scale compared to previous generations (World Health Organization [WHO], 2002). Prominent among these concerns is the exposure of young people to STIs, including HIV (UNAIDS, 2015; United Nations Children's Fund, 2015).

In 2014, there were 3.9 million people aged 15 to 24 years living with HIV and about 620,000 new infections among youth, most of whom live in sub-Saharan Africa (UNAIDS, 2015). In fact, the disease is now the leading cause of death among young people in Africa and the second leading cause of death among this age group worldwide. These reproductive and sexual issues have far-reaching ramifications for the lives of young people, as well as further implications for the societies in which they live (Public Health Agency of Canada, 2011; United Nations Population Fund, 2013).

Condom use has long been seen as an efficient way of addressing both population and public health concerns in most countries (Maticka-Tyndale, 2012). The benefits of regular condom use are two-fold. They serve as protection against STIs and unwanted pregnancies. Condoms are 80% effective in the prevention of sexual transmission of HIV (Smith, Herbst, Zhang, & Rose, 2015; WHO, 2009). Although condom awareness and usage have improved over time, there is evidence that the level of condom use among young people is still low and inconsistent (Gahagan, Rehman, Barbour, & McWilliam, 2007; Maticka-Tyndale, 2012). Some authors have suggested that young people are less likely to be vulnerable to STIs when offered relevant behaviour change information skills and services in an enabling environment (Gahagan et al., 2007; Maticka-Tyndale, 2012).

Despite the fact that several behavioural and educational interventions have been initiated to promote condom and contraceptive use among young people in Ghana, there has only been a modest improvement over the years (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011; Government of Ghana, 2011; Maticka-Tyndale, 2012). In 2008, contraceptive use among 20 to 25 year olds in Ghana was 13.6%, and among 15 to 19 year olds, it was 14.85%. Young females aged 15 to 19 years have the lowest modern contraceptives usage rate, at 5.2%, among all young people 15 to 25 year of age in Ghana (Ghana Statistical Service, 2013). A cross-sectional survey of unmarried youth in Ghana showed that 18% of male respondents used condoms during their first sexual encounter, while 27% of females did so (Karim, Magnani, Morgan, & Bond, 2003). Authors who have attempted to explain the causes of the low and inconsistent condom use in Ghanaian adults have typically focused on specific populations such as sex workers. The focus of

most studies in Ghana has been on the exploration of aggregate attitudes, beliefs, and prevalence of specific risk behaviours across situations and locations. Several authors in the area of sexual and reproductive health in Ghana have not taken into consideration the variability across situations nor allowed identification of more immediate predictors of a specific behaviour in a particular situation. Only a few authors have looked at the psychosocial factors underlying the low and inconsistent condom use in moderate- and low-risk population, including adolescents and young adults in post-secondary institutions (Adih & Alexander, 1999; Baah-Odoom & Riley, 2012; Bosompra, 2001). However, these studies examined only a limited number of factors that might offer a plausible explanation for intentions to use condoms among young people.

Furthermore, recent research showed that STIs, especially HIV, remain an issue of concern among young people in Ghanaian universities (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011; Tagoe & Aggor, 2009). These students have been found to use condoms inconsistently and to have multiple sexual partners; this, in turn, puts them at risk for STIs similar to that of populations like sex workers (Appiah-Agyekum & Afi Kayi, 2013; Tagoe & Aggor, 2009). University students' pattern of more than one sexual partner in a short span of time and their inconsistent use of condoms (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011; Tagoe & Aggor, 2009) provide good reasons to investigate the psychological antecedents of condom use intentions, using the theory of planned behaviour [TPB] (Ajzen, 1991). The study's primary goal is to add to the knowledge base of sexual and reproductive health in Ghana with regard to the psychosocial determinants of condom use among young people. Another goal of the

study is to inform policy makers who wish to develop appropriate interventions to meet students' needs about the psychosocial factors that are associated with condom use among young people in Ghana. A quantitative approach was used for the present study, and data were collected with a survey.

Problem Statement

Despite the increased awareness of the risk of HIV infection in university students in Ghana, efforts to promote safer sex behaviours such as condom use among these students have yielded limited success (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011). It is possible that programs that address sexual health issues have not been theoretically grounded and thus fail to identify interactions among the different psychosocial factors that influence condom use. Indeed, it has been reported that the success of health education programs is largely influenced by how the program is tailored to relevant determinants of the behaviour (Heeren, Jemmott, Mandeya, & Tyler, 2007; Schaalma et al., 2009). Heeren et al. (2007) noted that the application of theory not only guides the development of the intervention process, but also provides clearer conceptual understanding of behaviour and how it emerged. The theoretical approach employed in this study is an expanded version of the TPB (Ajzen, 1991). The expanded model includes additional psychosocial variables proposed by other investigators which offer further explanations for health behaviours, including condom use. Through this study, I attempt to ascertain the major predictors of condom use intentions among university students in Ghana to bridge the gap in knowledge and also inform future intervention plans.

Research Questions

I examine the psychosocial, epidemiological, and behavioural factors influencing or associated with condom use intentions and behaviour among university students in Ghana, with the following questions in mind:

1. What psychosocial and behavioural factors determine young adults' intentions to use condoms in Ghana?
2. What is the relative contribution of these factors to condom use intentions?
3. What epidemiological factors may be associated with condom use intentions?

Significance of the Study

The present study augments current knowledge regarding the factors that predict condom use among young people in Ghana. A comprehensive understanding of these factors has far-reaching relevance for policy makers, researchers, and health care professionals and planners to develop sexual and reproductive health programs that address the relevant factors of condom use intentions. This understanding could subsequently influence condom use among young people and other at-risk population groups.

Over the years, various social psychological models of behaviour have been adopted by social scientists and public health professionals to identify the factors that influence young people's decisions to use or not to use condoms, as well as to outline the process by which these factors predict health behaviour (Godin & Kok, 1996). Significant among these models is the TPB (Ajzen, 1985, 1991). TPB has primarily been developed and applied mostly in developed countries, where it has shown a good deal of success in

its applicability (Heeren et al., 2007), and predictive power in studying condom use among young people (Godin & Kok, 1996; Sutton, McVey, & Glanz, 1999) and in meta-analytic studies of intentions to use condoms (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Hardeman et al., 2002; Sheeran & Taylor, 1999). On the other hand, only a few authors have applied this theory in sub-Saharan Africa (Adih & Alexander, 1999; Baah-Odoom & Riley, 2012; Bosompra, 2001; Heeren et al., 2007, Heeren et al., 2009; Schaalma et al., 2009), despite the growing concerns about sexual and reproductive issues among young people in the sub-continent.

However, the studies listed above have a limited scope regarding the number of plausible factors that may impact condom use intentions and behaviour. The present study is, therefore, significant because it provides additional evidence and perspective regarding the importance of the theory in predicting condom use intentions by extending the original theory to include remote, but important, factors that may have a plausible impact. This study particularly has significance for university students in Ghana, given the fact that previous research on their sexual and reproductive health revealed that young people were engaging in high-risk sexual behaviours without the needed protection (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011; Tagoe & Aggor, 2009). The results of this study are expected to provide crucial information about the determinants of condom use intentions among university students in Ghana. This information will enable university health planners and administrators to provide health education and services that are relevant enough to influence condom use behaviour.

Chapter Two: Literature Review

Relevant literature on sexual and reproductive health and condom use behaviour of younger adults is reviewed to explore the genesis of risky sexual behaviours among young people in Ghana. I also examine issues relating to young people's awareness of STIs, disparities between condom use knowledge and practice, and how these influence their perception of themselves as being at risk. In the third section, some of the major studies that explored psychosocial determinants and barriers to condom use in Ghana are reviewed, to establish the knowledge gap that informed the present study. The fourth section is a review of TPB and its application. In the final section, I review literature on the additional psychosocial factors included in the expanded TPB (Godin, Gagnon, Lambert, & Conner, 2005)

Risky Sexual Behaviours among Young People in Ghana

Naturally, sex and sexuality constitute an important component of life. However, adolescents and young people tend to engage in sexual behaviours that pose certain risks and adverse outcomes, such as STIs and their consequences. One major reason for this risky behaviour is that sexually active young people lack the maturity and knowledge for rational decision making and the understanding of the ramifications of their sexual behaviours (Steinberg, 2007). According to Steinberg (2007), their actions at this age are usually seen as a function of the developmental stage of their brain and their need for responsibility and independence. Therefore, I took a look at the genesis of some risk-laden behaviours associated with young people in Ghana, so as to set the context for the exploration of the factors influencing condom use. Some of the issues under discussion

include the erosion of traditional values regarding sex and sexuality, early sexual debut, and multiple sexual partners (Anarfi, 1999; Ghana Statistical Service, 2008, 2013; Guttmacher Institute, 2004; Karim et al., 2003; Mah & Halperin, 2010).

Erosion of Traditional Norms and Values

In traditional Ghanaian society, the consummation of sex is usually guided by certain rules and norms that put restrictions on sexual behaviour. In most ethnic groups in Ghana, sex was not permitted and was outrightly prohibited before marriage (Anarfi, 1999). According to Anarfi (1999), premarital chastity for women was held in high regard in some communities, to the extent that young girls who were found to have violated their virginity during puberty rites were either driven out of the community or even killed in some circumstances. Puberty rights were, therefore, performed as an indication that a young person has come of age in terms of physiological development. Hence, these young people were taught basic life skills, including consummation of marriage and most of the things that come with marriage (Anarfi, 1999).

In recent times, however, these restrictive norms on sexual attitudes and behaviour have substantially changed with a well-documented rise in the frequency of premarital sex among adolescents and young people (Ghana Statistical Service, 2008). For example, in their assessment of the changing nature of adolescence in the Kassena-Nankana district of Northern Ghana, Mensch, Bagah, Clark, and Binka (1999) noted that unlike in the past when young men were under the watch of their parents, they now have greater autonomy and more opportunities for full sexual expression. This, the authors said, is a result of the fact that young people, especially young boys, could engage in

payable employment or migrate to improve their financial status. This financial independence among young boys and the desires for an array of costly goods by young ladies led to unsanctioned sexual behaviours. Based on their findings, Mensch et al. also posited that a young man justifies his desires for a lover on the premise that he needs experience prior to marriage, thus undermining the traditional mate selection process. Young girls also believe that allowing a male to have sex with them is a way to increase his affection (Mensch et al.). Without proper preparation for their sexual lives, young people become vulnerable to serious sexual and reproductive health threats such as STIs and unwanted pregnancies.

Early Initiation of Sex

Early initiation of sex exposes young people to additional risky sexual behaviours in the future (O'Donnel, O'Donnell, & Stueve, 2001). In traditional Ghanaian societies, sexual chastity before marriage was very important; hence, various tribes and communities had values that governed and protected virginity. With the transformation of the socio-cultural environment, however, institutions that governed marriage, rites of passage, and the traditional values surrounding these events have lost their fundamental value and have been replaced by secular institutions like schools and other groups and organizations. These transformations coupled with the prolonged period of adolescence, a stage of life that hardly existed in traditional farming societies before Western education, created a social change that has impacted young people's sexuality in Ghana (Glover et al., 2003). The impact of these social changes can be observed in recent national surveys, where it has been estimated that by age 18, more than two-fifths (44%) of women and

26% of men have had sexual intercourse, and by age 20, 56% of men and 83% of women have had sex in Ghana (Ghana Statistical Service, 2008, 2013; Guttmacher Institute, 2004).

Although this pattern of sexual initiation and sexual activity is typical of many sub-Saharan African countries (Fatusi, 2008; Glover et al., 2003; Maticka-Tyndale, 2012), it is a cause for concern because research has shown that early sexual debutants are more likely to continue with risky behaviour patterns than are peers who have delayed their first sexual intercourse (O'Donnel et al., 2001). Evidence suggests that early sexual initiation correlates with risky sexual behaviours, such as low levels of condom use, multiple sexual partners, unintended pregnancies, and high risk of STIs (O'Donnel et al., 2001). From the Ghanaian perspective, the situation is unsettling because not only are young people initiating sex early, but they are also more likely than others to take up patterns of sexual behaviours such as not using condoms in their sexual encounters, thus putting them at risk of contracting STIs.

Multiple Sexual Partners

Having multiple sexual partners is a huge behavioural risk factor for STIs at all stages of human development, especially if condoms are not used. Multiple or concurrent sexual relationships and serial monogamy are still a critical aspect of sexual behaviour that must be given the needed attention for the prevention of STIs in sub-Saharan Africa (Mah & Halperin, 2010). In their review, these authors found that in rural Swaziland, 70% of males and 62% of females reported having two or more partners in the last three months. In a similar nationwide cross-sectional survey of factors associated with elevated

risk of pregnancy and STIs among 3,739 unmarried youth aged 12 to 24 in Ghana, Karim et al. (2003) found that 11% of males, compared to 4% of females, had more than one sexual partner. Highly educated persons had more sexual partners than did those with low education. Only 18% of males used a condom during their first sex compared to 27% of females. The risk here is that multiple partnerships increase the level of population exposure to STIs and the likelihood of promoting their transmission. With multiple partnerships, there is the probability of more coital acts which are associated with less consistent condom use, particularly among young people (Karim et al., 2003; Mah & Halperin, 2010).

Young people 18 to 25 years of age are particularly at risk because they occupy a unique stage of development that marks a period of transition from adolescence to adulthood—the beginning of responsibility, marriage, and parenthood. Current trends have shown that there is an upward spiral in the median age at first marriage in Ghana. For example, the median age at first marriage for Ghanaian women aged 25 to 49 years increased from 19.6 years in 2003 to 20.7 years in 2014, while that of men aged 30-59 years, increased from 25.0 to 26.4 years in the same period. These mean figures are even higher when only educated persons and individuals who live in urban areas are considered (Ghana Statistical Service, 2008, 2014). This shift in the mean age at first marriage may be an indication that for many young people, ages 18 to 25 are still transitional years, where they have to make a decision to marry or make a long-term commitment. Within this transition period, there will be some level of exposure to several potential life partners or suitors in a bid to find a marriage partner. This kind of exposure

may result in nonmarital sexual encounters with several potential marriage partners, hence increasing the overall risk of contracting STIs. Therefore, partners are at an increased risk of STIs if they do not protect themselves with condoms (Mah & Halperin, 2010).

Summary

Through this review, I examined the genesis of risky behaviours that may have a direct or indirect relation with condom use and the overall impact on the sexual and reproductive health of young people. This review was deemed necessary because condom use is informed to a large extent by the level of exposure to risky behaviours (Mah & Halperin, 2010). Thus, the discussion of these risky behaviours sets an important context for the exploration of the factors influencing condom use.

Risk factors for STIs are usually found in the socio-cultural environment within which sexually active people live. In the case of Ghana, the literature has suggested that most of these risks may be a result of the erosion of cultural values that initiate young people into adult life (Anarfi, 1999; Mensch et al., 1999). This age group lacks the maturity and knowledge for rational decision making and the understanding of the ramifications of their sexual behaviour and actions. Secondly, initiating sex at an earlier age also elevates the risk of taking up negative patterns of sexual behaviour, such as not using condoms thus putting individuals at risk of contracting STIs (Ghana Statistical Service, 2008, 2013; Guttmacher Institute, 2004; O'Donnell et al., 2001). Finally, engaging with multiple sexual partnerships increases the risk of contracting STIs (Ghana Statistical Service, 2008, 2013; Karim et al., 2003; Mah & Halperin, 2010). Multiple or

concurrent sexual partnerships increase the level of exposure of individuals and their partners to STIs such as HIV when they do not protect themselves with condoms.

Knowledge, Perceptions, and Condom Use in Ghana

A number of efforts have been made to promote condom use among young people in Ghana. Media and community outreach programs have been used over the years to promote safe sexual practices among young adults. Several health facilities also provide young adults with information on how to use a condom to protect themselves against STIs and the prevention of unplanned pregnancies. From these interventions, adolescents in Ghana have opportunities to be knowledgeable about reproductive health issues (Government of Ghana, 2011).

Regardless of the improved awareness and knowledge of young people, curbing the incidence of STIs is still a major concern for policy makers and health professionals. In particular, despite the increased awareness of the effectiveness of contraceptives such as condoms for STI prevention, their use remains low and inconsistent among Ghanaian adolescents and young adults (Appiah-Agyekum & Afi Kayi, 2013; Tagoe & Aggor, 2009). Appiah-Agyekum and Afi Kayi (2013) explored knowledge, attitudes, preferences, perceived benefits, and side effects of contraceptive use among university students in Ghana ($N = 18$). Their findings revealed that although there was universal knowledge and awareness of contraceptives, with another 67% acknowledging their usefulness for the prevention of STIs and pregnancy, about 95% had never used them. Condoms were the contraceptive best known by the participants; however, most stated their preference for oral contraceptives. Resistance to the use of condoms by young

people, however, has the potential to substantially impact their sexual and reproductive health, particularly given the fact that most STIs are not prevented by oral contraceptives, and the diseases do not present immediate symptoms and instead go undetected until permanent damage occurs (East, Jackson, O'Brien, & Peters, 2007). Unfortunately, this knowledge does not necessarily translate into practice, nor does it influence how young people perceive their risk of contracting STIs.

In a similar study of 375 University of Ghana students, over 60% of whom were aged 17 to 24, Tagoe and Aggor (2009) assessed knowledge, attitudes, and behaviour to identify factors that put participants at risk of HIV infection. The authors found that the majority of students were confident in their knowledge about STIs, including HIV. Despite this knowledge, not all students took precautionary measures to protect themselves. Only 52% of female students and 64% of male students used condoms on a regular basis. Although most students noted that everyone is susceptible to contracting HIV, they did not perceive themselves as being at risk because they believed their partners were faithful. A focus group discussion conducted to ascertain the reason for this revealed that young people do not use condoms, or discontinue using them, when they believe that the relationship is relatively stable. Secondly, condoms are usually not handy, especially for women, because of the cultural association of condoms with promiscuity. The study further revealed that 90% of the students had never taken an HIV test. This was attributed to two factors: (a) the fear and anxiety associated with testing; and (b) the stigma that comes with being HIV positive.

In a cross-sectional study of 579 Ghanaian males aged 15 to 49 years, Fiaveh (2011) assessed the impact of condom use on men's sexual behaviour in the context of HIV illness prevention and found that the majority of men were confident of their knowledge of HIV disease and its mode of transmission (93.4%). Another 73.4% knew the benefits of condoms, but only 65.8% reported using them in their last sexual encounter. The findings imply that basic knowledge of HIV and condom use does not necessarily translate into practice.

There is undoubtedly a gap between knowledge and risk perception, and condom use among young people. This review raises questions about possible inefficiencies related to the sexual and reproductive health education given to young people, especially when knowledge of condoms and STIs in Ghana is found to be above 90% among young people, yet there is marginal effect on sexual behaviour such as condom use. To succeed in the bid to reverse the current trend of STI transmission among young people may require an understanding of the psychosocial factors that impede safer sex practices among vulnerable populations. The present study, therefore, explored the psychosocial factors to understand why, despite understanding the undesirable sequelae that may occur, young people still engage in risky sexual behaviours, such as not using condoms in their sexual encounters.

Behaviour Theories and Barriers to Condom Use in Ghana

In global efforts towards the prevention and control of STIs, condoms have been widely recognized as an important component. Various authors have shown evidence of the effectiveness of condoms in reducing both the transmission of HIV and other STIs

when used consistently and correctly (Ghys et al., 2002; Maticka-Tyndale, 2012; Weller & Davis, 2007). Health professionals and policy makers have increased their efforts in the promotion of condom use among various populations in a conscious effort to prevent STIs and unwanted pregnancies. Through these concerted efforts, condoms have been very instrumental in the reduction of HIV transmission and the control of the wider spread of the disease in areas with a high concentration of the virus. For example, policy initiatives that sought to distribute condoms to various populations have been shown to reduce HIV and other STIs among men who have sex with men and sex workers (Ghys et al., 2002; Smith, Herbst, Zhang, & Rose, 2015). In high-prevalence regions like South Africa and Zimbabwe, research has shown that increased use of condoms has been a contributing factor to the reduction in HIV incidence (Halperin et al., 2011; Johnson, Hallett, Rehle, & Dorrington, 2012). In Ghana, efforts have been made to improve condom use among young people. Some of these include the promotion of condom use in media and community outreach programs and the provision of youth-friendly centres to provide comprehensive knowledge on sexual and reproductive health, which also enhance access to services such as condoms at low cost for young people (Government of Ghana, 2011). Notwithstanding these efforts to promote positive sexual and reproductive health, including increased awareness of the effectiveness condoms for STI prevention, their use remains low and inconsistent among Ghanaian adolescents and young adults (Appiah-Agyekum & Afi Kayi, 2013; Bankole et al., 2007; Tagoe & Aggor, 2009). Some social researchers have made an effort to understand this phenomenon by adopting various psychosocial models of behaviour to identify the factors underlying the low and

inconsistent condom use in moderate- and low-risk populations, including adolescents and young adults in post-secondary institutions. Some of these theories include the health belief model (Rosenstock, 1974), social learning theory (Bandura, 1995), the theory of reasoned action (Ajzen & Fishbein, 1980), and the TPB (Ajzen, 1991).

Adih and Alexander (1999) applied the health belief model and the social learning theory (Bandura, 1995; Rosenstock, 1974) to identify factors that influence the use of condoms to reduce the risk of HIV infection among young people in Ghana. The authors sampled a cross-section of young men aged 15 to 24 years, with a total sample size of 601, in the Yilo Krobo district of Southern Ghana. The dependent variables were lifetime use of condoms and condom use at last sexual intercourse. The predictor variables included age, marital status, AIDS knowledge, psychosocial factors such as susceptibility to HIV, self-efficacy, benefits from condom use, condom use barriers, social support for condom use, and risk and problem behaviours.

Adih and Alexander's (1999) findings revealed that frequency of condom use was low at 21%. Furthermore, 63% and 21% of those who reported condom use in their last sexual encounter had done so with regular and casual sexual partners respectively. Bivariate analysis indicated that most of the independent variables associated significantly with (a) ever used a condom and (b) condom used at last sexual encounter. Further multiple logistic regression analysis of the significant predictor variables showed that older respondents were more likely to use condoms than younger ones. Young men who perceived low levels of barriers were twice as likely to use condoms than were individuals who perceived higher levels of barriers to condom use. Young men who

perceived higher self-efficacy were 2.53 times more likely to have ever used a condom than those with lower self-efficacy. Finally, higher levels of social support facilitated condom use more than did less social support ($OR = 1.67$). The results also showed that higher perception of susceptibility to HIV infection and low barriers to condom use influenced condom use positively in participants' last sexual encounter ($OR = 5.91$). Individuals with high self-efficacy and low barriers to condom use were more likely to have used condoms in their last sexual encounter than those with low self-efficacy and high barriers to condom use ($OR = 2.84$). As well, the majority (63%) of respondents had high levels of self-efficacy, while barriers to condom use were low. Furthermore, risky behaviours, such as consumption of local gin (liquor) promoted non-condom use.

Bosompra (2001) explored the determinants of condom use intentions of university students in Southern Ghana to examine the applicability of the theory of reasoned action (Ajzen & Fishbein, 1980) to study condom use among young people. A total of 255 students aged 19 to 29 years were sampled, comprising 62.2% male students and the rest female. Results of descriptive statistics indicated that 89.1% of study participants had had sexual intercourse, and of this number, 92.7% had used a condom. With regard to the predictor variables, students were motivated to comply with significant referents ($\bar{x} = 24.09$, range -84 to +84), such as medical doctors ($\bar{x} = 5.75$ out of a maximum of 7), sexual partners (4.99), parents (4.69), and close friends (4.08). The findings further showed that overall, students' attitudes were favourable towards condom use. Students perceived condoms as very advantageous ($\bar{x} = 20.80$, range -27 to +27). They were however "neutral" with respect to condom use disadvantages; that is, young

people did not show a clear indication of the nonusefulness of condoms in sexual encounters ($\bar{x} = -1.17$, range -18 to +18).

Testing the model, Bosompra (2001) found that intentions to use condoms correlated significantly with both attitudes variables: advantages ($r = 0.29$, $p < 0.01$) and disadvantages ($r = 0.34$, $p < 0.01$) of condom use. Subjective norms also correlated significantly with intentions to use condoms ($r = 0.54$, $p < 0.01$). These findings suggest that consistent condom use has more advantages than disadvantages, and this enhances intentions to use condoms. Additionally, approval of condom use by significant referents is an important determinant of students' intentions to use condoms. In all, attitudes and subjective norms explained 33.3% of the variance in condom use intentions.

In a similar study, Baah-Odoom and Riley (2012) examined the role of personal norms in explaining intentions to use condoms. A total of 460 people in Ghana, aged 15 to 28 years, were sampled from high schools and universities. Their findings revealed that the constructs of TPB and personal norms all correlated significantly with intended condom use, with 22% of the variance explained by the model. The original variables of TPB (i.e., attitudes, subjective norms, and perceived behavioural control) explained 11% of the variance in intended condom use ($R^2 = 0.106$; $F = 13.75$; $p < 0.01$). The new variable, personal norms/moral norms on the other hand explained 11% of the variance over and above the original predictors of the theory ($R^2 = 0.109$; $F = 47.21$; $p < 0.01$). These findings suggest that personal or moral value judgements should be given the needed attention in behaviours such as condom use. This is because such behaviours usually elicit strong evaluative reactions.

These three theoretical studies have been instrumental in furthering the knowledge on the importance of psychosocial factors with regard to condom use among young people in Ghana, especially in the fight against HIV. More importantly, these studies revealed that among young people in Ghana, there is a web of complex relationships among various psychosocial factors interacting at various levels, resulting in a synergistic effect on condom use (Adih & Alexander, 1999).

Knowledge Gap and Rationale for Study

Despite the insights provided by the reviewed studies to help guide STI risk-reduction interventions among young people in Ghana, there is still room for further research. For example, the findings of Adih and Alexander (1999) did not exemplify influence of individual psychosocial determinants of condom use among young people, with the exception of self-efficacy. The model employed (i.e., the health belief model) did not account for an individual's worldview or beliefs, attitudes, and other specific individual-level determinants that influenced acceptance of a health behaviour like condom use. Condom use may be less a group behaviour and more a joint one between two individuals or an individual decision; hence, condom use may be better predicted by individual level factors.

Bosompra (2001) added another dimension of psychosocial factors influencing young peoples' decisions to use condoms in their sexual encounters through the theory of reasoned action, aside from what was provided by Adih and Alexander (1999). Nonetheless, the implications for the planning of HIV risk-reduction interventions for young people in Ghana is just as important as those recommended by Adih and

Alexander. Bosompra noted the importance of outcome evaluations (i.e., attitudes) of consistent condom use among young people, especially when these evaluations are negative. Adih and Alexander did not specifically address this attitude dimension of condom use intentions.

The criticism of Bosompra's (2001) study, however, is that by applying the theory of reasoned action, the predecessor of TPB, the author neglected the importance of environmental factors that, in real life, could impact an individual's condom use. This major criticism of the theory of reasoned action was addressed by Ajzen (1985, 1991) before the TPB was proposed. Bosompra's study was, therefore, limited by its inability to account for condom use under conditions where a young person has limited control over his/her decision to use or not use a condom. For example, attitudes and norms may be important in young people's decisions to use condoms; however, when the use of condom depends on the individual's control during sexual encounters or on access to condoms, individuals may change their intentions to use them (Ajzen, 1991).

The present study was similar to that of Baah-Odoom and Riley (2012). The only exception is that the present study has added more than one (self-efficacy, moral norms, perceived risk, and past behaviour) predictor variable to the original model, with the goal of improving the prediction of condom use among young people in Ghana. This is in view of the fact that the more researchers, policy makers, and program designers know about the factors and relationships that underlie the use or nonuse of condoms, the more likely it is that they can design successful interventions to change or reinforce the behaviour (Fishbein, 2008).

The Extended Theory of Planned Behaviour

An extended version of the TPB (see Appendix A) proposed by Ajzen (1985, 1991) was used to guide the organization of the present research. The TPB is an important psychosocial model that can be used to predict and understand intentions and behaviours (Albarracín et al., 2001; Armitage & Conner, 2001; Sheeran & Taylor, 1999). The theory suggests that the immediate determinant of behaviour is the intention to engage in that behaviour. It assumes that attitude, subjective norms, and perceived behavioural control influence individuals' behavioural intentions (Ajzen, 1985). Based on the proposition for the inclusion of other theoretical variable by some authors (Conner & Armitage, 1998; Conner, Kirk, Cade, & Barrett, 2001; Godin et al., 2005; Godin & Kok, 1996), the extended version will include self-efficacy, moral norms, role beliefs, past behaviour and perceived risk to predict behaviour intentions.

Attitudes

Attitude towards a given behaviour reflects how favourably a person judges the outcome of the behaviour. It is a function of salient beliefs concerning the perceived consequences of executing the action and a subjective evaluation of each of these consequences. Each salient belief links the behaviour with some valued outcome or attribute (Ajzen, 1985). The evaluation of each salient belief about condom use is, for this reason, partially shaped by the salient beliefs regarding the consequences of using a condom and a subjective assessment of those salient beliefs about condom use. Evaluation of each salient outcome contributes to the attitude in proportion to the person's subjective assessment of the probability that the behaviour will produce the

result in question. The attitude towards the behaviour is, therefore, the cumulative assessment of all the perceived outcomes (Ajzen, 1985).

Subjective Norms

Subjective norms reflect the perception of social pressure to adopt a behaviour. Subjective norms are operationalized as the perceived expectations of specific individuals or groups (i.e., normative belief). These norms also include the motivation of the individual to comply with the pressures or expectations of significant others (i.e., family, health care providers, friends, the sexual partner, and significant others). The individual, however, has a choice to comply or not comply with these pressures (Ajzen, 1985).

Perceived Behavioural Control

Perceived behavioural control reflects the anticipated obstacles and impediments as well as past experiences. The TPB suggests that individuals' perceptions of the ease or difficulty of using a condom during every sexual encounter affect their intentions to do so. It implies that when attitudes and norms regarding condom use are very favourable and the individual perceives a high level of self-control over condom use, there should be strong intentions to use a condom. Obstacles may be personal capabilities, such as information, ability, skill, and willpower, and external constraints regarding the target behaviour, such as social support, time, and opportunity (Ajzen, 1985, 1991).

Self-Efficacy

Self-efficacy was defined as the individual's belief in his/her capability to organize and use condoms in his/her sexual encounters (Bandura, 1995). This concept includes the individual's beliefs as well as ability to perform a specific course of action.

Moral Norms

Moral norms are the individual's feeling of personal conviction towards the performance of a given behaviour (Ajzen, 1991). These are the rules of conduct and moral principles to which the individual adheres, that guide the performance or non-performance of a given behaviour (Godin et al., 2005).

Role Beliefs

Role beliefs or self-identity, as conceptualized by Conner and Armitage (1998), represent an individual's self-perception of the appropriateness of engaging in a behaviour expected from a person in a social position similar to that of the individual or self. The concept suggests that, irrespective of social factors, individuals strive to act in consonance with their role belief or how they identify themselves to validate their status as a role member (Callero, 1985)

Past Behaviour

The variable past behaviour suggests that an individual's past actions are an important factor in controlling his/her future actions and may be important in the satisfaction of behaviour conditions for condom use (Godin et al., 2005; Kidwell & Jewell, 2008). The assumption is that when a person performs a particular behaviour, he/she acquires some experience or knowledge about the performance of the behaviour. Therefore, a level of stability is established regarding future execution of the behaviour (Kashima, Gallois, & McCamish, 1992).

Perceived Risk

Perceived risk represents an individual's subjective evaluation of his/her risk of contracting a condition (Rosenstock, 1974). This concept is similar to perceived susceptibility in the health belief model (Rosenstock, 1974).

A detailed review of the above theoretical concepts is discussed next.

Application of the TPB to Condom Use Intentions

The application of the TPB and its theoretical sufficiency in the study of various health behaviours, with particular emphasis on condom use and sexual risk reduction among young people, is examined in this section. Although a complete application of the theory usually requires an examination of all the variables, from belief to behaviour, Ajzen (1985) suggested that it is acceptable to examine a limited set of relationships outlined by the theory to answer the particular questions the investigator seeks to answer. Therefore, the intention-behaviour relationship in condom use in the present study is not examined because of limitations in time and resources. I will explore the prediction of condom use intentions, the relationship between attitude and condom use intentions, normative influences on sexual risk-taking, and the impact of perceived behavioural control on condom use intentions.

Prediction of Intentions

According to Ajzen (1991), the antecedents of behavioural intentions should be universal in their ability to predict intentional behaviour. For this reason, the patterns of influence of the major interactions or relationships in the theoretical framework should be consistent across samples (Ajzen, 1991). The model suggests that attitudes toward

behaviour, subjective norms with respect to behaviour, and perceived behavioural control over the behaviour usually predict behavioural intentions with a substantially high degree of accuracy.

In their review of 206 papers on the prospective prediction of health-related behaviour using the TPB, McEachan, Conner, Taylor, and Lawton (2011) found that subjective norms and perceived behavioural control explained 44% of the variance in intentions, while intentions explained 19% of actual behaviour. The predictions of intentions using the theory, however, varied among behaviours. Moderating for the type of behaviour, the authors noted that the TPB accounted for 17% of safer sex intentions, while other behaviours, such as physical activity, dietary, abstinence, detection, and risk behaviours, accounted for 4% to 12%.

The ability of the theory in predicting safer sex behaviour intentions was also supported by the findings of Godin and Kok (1996), whose review showed that behaviours related to HIV and AIDS were relatively well predicted by the TPB, accounting for 42.1% of explained variance. The review further revealed that the theory strongly predicts behaviours among students compared to adolescents and adults. Behaviours that were self-reported were also better predicted (25.7% of variance explained) than those that were measured objectively (12.1%). Several other studies that applied the TPB to condom use intentions suggested that intentions were strongly predicted with total accounted variance ranging from $R^2 = 0.35$ to $R^2 = 0.77$ (Baah-Odom & Riley, 2012; Cha, Kim, & Patrick, 2008; Heeren et al., 2009; Molla, Astrom, & Brehane, 2007; Muñoz-Silva, Sánchez-García, Nunes, & Martins, 2007; Schaalma et

al., 2009). McEachan et al. (2011) suggested that the theory is an effective framework for predicting safer sex behaviours like condom use, which also justified the use of students in the current study with regard to the prediction of condom use intentions.

Attitudes and Condom Use

In this review, I looked at the relationship between attitudes towards condom use and intentions to use condoms. Knowing this functional relationship between attitudes and intentions is important; attempts at attitude change are more likely to be successful when persuasive appeal matches the function of the attitude (Maio & Haddock, 2009).

Ajzen (1985) defined attitudes as the positive or negative evaluation of performing a particular behaviour; that is, the individual's tendency to assess a behaviour with some degree of favour or disfavour. Attitude allows individuals and groups to take certain actions in a variety of ways by providing the lens to perceive and interpret information in the social world (Maio & Haddock, 2009). The assumption is that attitudes will correlate positively with intentions to execute a particular behaviour and subsequent action with regard to the particular behaviour when they are evaluated positively (Ajzen, 1991). For instance, if young people believe that condoms are protective against STIs and that sexual pleasure is not diminished by their use, condoms are more likely to be used during sexual encounters. Conversely, an unfavourable evaluation of attitudes towards a particular behaviour will correlate negatively with intentions to execute that behaviour. For the current study, therefore, I hypothesized that favourable attitudes towards condom use correlate positively with young people's intentions to use condoms, while unfavourable evaluation of attitudes would correlate negatively.

Attitudes towards condom use have been found in several studies to be important predictors of condom use intention (Baah-Odoom & Riley, 2012; Bosompra, 2001; Heeren et al., 2009). Eagly, Chaiken, Eagly, and Youngblood (1993) even suggested that attitudes are by far a more important contributor to intentions than subjective norms and perceived behavioural control. A number of meta-analytic studies provided strong support for the predictive strength of attitude with regard to intentions (Armitage & Conner, 2001; Conner & Armitage, 1998; McEachan et al., 2011). For example, in a meta-analysis to explore the efficacy of the TPB in accounting for methodological moderators, McEachan et al. (2011) found attitudes to be the strongest predictor of intention in health-related behaviour, including condom use. Others have found attitude to be a minimal or moderate contributor to condom use intentions (Guo et al., 2014; Ross & McLaws, 1992; Schaalma et al., 2009). This discrepancy may result from the notion that attitudes are normally assumed to be subject to diversity in cultural influences as suggested by Ajzen (1991).

Normative Influences on Sexual Risk-Taking

Relevant literature on the importance of significant others in young people's decision-making with regard to sexual and reproductive health risk-taking and safer-sex behaviour are reviewed in this section. According to Ajzen (1985), when people intend to perform a behaviour after they have evaluated it positively, they also try to find out whether other important people in their lives think they should perform it or not. These important referents, such as peers, parents, and friends, have been found to influence individuals' sexual and reproductive health behaviours. From youth groups to school, the

social environment has played a crucial role in shaping young people's behaviours (Kumi-Kyereme, Awusabo-Asare, Biddlecom, & Tanle, 2007; Njau et al., 2006). Researchers have described young people as particularly susceptible to normative pressures with regard to sexual risk-taking versus safer sex, particularly condom use (Adih & Alexander, 1999; Albarracín, Kumkale, & Johnson, 2004; Van Rossem & Meekers, 2011).

Kumi-Kyereme et al. (2007) examined how social connectedness, communication, and monitoring can lead to positive attitudes to lower sexual and reproductive health risk-taking among adolescents aged 12 to 19 in Ghana. The study was based on 4,430 household-based surveys, 102 in-depth interviews, and focus group discussion in groups of 8 and 12 participants. The quantitative results showed that communication with peers and the school system has a major impact on behaviours. The qualitative results suggested that peers were integral because they were more sympathetic to their colleagues and were ready to listen. Both findings further suggested that the traditional role of parents and other adults as the repository of sexual and reproductive health information was waning, because parents and other adults do not create an environment for a mutual dialogue, but one that is more directive. Although the study was a bio-ecological evaluation of risk-taking behaviours as opposed to the individual-level assessment of subjective norms in the present study, the findings nonetheless provided an outlook of how much normative beliefs from significant others have a strong influence on sexual and reproductive health behaviour.

Other authors, however, suggested that it is the ascribed and non-voluntary relationships with family and members of the community that play a crucial role in the adoption of sexual and reproductive health behaviours such as condom use. For example, Van Rossem and Meekers (2011) examined the most valued persons (MVPs) young people looked to for social approval and the importance of social approval from these MVPs to inform their decisions to use condoms. They sampled 602 young people aged 15 to 24 who responded to adolescent reproductive health surveys in 2000, 2002, and 2003 respectively, living in two major cities in Cameroon. The findings suggested that a majority (93%) of young people identified family as the people whose opinions matter. Seventy percent of young people mentioned parents as their MVPs, while only 4% mentioned friends or peers. Bivariate relationships also indicated that MVPs' approval of condom use had an association with young people's frequency of condom use. Youth who believed that their MVP approved of condom use frequently reported using condoms and those who believe that their MVPs did not approve of condom use reported less condom use. The authors concluded that while friends or peers constitute an important referent group in terms of social approval and support for the adoption of some behaviours, ascribed relationships such as family and community wield strong social control over sexual and reproductive health behaviours. The authors further noted that information and attitudes might be necessary for condom use, but they are not sufficient. The perception that using a condom is approved by individuals whose opinion matters is an important link in condom use decision making.

Perceived Behavioural Control

Ajzen (1991) proposed that perceived behavioural control has both direct and indirect effects on behaviour. The assumption is that an individual's intentions and actual performance of a particular behaviour do not only depend on the person's motivation to perform the behaviour, but also on the extent to which the individual has control over the performance of the behaviour. In the context of condom use, young people's use of condoms may be influenced by their motivation to use condoms in every sexual encounter; however, using condoms may also heavily rely on how much external and internal control they have over using a condom. This control may include whether or not they have the time to look for condoms, the money to purchase them, the skills to use condoms, as well as whether their partners will agree to their use. Hence, it is assumed that if a young person doubts the extent to which he/she has control over condom usage, the less likely he/she is to use condom.

Perceived behavioural control has been found to influence behaviour intentions and actual behaviour in several studies (Cha et al., 2008; Godin et al., 2005; Guo et al., 2014; Heeren et al., 2009; Schaalma et al., 2009). Although these researchers have acknowledged the importance of perceived behavioural control in predicting condom use intention, others have not found it to be a strong predictor. For example, in a narrative review of the TPB as a theoretical framework for prediction of condom use, Bennett and Bozionelos (2000) suggested that when measures of perceived behavioural control were empirically distinct from self-efficacy, there was no unique contribution of the two constructs to the explanation of variations in behavioural intentions. Sutton et al. (1999)

also suggested that the effect of perceived behavioural control ceases to be significant when past behaviour variables are introduced into the analysis. This is because a previous enactment of a behaviour provides some knowledge to the individual, hence giving him/her some control over subsequent performance of the behaviour.

Additional Psychosocial Factors Influencing Condom Use

Several studies and meta-analyses have confirmed adequacy of the original independent variables of the TPB in the prediction of behaviour intentions across a wide range of behaviours and contexts in social sciences (Cheng, Lam, & Hsu, 2005; Godin & Kok, 1996; Hagger et al., 2007; Riebl et al., 2015; Rossi & Armstrong, 1999; Sutton, 1998; Sutton et al., 1999). Despite this, Ajzen (2015) suggested that the model allows for the inclusion of additional predictors in principle. However, these predictors have to be included with caution and also must meet certain criteria for the sake of parsimony. Researchers are required to ensure that the proposed variable is behaviour-specific and conforms to the principle of compatibility: that is, proposed variables should be definable and measurable in terms of target, context, and the time that describe the behaviour standard. Secondly, the proposed variable should be conceivable as a causal factor influencing intentions or actions. The additional variables proposed should not overlap with the existing predictors of intentions. They should be conceptually autonomous from the original predictors of intentions proposed by the theory. Finally, the additions should be theoretically applicable to a wide range of behaviours studied in social sciences.

Consistent with the requirements proposed by Ajzen (2015), subsequent research has noted the interaction of other psychosocial factors that, together, may offer plausible

explanations for health behaviours, including condom use. Some of these factors include self-efficacy, moral norms, perceived risk, and past behaviour (Conner & Armitage, 1998; Conner, Kirk, Cade, & Barrett, 2001; Godin et al., 2005; Godin & Kok, 1996). For this study, I found it imperative to ascertain the determinants of condom use among university students in Ghana by extending the TPB to include some of these factors and thus provide a wider scope to better bridge the knowledge gap. These additional factors are illustrated in Appendix A and are described next.

Self-Efficacy

Self-efficacy is conceptualized as the individual's belief in his or her capability to organize and execute a course of action to influence the events affecting his/her life (Bandura, 1995). This conceptualization of self-efficacy suggests that the concept is not only a measure of ability, but it also encompasses the individual's belief or confidence in performing the specific course of action (Bandura, 1995). This is in view of the fact that sexual intercourse usually occurs between individuals who perceive an imbalance in power or social status. For example, young people may perceive a lack of relative power compared to their partners in sexual relationships, resulting in the belief that they are incapable of asking for regular condom use. This imbalance in sexual negotiations has been demonstrated in the failure to initiate conversation or take control of the behaviour (Tenkorang, 2012). The ability to demand the use of a condom during a sexual encounter requires self-efficacy on the part of the individual.

Within the purview of the TPB, Ajzen (1991) suggested that the concept of perceived behavioural control overlaps with the concept of self-efficacy. This is because

both constructs are essentially related to the amount of control a person has in relation to the performance of a behaviour. Manstead and Van Eekelen (1998) noted this overlap in the constructs, suggesting that self-efficacy is related to the belief that an individual is capable of performing a course of action, while perceived behavioural control refers to the perceived ease or difficulty of performing the course of action. Despite this similarity, several other researchers have suggested that the two constructs can be distinguished in their dimensionality (Godin et al., 2005; Conner & Armitage, 1998; Manstead & Van Eekelen, 1998; Pertl et al., 2010). According to Terry and O'Leary (1995), self-efficacy is more related to internal control (i.e., factors that come from within the individual such as ability and motivation), while perceived behavioural control is much more concerned with factors that come from outside the individual (i.e., the difficulty of the task, access to resources, and cooperation of others).

The different roles of the two constructs were examined by Armitage and Conner (2001) in their meta-analytic review of the efficacy of the TPB, which showed that the two constructs had comparable correlation with intentions (approximately $r = .40$). The authors further showed that self-efficacy explained 7% and perceived behavioural control explained an additional 5% of the variance in intentions. In an examination of the determinants of condom use among single heterosexual adults, Godin et al. (2005) also found that both constructs contributed to the prediction of condom use intentions. Given the differing accounts of the role of perceived behavioural control and self-efficacy with the TPB, I examined the separate roles of self-efficacy and perceived behavioural control with respect to condom use intention. Thus, this study will look at the extent to which

self-efficacy and perceived behavioural control contribute to the prediction of condom use intention.

Condom Use and Moral Norms

Moral norms refer to the feeling of personal conviction towards the performance of a given behaviour (Ajzen, 1991). These are the individual's rules of conduct and moral principles that guide the performance or non-performance of a given behaviour and significantly affect ethical decision-making (Godin et al., 2005). A person is less likely to perform a behaviour that is perceived to be morally wrong and more likely to perform one that is evaluated as morally acceptable.

According to Godin et al. (2005), moral norms differ from social or subjective norms, given that the individual engaging in a behaviour is not guided by the perceived expectations of others, but rather by personal principles. Although not added to the traditional TPB predictors, Ajzen (1991) has argued that moral norms can be an important addition to the theory, especially in behaviour where moral considerations are likely to be crucial. Indeed, in their analysis of dishonest actions, Beck and Ajzen (1991) found that moral norms significantly accounted for 3% to 6% of the variance in intention.

A number of authors have also shown that moral norms have added a significant amount of variance to the prediction of intentions over and above the traditional TPB variables (Baah-Odoom & Riley, 2012; Conner & Armitage, 1998; Godin et al., 2005). For example, Conner and Armitage (1998), in a review of the literature to expand the TPB for further research, showed that moral norms added 4% of variance to the prediction of intentions. Baah-Odoom and Riley (2012) studied the role of personal

norms, a broader conceptualization of moral norms, in explaining intentions to use condom among young people in Ghana. Their sample included 460 young people aged 15 to 28 years, 70 of whom were university students, while 390 were students from high schools. They found that personal norms are very important with regard to young people's decisions to use or not use condoms during sexual encounters. The variable accounted for 11% of variance over and above the original predictors of the TPB.

From the foregoing discussion, moral value judgements are a useful addition to understanding the factors that predict condom use intentions among young people in Ghana. This is because condom use is considered a behaviour that elicits a strong moral evaluative reaction in the highly religious country.

Role Beliefs

Role beliefs or self-identity, as conceptualized by Conner and Armitage (1998) and Godin et al. (2005), represent an individual's self-perception of the appropriateness of engaging in a behaviour expected from a person in a social position similar to that of the individual or self. The concept originates from identity theory (Stryker, 1968), and it represents the salient part of an actor's self in relation to a particular course of action or behaviour; that is, the extent to which an individual perceives him or herself as fulfilling the criteria for any societal role (Conner & Armitage). The fundamental understanding of this concept is that, irrespective of social factors, individuals strive to act in consonance with their role belief or how they identify themselves to validate their status as a role member (Callero, 1985). Therefore, the more an individual identifies a particular role-belief as important, the greater the possibility that the individual will behave in

consonance with his/her identity (Charng, Piliavin, & Callero, 1988). This is in view of the fact that, as these authors suggested, carrying out a behaviour that is in consonance with the role beliefs or self-identity may convey much meaning over and above the favourable or unfavourable attitudes individuals may hold towards performing the behaviour. For example, a young person may have negative attitudes towards condom use, but may actually use condoms in his/her sexual encounters because this is necessary for the maintenance of personal role beliefs or self-identity.

A number of studies have suggested that role beliefs or self-identity may be a useful addition to the predictor variable in the TPB (Biddle, Bank, & Slavings, 1987; Charng et al., 1988; Conner & Armitage, 1998; Rise & Sheeran, 2010). In a meta-analysis of 40 independent tests ($N = 11,607$) to evaluate whether self-identity adds value to the prediction of behaviour using the TPB, Rise and Sheeran (2010) observed a weighted average correlation between self-identity and behaviour intentions ($r = 0.47$). Further, multiple regression analysis indicated that the variable explained a substantial amount of variance (6%) in intentions over and above the TPB components. Self-identity further explained a variance of 9% when the authors controlled for the components of the TPB and past behaviour.

In a similar review of 33 tests of the TPB for evidence supporting the extension of the theory, Conner and Armitage (1998) did not find relationships between self-identity and most of the components of the theory as large as the one found by Rise and Sheeran (2010). They did find an unexpected independent effect of self-identity on intentions with correlations ranging between $r = 0.06$ to 0.7 . Their findings revealed that self-identity

accounted for 1% of explained variance in intentions controlling for the TPB. They concluded that it is certainly reasonable to assume that some role beliefs or self-identity may be a determining factor in the execution of certain behaviours, especially recurrent ones like condom use (Charng et al., 1988; Conner & Armitage).

Godin et al. (2005) employed an extended version of the TPB to identify the determinants of condom use among single heterosexuals during sexual intercourse. Contrary to previous studies that suggested role beliefs and/or self-identity may be useful additions to the prediction of certain behaviours (Charng et al., 1988; Conner & Armitage, 1998; Rise & Sheeran, 2010), Godin et al.'s findings indicated that role beliefs were not a significant contributor to condom use intentions. They noted that although their results did not replicate those of other researchers, there is a need for further inquiry among different populations, given that this factor proved significant in a separate study among different ethnocultural communities (Godin & Kok, 1996).

My review in this section has shown mixed perspectives with regard to the influence of role beliefs and/or self-identity in the prediction of behaviour intentions. Conner and Armitage (1998) and Rise and Sheeran (2010) suggested that role beliefs may be a valuable contributor to behaviour intentions, even when the original variables of the TPB are controlled for. Perhaps, in understanding behaviours such as condom use, there is the need to consider what role beliefs an individual possesses with regard to the behaviour. This is because use of condoms may not only be based on positive or negative evaluation, but may be associated with specific role beliefs. Hence, young people's actions may be necessary for the maintenance of the role beliefs or self-identity. The

present study, therefore, explored the usefulness of role beliefs in predicting condom use among young people in Ghana, to ascertain factors that would be valuable in the planning and implementation of future sexual and reproductive health interventions.

Past Behaviour

Several authors have indicated that past behaviour appears to add additional explanatory power to the prediction of behaviour intentions and actual behaviour (Albarracín et al., 2001; Conner & Armitage, 1998; Kidwell & Jewell, 2008; Molla et al., 2007; Smith, 2007). These findings indicate that past actions are an important factor in controlling future actions and may be important in the satisfaction of behavioural conditions for condom use. This influence may be through an interaction with intentions to execute the particular behaviour.

For example, the influence of past behaviour on condom use may be that young peoples' previous use of condoms in sexual encounters may predict whether they will think positively about condoms, have condoms handy, or negotiate with their partners to use condoms, and this will predict their intentions to use condoms in their future sexual encounters. This reflects the assumption that when a person performs a particular behaviour, he/she acquires some experience or knowledge about the performance of the behaviour. Therefore, some level of stability is afforded in terms of future execution of the behaviour (Kashima, Gallois, & McCamish, 1992). The general thinking here is that when individuals are required to make a decision with regard to a particular behaviour and when a relevant past behaviour is salient to them, they might come to the assumption that the purpose for which they performed the behaviour previously will most likely

apply in their current actions as well, without bothering to ascertain the assumption (Albarracín & Weyer, 2000). Thus, they act in ways largely informed by their previous actions when they are called upon to execute the same behaviour.

In a review of 55 independent tests of the TPB for evidence supporting the extension of the theory, Conner and Armitage (1998) found that on the average, past behaviour contributed 7.2% of explained variance in intentions over and above the TPB constructs. Past behaviour further accounted for 13.0% of the variance in actual behaviour after taking into account other direct predictors of behaviour, such as intentions and perceived behavioural control, with a mean frequency correlation between 3% and 27.5%. Given the impact of past behaviour on explained variance in intentions and actual behaviour, Conner and Armitage suggested that it may be useful for future studies to include past behaviour to investigate the extent to which this variable may influence intentions and behaviour.

In a synthesis of 94 data sets from 42 reports that examined how well the theories of reasoned action and planned behaviour predict condom use, Albarracín et al. (2001) also examined the role of past behaviour in predicting intentions and actual behaviour. Their findings indicated that past behaviour had a strong correlation with peoples' intentions to use condoms in their sexual encounters ($r = .57, p < .01$); path analysis showed a strong direct influence of past behaviour on intentions ($\beta = .34$). Their findings suggested that although the original predictor variables of the TPB may influence peoples' intentions to use condoms, their retrospective inferences about previous condom use also played a relevant role in their intentions to use condoms in the present.

Molla et al. (2007), however, did not arrive at similar conclusions about the contribution of past behaviour to condom use intentions. Their examination of the applicability of the TPB in predicting intended and self-reported condom use and the effects of previous condom use among young adults in Ethiopia found that past condom use contributed only marginally to explained variance in intentions to use condoms. They found that past behaviour explained 24.0% of the variance in intentions. This figure, however, dropped to 2.2% when the traditional predictor variables of the TPB were controlled for. From this outcome, Molla et al. suggested that the impact of past behaviour on condom use intentions was mainly an indirect one. These findings were similar to those of Godin et al. (2005), who noted that although past behaviour contributed to the explained variance in future condom use, this contribution was rather marginal. They suggested that past behaviour only affects intentions through a mediation effect on the proximal determinants in the TPB.

Clearly, there were varying accounts of the importance of past behaviour on the prediction of current behaviour. Some researchers suggested that performing a particular behaviour may also depend on prior beliefs in relation to the consequences of the behaviour if the behaviour has been previously performed by the individual (Albarracín et al., 2001; Albarracín & Weyer, 2000; Conner & Armitage, 1998). The reasoning was that when a person performs a particular behaviour, he or she acquires some experience or knowledge about its performance. Other researchers like Godin et al. (2005) and Molla et al. (2007), however, suggested that although past behaviour contributed to the explained variance in intentions and future condom use, this contribution was marginal,

and the relationship may rather be an indirect one through mediation or moderation process.

There was consensus that examining the extent to which past behaviour intentions and actual behaviour could prove highly valuable, despite the varying accounts about the degree of that influence. It is for this reason that in the present study, it was crucial to include this variable.

Perceived Risk

Perceived risk represents an individual's subjective evaluation of his/her risk of contracting an illness (Rosenstock, 1974). For example, it connotes a young person's personal evaluation of the possibilities of contracting an STI *vis-a-vis* the execution of a protective action to prevent its occurrence. These evaluations could range from a denial of being at risk, so no action is taken to prevent the occurrence of STIs, to an acknowledgement of real danger, which would result in the taking of all precautionary measures.

A number of researchers have attempted to explain why some people are reluctant to practice safer sex by assessing how individuals perceive themselves as being at risk of contracting STIs (Conner & Armitage, 1998; Tschann, Adler, Millstein, Gurvey, & Ellen, 2002). Tschann et al. (2002) noted that there is a strong focus on enhancing risk perception towards STIs when attempting to promote condom use. Although empirical studies have often failed to identify a significant relationship between condom use and perceived risk, this factor has dominated most STI and HIV intervention efforts. In an investigation of 236 youth aged 14 to 19 years in an STI clinic to predict partner-specific

condom use, using partner-specific perceptions of risk for STIs, Tschann et al. found that subsequent condom use among adolescents was predicted by perceptions of risks for STIs. Adolescents who perceived a high risk of contracting an STI if they did not use condoms with their main partners were more than twice as likely to use condoms six months later than were those who perceived themselves to be at lower risk ($OR = 2.5$; 95% $CI = 1.1-6.2$). The findings suggest that perceived risk of contracting STIs is an important predictor of future condom use; hence, increasing the perception of risk for STIs among young people will go a long way to improving condom use behaviour.

Despite the practical importance of perceived risk in sexual and reproductive health interventions, some authors (Cha et al., 2008; Godin et al., 2005) have not been able to establish the value of this psychosocial factor in the prediction of intentions as asserted by Tschann et al. (2002). In a cross-sectional, correlational study to predict intentions to practice safer sex among college students aged 18 to 25 years in Korea, Cha et al. (2008) found that all the original predictors of the TPB predicted condom use intentions among young people. Total explained variance for condom use intentions was 23% and 15% for young men and women respectively. Perceived risk of sexual behaviour when added to the expanded TPB did not add to the variance to predict condom use intentions. Godin et al. (2005) had similar findings in their investigation of the determinants of condom use among single heterosexual adults.

Despite a lack of evidence to support a significant relationship between perceived risk and condom use intentions (Cha et al., 2008; Godin et al., 2005), I found this variable worthy of inclusion based on its utility in the development and design of sexual and

reproductive health interventions, by increasing the risk perception among young people. This strategy would go a long way to reducing the struggle of finding effective strategies to deal with decisions relating to condom use and other reproductive health needs (Tschann et al., 2002).

Summary

I have examined the utility of psychosocial factors such as self-efficacy, moral norms, role beliefs, perceived risk, and past behaviour in the prediction of condom use intentions. The rationale for the review was to provide a wider scope of factors that may have an influence on the prediction of condom use intentions over and above the original predictors of intention in the TPB (Ajzen, 1985). Although some authors have suggested that the original predictors of the TPB are adequate in predicting various health behaviours in different contexts, I have shown that this suggestion is rather optimistic. The present review indicates that the original predictors of the theory may be relevant, but are not sufficient to fully explain health behaviours such as condom use. Furthermore, the evidence shows that there is a substantial amount of empirical evidence supporting the addition of these other variables to the TPB; as well, the pathway by which these variables may be related to intentions and other predictors of the TPB is feasible. As Ajzen (2015) suggested, the model allows the inclusion of additional predictors in principle.

By applying an extended version of the TPB, this study examined Ghanaian university students' attitudes towards condom use, their normative beliefs, perceived behavioural control, self-efficacy, moral norms, perceived risk, and past behaviour,

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which were measured along with their intentions to use condoms. The goal was to ascertain the relationships among these theoretical constructs and the usefulness of these factors in predicting intentions to use condoms.

Chapter Three: Study Design

In this chapter, the research questions are reviewed and the research approach selected to answer the question is described. The population and sample, ethical considerations, and the techniques employed in data collection, management, and analysis are explained.

This study employed survey research strategies to determine the factors that influence condom use among undergraduate students from three public universities in Ghana (hereafter referred to as University A, B, or C). University A is located in southern Ghana, University B is located in the middle belt of Ghana, and University C is located in the northern part of the country. These three universities were selected to provide participants from a range of disciplines and academic foci.

Design, Advantages, and Limitations

Bryman, Bell, and Teevan (2012) defined research design as a broad structure that guides the logical arrangement of data collection and analysis to be able to draw conclusions. The process involves the operationalization of study variables, selecting an appropriate sample, collecting the required data to be used as a basis for answering research questions or testing hypotheses, and analysing the results.

This study employed a cross-sectional design to provide a blueprint for data collection and analysis in an attempt to answer the research questions. According to Bryman et al. (2012), such a design entails the collection of data on more than one case, at one point in time, which will help establish variations in the study population and phenomena. The design allows the researcher to collect data on one or more variables of

interest to detect patterns of association without manipulating the independent variables. However, it is difficult to establish cause-and-effect using cross-sectional data because these variables are measured simultaneously without a time difference. With regard to reliability, replicability, and validity, cross-sectional designs measure up with other quantitative research designs. However, this strategy depends on the quality of measurement of the concepts of interest, the researcher's ability to outline the procedures for selecting participants, administration of the questionnaire, and data analysis. Validity, on the other hand, is hard to establish, especially when non-random methods of sampling are used. Causal relationships and direction of causation are difficult to establish (Bryman et al.).

The present study set out to determine the factors that predict condom use intentions among young people in Ghana and the relative contribution of these factors to intentions to use condoms. Therefore, rather than manipulating the study environment, I surveyed participants and recorded information about them to understand the factors that informed their decisions to use condoms in their sexual encounters. The design allowed for comparison of condom use intentions among sample sub-groups, such as gender and different schools, at a particular period. The design further made it possible to examine the relative contribution of the determinants of condom use intentions by comparing how much variance each factor contributed to those intentions.

To execute this design, I handed out self-administered questionnaires in a classroom setting to student volunteers at Universities A, B, and C. These surveys were conducted in September when students returned to campus for the academic year.

Rationale

Considering the goals of this research, it was reasonable to apply an approach that would generate logical explanation and theoretical insight into the phenomenon of interest. Employing surveys in a quantitative approach reflects positivist philosophical assumptions. Specifically, the philosophical assumptions of social determinism, which suggest that central to answering research questions is an examination of the relationships among variables through surveys or experiments (Creswell, 2014; Van De Ven, 2007). Surveys are particularly useful in providing detailed and precise data about young people's condom use, and these data could be gathered from large numbers of young people at one time. Secondly, adopting a practical and straightforward method, while taking into consideration the limitations of resources and time, was important. I attempted to logically apply these resources to reach the expected level of detail to produce valid and reliable results that would contribute to research and health education and promotion. Surveys were effective in collecting information such as sexual and reproductive behaviour and condom use, which are usually perceived as private and sensitive. Finally, a survey also offered the opportunity to make inferences to similar populations of young people with regard to planning interventions targeting condom use.

Role of the Researcher

As the main researcher in this study, I had no contact with research participants prior to conducting the surveys. However, I was responsible for recruiting study participants and also handing out questionnaires to eligible study participants during the

data collection. Using a survey instrument distances the researcher from the participants, hence ensuring objectivity in data collection, analysis, and interpretation.

Study Setting, Population, and Sample

The target population of the study comprised about 79,000 students across all three universities, and a convenience sampling technique was employed to recruit participants. A convenience sample is a non-probability sampling technique and is based on the availability of the elements of the research (Bryman et al., 2012). Probability sampling was not applied due to limited time and resources. Although the use of this sampling technique makes it impossible to generalize findings to all young people, I ensured that samples were selected and studied in a theoretically thoughtful way. This was done by, first, methodologically undertaking an exhaustive case selection to generate data that would be representative of the target population, and secondly, theoretically pursuing the analysis of data in a manner that would have a lasting intellectual value. This approach helped ensure that the study generated insights about the factors that influence condom use among young people in the Ghanaian context. I believe that using a convenience sample to analyze theoretical concepts makes it possible to relate the sample to the social phenomenon in the broader sub-population, and data could be viewed in a way that may be applicable to other cases (Bryman et al., 2012).

After obtaining permission from senior administrators, I made contact with potential survey participants in their various lecture rooms. The recruitment continued in different classrooms until I had at least 200 respondents in each of the three universities. To ensure that participants were not recruited on multiple occasions, participants who had

previously taken the survey in a previous class were asked to leave the classroom after the researcher and the purpose of the survey were introduced. Because a non-probability sampling method was applied, the sample size took into consideration the richness of the data in terms of answering the core research questions as insightfully as possible. Sample size also took into account the cases-to-independent variable (IVs) ratio requirements for regression analysis. Green (1991) noted that sample size should be selected based on the effect size, and this should be based on the characteristics of the study and its elements as opposed to assuming some conventional value presumed to be typically appropriate for behavioural studies. Participants were sampled based on their identification as students of the selected universities; their ability to speak, write, and understand English; their marital status (single); and their age (between 18 and 25 years).

Instrument

The instrument used by Godin et al. (2005) in their study of determinants of condom use among a sample of single, heterosexual adults in Canada was adapted for this research project. Their instrument measured nine components of an extended version of the TPB, including the original constructs of behaviour intentions theorized by Ajzen (1985). For this study, however, I considered all the variables in Godin and colleagues' instrument, with the exception of intention stability, which assessed absolute differences with regard to intention scores between time periods. This mediating (i.e., intentions stability) variable was not considered in the present study because actual condom use behaviour was not measured. Hence, items measuring the constructs of the TPB (i.e., attitudes, subjective norms, perceived behavioural, and intentions), additional variables of

the extended model (i.e., self-efficacy, moral norms, role beliefs or self-identity, perceived risk, and past behaviour), epidemiological factors, and socio-demographical factors (i.e., gender, age, marital status, and sexual behaviour) were employed from the instrument developed by Godin et al. (see Appendix B).

The choice of the instrument took into consideration the ages of the study population, the particular behaviour investigated, and the reliability of the instrument as ascertained by the Cronbach alpha coefficient for the variable under consideration. The scales of the instrument were adjusted from a 4-point scale to a 6-point scale to allow for stronger variability in the responses.

It is worth noting that although the instrument was extracted from a peer reviewed and published source, formal permission was not sought before the instrument was employed. The present study has, however, acknowledged the source of the instrument in accordance with the standards for academic integrity.

Measures

Measures of the characteristics of the young people and the dependent and independent variables defining the research questions posed are discussed in this section. Summaries of the dependent and independent variables are represented in Table 1.

Questions evaluated each independent theoretical construct with one or more items on a 6-point scale. Socio-demographic and epidemiological factors were also assessed. These variables constituted the instrument used in the data collection in this study (see Appendix B).

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Table 1. *Summary of Dependent and Independent Variables and Response Scales*

Variable	Number of Test Items Related to Each Variable	Response Scale
Dependent		
Condom Use Intention	3 questions	(1) Not at all/never to (6) Very Much/ Always
Independent		
Attitude	6 questions	(1) Not Useful to (6) Useful (1) Not Prudent to (6) Prudent (1) Unpleasant to (6) Pleasant (1) Disagreeable to (6) Agreeable (1) Stressful to (6) Not stressful (1) Embarrassing to (6) Not embarrassing
Subjective Norms	3 questions	(1) Not at all/never to (6) Very Much/ Always
Perceived Behavioural Control	2 questions	(1) Not at all/never to (6) Very Much/ Always
Self-Efficacy	7 questions	(1) Not at all/never to (6) Very Much/Always
Moral Norms	3 questions	(1) Not at all/never to (6) Very Much/Always
Perceived Role Beliefs	1 question	(1) Not at all/never to (6) Very Much/Always
Perceived Risk	1 question	(1) Not at all/never to (6) Very Much/Always

Intentions. Three items were employed to measure participants' intentions about condom use ($\alpha = .90$). The first item measured participants' intentions to use a condom

during each act of sexual intercourse over the next year. The second item measured participants' motivation to use a condom during each sexual encounter over the next year. Finally, the third item measured the chances of participants using condoms during each sexual intercourse over the next year. The 6-point scale employed for the items ranged from *not at all/never* (1) to *very much/always* (6)

Attitude. Attitudes towards condom use were assessed using six sets of statements ($\alpha = .89$). Participants were asked to evaluate whether condom use during every sexual encounter was perceived to be useful, prudent, unpleasant, disagreeable, stressful, and embarrassing. These statements were evaluated based on a 6-point scale ranging from *not at all* (1) to *very much* (6).

Subjective norms. Subjective norms were assessed using three items ($\alpha = .77$). This construct assessed the influence of significant others, such as friends/peers and family, sexual partner, and health professionals, on respondents' intentions to use or not use condoms during sexual intercourse over the next year. The 6-point measurement scale for this construct range from *not at all/never* (1) to *very much/ always* (6).

Perceived behavioural control. Two items were used to assess university student participants' level of control over condom use ($\alpha = .81$). The items measured: (a) the extent to which students are sure of using condoms themselves; and (b) students' ability to convince their partner to use a condom during every sexual intercourse over the next three months. A 6-point scale ranging from *not at all/never* (1) to *very much/always* (6) was used to measure these items.

Self-efficacy. Self-efficacy (i.e., student's judgement of his or her confidence in using condoms in certain situations over the next year) regarding condom use intentions was evaluated with seven items ($\alpha = .81$). The items measured: (a) belief of using condoms when they are available; (b) ability to use condoms when they have consumed alcohol or drugs; (c) extent to which sexual excitation could make the individual forget to use condoms; (d) belief in using a condom even if a sexual partner is using another means of contraception; (e) ability to use a condom with a relatively stable partner; (f) belief in using a condom with a person who recently tested negative for HIV or AIDS; and (g) ability to refuse sex with a partner who refuses to use condoms. The range of scale for this construct start from *not at all/never* (1) to *very much/always* (6).

Moral norms. Three items were used to access an individual's feeling of personal obligation to use condoms ($\alpha = .67$). Items included: (a) personal principles that could determine condom use; (b) guilt feelings for not using condoms in sexual encounters; and (c) thoughts of acceptability of non-condom use. The scale for this construct varied from *not at all/never* (1) to *very much/always* (6).

Perceived role beliefs. One item was used to measure role beliefs. This item related to the appropriateness of someone without a steady partner using a condom in sexual encounters. This item was measured on a 6-point scale ranging from *not at all/never* (1) to *very much/always* (6).

Perceived risk. One item assessed individual perception of being at risk of contracting HIV. The scale for this construct varied from *not at all/never* (1) to *very much/ always at risk* (6).

Epidemiological variables. The variables included having already contracted an STI, having taken an HIV test, knowing the results, and knowing someone who is HIV positive.

Behavioural variables. These variables included recency of sexual activity and condom use during the last sexual encounter, which was taken as the past behaviour variable in analysis.

Socio-demographics. The variables were age, study level, gender/sex, and marital status.

Pilot Study

The condom use intentions survey was pre-tested with 5% of the total sample size at University C, comprising 30 students (15 male and 15 female). The purpose of the pilot study was to: (a) assess the required time to complete the questionnaire; (b) identify problems related to clarity of questions/items; (c) assess the internal consistency or reliability of the scales; and (d) examine the appropriateness and representativeness of the items in relation to the context of the study. The results generated from the pilot study were used to revise the scales to improve their appropriateness for university students in Ghana.

Ethical Considerations

Written ethical approval from the University of Lethbridge Human Subject Research Committee was obtained, and an official letter from my supervisor was sent to the administrative heads at the three universities in Ghana requesting permission to engage their students as respondents in data collection (see Appendix C). I also made

available a copy of the University of Lethbridge ethics certificate. All ethical considerations in this study followed the principles of the Tri-Council Policy Statement (TCPS) on ethical conduct of research involving humans. Potential participants were given an information sheet outlining the purpose of the study before the surveys were conducted (see Appendix D). Participants were assured that human rights, dignity, and protection of identity would be guaranteed. I ensured that all data collected from the participants remained confidential and anonymous. I also informed participants that the study was entirely voluntary and that participants could choose to withdraw at any point without repercussions. To further ensure privacy and confidentiality, seating arrangements during the administration of the questionnaire were such that participants were spaced out about two arm lengths away from each other. Consent was elicited after the explanation of the study, during which time, eligible participants were invited to complete the questionnaire. Completing and returning the questionnaire of their own volition signified consent for participants' responses to be included in the study.

Consent Process

I explained to the participants that all data collected from them would remain anonymous. No names or identifying information were collected. Participants were informed that they had the right to quit the survey at any time during its administration, for any reason, and without risk of prejudice, penalty, or loss of benefits to which they might otherwise be entitled. If they chose to withdraw, they were asked to mark the first page of the survey with a large "X" to indicate their withdrawal. The completed surveys were kept in a locked filing cabinet in my room while I was in Ghana. These completed

surveys were brought back to Canada for review and analysis. They were locked in a filing cabinet in the University of Lethbridge. All data were stored in password-protected files on my computer and an external drive as a backup. Only my thesis supervisor and I had access to the data. The information was used for the purpose of the research and will be destroyed as confidential waste after five years' time.

Data Collection

Eligible participants were recruited in three public universities in Ghana. After approval to conduct the surveys was obtained from each of the universities, plans to collect the data were shared at a meeting with faculty administrators for the purposes of: (a) ensuring the purpose of study was clarified; (b) reviewing the cover letter from my supervisor; and (c) identifying classrooms that would offer a convenience sample of at least 80% undergraduate student with different majors as a means to improve sample heterogeneity and potential generalizability of the results.

With the help of the administrators, four large classes teaching core subjects across the four years of study were identified for data collection. There were three reasons for this approach. First, a large class offered the possibility of a substantial sample of university students who met the inclusion requirements. This provided some leverage in terms of variable-case ratio during the analysis to answer the research questions. Secondly, core subject classes offered the opportunity to collect data from a diverse population of students with different majors within each university. Finally, selecting classes from four different levels of study further ensured a fair representation of demographics and social factors such as age and worldview in the sample. This

process of selecting the classes not only ensured a wide representation of sample parameters but also offered the opportunity to compare condom use intention between sub-samples according to year of study, gender and university.

When permission was granted and classes were identified, faculty and class instructors were approached for permission to verbally address their undergraduate classes, explain the study purpose and inclusion criteria, and invite volunteers to participate (see Appendix E). Volunteers were asked to remain in their seats while the researcher distributed the condom use intention survey. Respondents were encouraged to carefully read and understand each question before answering. They were notified that each sheet of paper had questions on both sides, to ensure that they did not leave some questions unanswered. The questionnaires took no more than 20 minutes to complete.

I provided a box in front of the classroom to collect all completed questionnaires. Completing and returning the questionnaire at their own volition signified consent for participants' responses to be included in the study. Participants were informed that withdrawal of responses after the survey had been handed in would not be possible because there was no identifying information collected on the questionnaire. If they chose to withdraw from the study, they were asked to mark the first page of the survey with a large "X" to indicate their withdrawal.

The data collection process was implemented in the 20 minutes before the class was over to prevent interruption of the class and to allow ineligible participants to leave. I ensured that professors and teaching assistants left the premises before the introduction of the study and distribution of surveys. Data collection occurred in September 2015.

Participation in this research was voluntary and no financial compensation was offered. However, participants were informed that a copy of the final report or a presentation for academic purposes could be made to various faculties and students engaging in the study upon request as a means to share information and foster behaviour change. No request has yet been received in this regard.

Data Entry and Preparation

All tasks conducted to analyze and manage the survey data are detailed in this section.

The data entry and preparation was conducted in three stages. First, I reviewed every single survey to validate each one before confirming it for data entry. All withdrawn cases were eliminated at this point. Only three surveys were withdrawn, which all occurred at University B. In the second stage, all surveys that were validated and confirmed for data entry were coded according to university (A, B, and C). Coding was conducted in accordance with the sequence of information required on the condom use survey. Hence, the first piece of information, the *university code*, was entered into the statistical analysis tool as *1*, and the last question on the instrument was entered into the analysis tool as number *37*. Each response was coded with the number that indicated that particular response on the survey. For example, gender was coded *1* for *male* and *2* for *female*, as they appeared on the instrument. It is worth noting that age was coded in absolute figures as per the response from each study participant. In the third and final stage, the data set was validated again for accuracy and consistency of all inputted surveys. Scales on the data entry tool were also adjusted in accordance with the level of

measurement of each variable—nominal, ordinal, and scale. At this stage, the data were cleaned, and all cases missing important information were deleted. No transformations were performed.

Analysis

Data analysis in this study were performed using the Statistical Package for Social Sciences (SPSS™) version 22.0 (IBM Corp., 2013). Descriptive statistics, including frequencies, percentages, means, and standard deviation, were performed to summarize the demographic data of the sample. The distribution of epidemiological and sexual risk factors among the participants was also performed to assess the events, characteristics, or more general factors that have the potential to bring about a change in the sexual health of young people. A cross-tabulation of non-condom use and multiple partnerships among sexually active individuals was also assessed. This was an attempt to evaluate the sexual risk associated with condom use. For each of the four research questions, the data analysis process is detailed in this section.

1. What psychosocial and behavioural factors determine young adults' intentions to use condoms in Ghana?

A bivariate correlation matrix was first generated for the study variables used in the multiple regression analysis of condom use intentions among young people in Ghana. The purpose was to assess the strength of correlations among most of the potential predictor variables and intentions to use a condom before they were introduced into the analysis. Then a multiple

regression analysis was performed to predict Ghanaian university students' intention to use a condom.

2. *What is the relative contribution of these factors to condom use intentions?*

A multiple regression analysis was performed to assess the relative contribution of each factor to condom use intention.

3. *What epidemiological factors may be associated with condom use intentions?*

A multiple regression analysis was performed, controlling for epidemiological factors to assess their association with condom use intention.

Summary

The research procedures, including the parameters for choosing the research approach, how data requirements and population sample were determined, and the techniques employed in data collection and analysis, were explained in this chapter. I further outlined the ethical issues involved in the study. Per the structure of the conceptual framework, a cross-sectional survey design was developed to ascertain the factors that predict condom use intentions among university students in Ghana. A convenience sampling technique was employed. A pilot study was conducted to obtain information about the operationalization of the condom use survey.

All potential respondents in the various faculties and classrooms were asked to participate in the study if they met the sample selection criteria. The dependent variable in this framework was condom use intention, and the independent variables included attitude, subjective norms, perceived behavioural control, self-efficacy, moral norms, perceived role beliefs, perceived risk, and past behaviour. Thorough data entry and

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management requirement, such as data validation and cleaning, were performed before and after data entry. The final analysis made use of statistical methods such as measures of central tendency, measures of dispersion, cross-tabulation, correlation matrix, and regression analysis to describe the sample. The results of the study are presented in the next chapter.

Chapter Four: Results

The purpose of this study was to explore the factors that determine university students' intentions to use condoms in their sexual encounters. The sample was drawn from three public universities in Ghana. Before the initiation of the data collection, participants were made aware of the significance, rationale, and purpose of the study. Furthermore, study participants were informed that all data collected would remain confidential and anonymous and would only be used for research purposes.

The results of the study are presented in this chapter to answer the research questions. These questions related to: (a) the psychosocial and behavioural factors that determine young adults' intention to use condoms in Ghana; (b) the relative contribution of these factors to condom use intentions; and (c) the epidemiological factors that may be associated with condom use intentions. Data were collected from students in all years of study (i.e., levels 100, 200, 300, and 400).

The data collection tool was the condom use survey developed by Godin et al. (2005). The instrument was tested for reliability and internal consistency through a pretest at University C. A detailed account of the demographic profile of the participants follows. Demographic and descriptive data of each question are presented according to sex and university and are followed by a correlation matrix of all study variables, and results of multiple regression analyses.

Characteristics of Participants

Convenience sampling achieved the required sample. Recruitment occurred in different classrooms until I had close to the required (200) number of respondents at each

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university. Distribution of the sample of young people according to university, age, gender, marital status, and level of study is represented in Table 2.

Table 2: *Sociodemographic Characteristics*

	Variable	Frequency	Percent (N=580)
University	A	195	33.61
	B	186	32.14
	C	199	34.30
Age	18	48	8.31
	19	56	9.70
	20	82	14.11
	21	82	14.10
	22	83	14.33
	23	90	15.52
	24	67	11.60
	25	72	12.4
Gender	Male	343	59.12
	Female	237	40.90
Sexual experience	Not in a sexual relationship	378	65.21
	Monogamous sexual relationship	125	21.60
	More than one sexual relationship	77	13.33
Study level*	100	153	26.42
	200	146	25.24
	300	156	26.91
	400	125	21.64

*Level 100 denotes students in first year, Level 200 = second year, Level 300 = third year, and Level 400 = fourth year.

Questionnaires were distributed to a total of 580 students (343 male and 237 female) in the three universities. Study participants responded to all questions, reflecting a completion rate of 100%. Most (82%) were between the ages of 20 and 25. About 65%

of the total responses were from participants who were not in a sexual relationship. Participants who were in a monogamous sexual relationship constituted 21.6%, while participants who were in more than one sexual relationship formed the remaining 13.3% of the sample. The distribution of students according to the level of study was similar, with each level constituting at least 21% of the sample. There was a small marginal difference in distribution according to gender, with males constituting 59.12%.

The distribution of the population subsamples according to universities is represented in Table 3. About 60% of respondents in Universities A and C were between the ages of 22 years and 25 years, while majority of respondents in University B were 18 to 21 years. There were also more male than female respondents in Universities A and B compared to University C, where females formed a slight majority. Well over 50% of respondents in all three subsamples were not in any sexual relationship. While Universities A and B had less than 20% of respondents in monogamous sexual relationships, University C had 28.14% of respondents in this category. University C had the highest (15.62%) number of respondents in multiple sexual relationships, while University B reported the fewest (9.1%). Most participants in University A (56.91%) were in their final two years of study, whereas most University B respondents were in the first two years (59.74%), and University C had more respondents (56.73%) in the middle of their programs. Even though this survey drew on a convenience sample without random selection, the demographic characteristics demonstrate heterogeneity, as well as a fairly even distribution of categories under each variable.

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Table 3: *Sociodemographic Characteristics by University*

Variable		University A		University B		University C	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Age	18	11	5.61	30	16.11	7	3.50
	19	13	6.70	31	16.71	12	6.00
	20	25	12.84	32	17.23	25	12.61
	21	22	11.31	31	16.71	29	14.61
	22	35	17.90	26	14.01	22	11.10
	23	38	19.51	13	7.01	39	19.64
	24	23	11.84	10	5.44	34	17.13
	25	28	14.41	13	7.03	31	15.62
Gender	Male	118	60.52	127	68.32	98	49.22
	Female	77	39.51	59	31.71	101	50.84
Sexual experience	Not in a sexual relationship	128	65.63	138	74.24	112	56.30
	Monogamous sexual relationship	38	19.50	31	16.70	56	28.14
	More than one relationship	29	14.90	17	9.10	31	15.61
Study Level*	100	39	20.00	68	36.62	46	23.13
	200	45	23.10	43	23.11	58	29.12
	300	50	25.61	51	27.41	55	27.62
	400	61	31.30	24	12.92	40	20.10

*Level 100 denotes students in first year, Level 200 = second year, Level 300 = third year, and Level 400 = fourth year.

The distribution of epidemiological and sexual risk factors among the participants is displayed in Table 4. These are events, characteristics, or more general factors that have the potential to bring about a change in the sexual health of young people. The epidemiological and sexual risk factors included in this study are sexual intercourse,

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condom use, having contracted an STI, having taken an HIV screening test, and knowledge of HIV status.

Table 4: *Epidemiological and Sexual Risk Factors*

Variable	Frequency	Percent (N= 580)
Last sexual intercourse		
During the past three months	132	22.81
More than three months ago, less than a year	75	12.90
More than a year ago	91	15.72
Never had sex	282	48.61
Condom use in last sexual encounter		
Yes	137	23.60
No	161	27.64
Not applicable	282	48.61
Epidemiological Factors		
Have ever contracted STI		
Yes	33	5.72
No	494	85.21
I don't know	53	9.10
Ever taken a HIV screening test		
Yes	217	37.40
No	352	60.74
I don't know	11	1.91
Knowledge of HIV status after test		
Yes	208	35.90
No	162	27.92
I don't know	210	36.23
Know someone who is HIV positive		
Yes	91	15.70
No	436	75.20
I don't know	53	9.10

Slightly over half (51.4%) of the respondents were sexually experienced. A significant percentage of this group (22.8%) reported having had sex during the past three months; of those, only 46% used condoms in their last sexual encounter. The majority (85.2%) of the study participants indicated that they have never contracted an STI, while a total of 33 (5.7%) admitted ever having such an infection. Well over half of study participants (60.7%) reported that they have never taken an HIV screening test, while 37.4% had been screened and 1.9% did not know. For those who had ever taken a screening test, almost all knew their HIV status. Most participants stated that they did not know anyone who is HIV positive. This low level of awareness could be an indication that HIV status disclosures are still relatively uncommon or that the majority of respondents were not comfortable answering this question.

Measures of Central Tendency and Variability

In this study, intention to use a condom was defined as a young person's likelihood of using condoms in future sexual encounters. Intention to use a condom was calculated based on the average response to three items on the condom use questionnaire (see Table 6). The means and standard deviations of responses to these questions are shown in Table 5. On average, both young men and women displayed poor intention to use condoms in their sexual encounters. These scales ranged from 1 to 6, hence the midpoint is 3.5. The average intentions for male and female students were 3.09 ($SD = 1.84$) and 3.26 ($SD = 1.83$) respectively.

Attitude reflects how favourably, or unfavourably, a young person judges the outcome of using a condom in sexual encounters. Attitude was determined by the average

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of responses to six questions on the questionnaire (see Table 6). The means and standard deviations for direct measure of attitudes for men and women are shown in Table 5. The mean attitude score for each gender was positive and above the mid-point mark of 3.5, which is consistent with a slightly favourable attitude towards condom use.

Table 5: *Means and Standard Deviations for All Variables by Gender*

Variable	Men (<i>n</i> = 343)		Women (<i>n</i> = 237)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Dependent				
Intention to use a condom	3.09	1.84	3.26	1.83
Independent				
Attitude	3.68	1.66	3.91	1.55
Subjective norms	3.30	1.63	3.44	1.62
Perceived behavioural control	3.38	1.80	3.67	1.64
Self-efficacy	3.34	1.35	3.51	1.25
Moral norms	3.04	1.51	3.24	1.40
Perceived role belief	4.07	2.05	4.21	1.95
Perceived risk	2.48	1.86	2.45	1.83
Control				
Age	21.97	2.20	21.35	2.00

Subjective norms represent the respondents' perceptions of social pressure to use condoms and the motivation to comply with the pressures or expectations of significant others. This predictor was measured by three questions on the condom use questionnaire (see Table 6). The means and standard deviations for the direct measures of subjective norms for men and women are shown in Table 5. The mean direct subjective norm score

for each gender was below the mid-point mark of 3.5, which was consistent with the perception that approval by important people in a respondent’s life does not necessarily influence his or her intention to use condoms.

Table 6: *Study Variables and their Respective Question Numbers*

Variable	Questions No.
Intention	11, 12, 13
Attitude	17 to 22
Subjective norms	23, 24, 25
Perceived behavioural control	26, 27
Self-efficacy	30 to 36
Moral norms	14, 15, 16
Perceived role beliefs	28
Perceived risk	29
Past behaviour	6

Perceived behavioural control represents the individual’s perceptions about the ability to control or decide whether or not to use a condom during every sexual encounter. This was measured by two questions on the condom use questionnaire (see Table 6). The means and standard deviations for each gender are listed in Table 5. The mean perceived behavioural control score for males was below the mid-point value of 3.5, while females had a mean above this mid-point.

On the additional predictor variables, females exhibited a stronger self-efficacy than males in terms of condom use. Perceived role beliefs had direct means scores above the mid-point of 3.5 for both males and females, which was consistent with the perception that self-identity is important with regard to decisions to use condoms. All the

other predictor variables had means below the 3.5 mid-point mark for both young men and women.

Sexual activity and condom use by gender (sexually active group). A cross-tabulation of non-condom use and multiple partnerships among sexually active individuals by sex is shown in Table 7. It is worthy to note that only sexually active young people were selected, and cases were categorized according to gender. This was an attempt to evaluate the sexual risk associated with condom use. Of a total of 298 (196 male and 102 female) sexually active participants, about 44.3% (132) were sexually active in the last three months, 25.2% were sexually active between three months and a year previously, and 30.5% had sexual intercourse more than a year ago. For participants who had sexual intercourse in the past three months, 58.3% did so without using condoms, and about 41.7% were in multiple sexual relationships.

Table 7: *Sexual Activity and Condom Use by Gender (Sexually Active Group)*

Variable	Men <i>n</i> (%)	Women <i>n</i> (%)	Total <i>N</i> (%)
Sexually active	196(65.4)	102(34.6)	298(100)
In the last three months	93(70.5)	39(29.5)	132(100)
Did not use condom	52(67.5)	25(32.5)	77(100)
Had more than one sexual partner	44(80)	11(20)	55(100)
Between 3 months to 1 year	43(57.3)	32(42.7)	75(100)
Did not use condom	20(55.6)	16(44.4)	36(100)
Had more than one sexual partner	6(50)	6(50)	12(100)
More than one year	60(65.9)	31(34.1)	91(100)
Did not use condom	35(72.9)	13(27.1)	48(100)
Had more than one sexual partner	6(85.7)	1(14.3)	7(100)

Among young people who had sexual intercourse within the last three months to a year, 48% did so without using condoms, and 16% were in multiple relationships. Finally, for

individuals who were last sexually active over a year ago, 52.7% did not use condoms, and about 7.7% were in multiple sexual relationships (see Table 7).

Correlation Matrix

A bivariate correlation matrix was generated for the study variables used in the multiple regression analysis of condom use intentions among young people in Ghana. Three multivariate outliers were detected in the present study ($N = 580$). These participants were not included in the final analysis to answer the research questions nor were they included in the correlation matrix; consequently, the remaining participants available for analysis were 577.

The correlations between potential variables considered in this study are presented in Table 8. There were relatively high correlations between most of the potential predictor variables and intentions to use a condom. The correlations also demonstrated highly significant relationships among all independent variables in the study. As expected, all the correlations were positive, except for those associated with past behaviour, which were negative. Specifically, when respondents had no previous condom use experience, their attitude, subjective norms, control, self-efficacy, moral norms, perceived role beliefs, perceived risk, and intentions to use condoms increased. Conversely, when respondents had previous condom use experience, their attitude, subjective norms, control, self-efficacy, moral norms, perceived role beliefs, perceived risk, and intentions to use condoms decreased.

Ajzen (1985) noted that correlations between direct measures of predictor variables are expected to range from moderate to high. It is important to point out that, given that all

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correlations ranged from moderate to high, all the variables were used in the regression analysis. The highest correlation among independent variables entered into the regression analysis was .719; this was the relationship between perceived behavioural control and attitude. The relationship between past behaviour and perceived role beliefs was the lowest at .078. There were no issues of multicollinearity; however, three multivariate outliers were detected and deleted (Lewis-Beck, 1980).

Table 8: *Correlation Matrix of the Theoretical Variables*

Variable	Int	Att	SN	PBC	SE	MN	PRB	PR	PB
Intentions (Int)	–								
Attitudes (Att)	.634								
Subjective norms (SN)	.550	.586							
Perceived behavioural control (PBC)	.683	.719	.677						
Self-efficacy (SE)	.578	.595	.583	.707					
Moral norms (MN)	.682	.530	.498	.601	.540				
Perceived role beliefs (PRB)	.322	.399	.359	.475	.473	.345			
Perceived risk (PR)	.262	.227	.233	.283	.286	.329	.079*		
Past behaviour (PB)	-.301	-.236	-.239	-.283	-.254	-.248	-.078*	-.219	

Note: $N = 577$, $p \leq .001$. * indicates the exceptions, where $p < .05$

Determinants of Condom Use Intentions

A multiple regression was performed to predict Ghanaian university students' intention to use a condom. The dependent variable was condom use intention, and independent variables were attitudes, subjective norms, perceived behavioural control,

self-efficacy, moral norms, perceived role beliefs, perceived risk, past behaviour, university, age, sex, marital status, level of study and epidemiological factors (sexual intercourse, condom use, having contracted an STI, having taken an HIV screening test, and knowledge of HIV status). Entry of the independent variables was forward stepwise. Past behaviour was dummy coded into three separate variables: (a) 1 represented *Yes*: used a condom in last sexual encounter; (b) 2 represented *No*: did not use condoms in the last sexual encounter; and (c) 3 represented *Not applicable*. The third response was not included in the analysis because it added no value to the present analysis. Each of the epidemiological factors were also dummy coded into three separate variables: (a) 1 represented *Yes*: used a condom in last sexual encounter; (b) 2 represented *No*: did not use condoms in the last sexual encounter; and (c) 3 represented *I don't know*.

There were no missing values, no univariate outliers and no multicollinearity (examined using the condition index and variance proportions). There were, however, three multivariate outliers detected and deleted upon the examination of the Mahalanobis distance statistic. Multivariate outliers were deleted if they had a Mahalanobis distance statistic of 43.8, corresponding to the number of independent variable entered into the model. With the exclusion of participants who responded *Not applicable* to the past behaviour question on the condom use survey (see Appendix B), a total of 296 respondents were available for the multiple regression analysis.

Table 9 displays the unstandardized regression coefficients (B); the standardized regression coefficients (β); the semi-partial correlations (sr_i^2); and adjusted R^2 of the four variables that contributed significantly to the prediction of condom use intentions among

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university students in Ghana. Perceived behavioural control, moral norms, attitudes, and not using a condom in last sexual encounter were entered in step 1, 2, 3 and 4 respectively. R was significantly different from zero: $F(4, 291) = 96.46, p < .001, R^2$ Adjusted = .56.

Table 9: *Determinants of Condom Use Intentions*

Variable	(B)	(β)	(sr_i^2)	Adjusted R^2	Step
Perceived Behavioural Control	.29***	.28	.03	.44	1
Moral Norms	.41***	.33	.06	.52	2
Attitudes	.26***	.22	.02	.55	3
Past Condom Use	.44**	.13	.02	.56	4
CONSTANT	-.22***				

Note: $N = 296, R = .76$; Adjusted $R^2 = .56$ ($p < .001$); ** $p < .002$, *** $p < .001$. Confidence Interval (CI) = 95%

Altogether, 56% of the variability in the frequency of condom use intentions was predicted by knowing the scores on perceived behavioural control, moral norms, attitudes, and not using a condom in last sexual encounter.

Summary

The research design employed in this study investigated a number of possible statistical associations to determine which calculations provided answers to the research questions. The first part of the results simply described the sample ($N = 580$) characteristics. Further investigation on the descriptive statistics also included a cross tabulation of non-condom use and multiple partnerships among sexually active individuals by gender to evaluate the association of sexual risk with condom use.

The next approach involved more advanced statistical tests (i.e., bivariate correlation and multiple regression) to ascertain if variables were connected and how these connections provide meaningful insight to answer the research questions. A noteworthy insight was the positive correlations among most of the variables, with the exception of those associated with past condom use experience. That is, when respondents had no previous condom use experience, their attitude, subjective norms, control, self-efficacy, moral norms, perceived role beliefs, perceived risk, and intention to use condom increased. Conversely, when respondents had previous condom use experience, their attitude, subjective norms, control, self-efficacy, moral norms, perceived role beliefs, perceived risk, and intention to use condom decreased.

The multivariate correlations produced one regression model worth reporting. The model provided information as each variable was entered. Four variables, which included perceived behavioural control, moral norms, attitudes, and not using a condom in last sexual encounter (arranged from highest to lowest predictor), remained consistent predictors of condom use intention. This implies that the model provides an effective means to examine and explore the important relationships and explain the patterns among the determinants of condom use intention among university students in Ghana. The discussion of the study is presented in the next chapter.

Chapter Five: Discussion

This chapter contains a brief overview of the study, interpretation, and discussion of the findings in relation to current literature. I explored the determinants of condom use intentions among university students in Ghana using the TPB as a theoretical framework to guide the study. The major determinants of condom use intentions will be discussed in this chapter as well as the limitations of this study. Finally, recommendations and implications for sexual and reproductive health for young people, as well as the implications for the TPB are summarized.

Overview of the Study

Despite the growing global attention to reproductive health promotion in recent years, adolescents and young adults in resource-poor countries are still at high risk for many sexual health problems (McIntyre, Williams, & Peattie, 2003; United Nations Population Fund, 2013).

In the West African country of Ghana, STIs are major causes of ill-health and death in young adults. In 2014, 2.0% of Ghanaians between the ages of 15 and 49 years, and 1.8% of those aged 15 to 24 years were HIV-positive (Ghana Statistical Service, 2014). Regardless of increased awareness of the effectiveness of condoms for STI prevention, their use remains low and inconsistent among adolescents and young adults in Ghanaian universities (Appiah-Agyekum & Afi Kayi, 2013; Bankole, Ahmed, Neema, Ouedraogo, & Konyani, 2007).

Efforts to promote safer sex behaviours such as condom use among these students have yielded limited success (Appiah-Agyekum & Afi Kayi, 2013; Fiaveh, 2011). It is

possible that programs that address sexual health issues have not been theoretically grounded and, thus, fail to identify interactions among the different psychosocial factors that influence condom use. Heeren et al. (2007) noted that the application of theory not only guides the development of the intervention process, but also provides a clearer conceptual understanding of behaviour and how it emerged. The theoretical approach employed in this study is an expanded version of the TPB (Ajzen, 1991). This model includes additional psychosocial variables proposed by other investigators, which also offer further explanations for health behaviors, including condom use. Through this study, I attempted to ascertain the major predictors of condom use intentions among university students in Ghana to bridge the gap in knowledge and also to inform future intervention plans. The research questions that guided this study were:

1. What psychosocial and behavioral factors determine young adults' intentions to use condoms in Ghana?
2. What is the relative contribution of these factors to condom use intentions?
3. What epidemiological factors may be associated with condom use intentions?

The study used a quantitative survey research strategy to determine the factors that influence condom use intentions among undergraduate student from three public universities in Ghana. The quantitative survey approach was applied to generate logical explanation and theoretical insight into the phenomenon of interest. Surveys are especially useful in providing detailed and precise data from large numbers of people at one time. The study was guided by the TPB which has been found to provide insight into how various psychosocial factors influence behaviours, with several authors

demonstrating its applicability in explaining condom use behaviours (Godin et al., 2005; Protopogrou & Turner-Cobb, 2011). A sample of 580 unmarried young people between 18 and 25 years of age responded to the survey.

Data analysis made use of statistical methods such as measures of central tendency, measures of dispersion, cross-tabulation, correlation matrix, and regression analysis. The results showed that students had moderate intentions to use condoms in their sexual encounters. Only the extended version of the theory of the TPB explained 64% of the variance in intention to use condoms during every sexual encounter among young people in Ghana, after controlling for various demographic, behavioural, and epidemiological factors. In order of decreasing importance, perceived behavioural control, moral norms, attitudes, and past behaviour emerged as significant independent predictors of condom use intention.

Descriptive Statistics

The rate of multiple partnerships among sexually active participants (24.8 %) in the present study is congruent with the 20-30% reported in the literature (Adefuye, Abiona, Balogun, & Lukobo-Durrell, 2009; Ma et al., 2008). Since the inception of HIV, the government of Ghana has implemented various comprehensive and multi-sectorial programs to combat STIs in the country (Ghana AIDS Commission, 2012). Through these efforts, programs such as youth friendly centres were established with a broad objective to promote a healthy environment within which young people can obtain information and services on reproductive health and exercise their reproductive rights (Senderowitz et al., 2003). This recognition of the sexual and reproductive health needs

of young people by stakeholders in Ghana is imperative. In the present environment, especially with the high rates of STIs, young people play an important role in influencing health outcomes and societal wellbeing. There is therefore a need to reach out to young people with appropriate interventions to improve their sexual and reproductive health knowledge and to promote monogamous relationships and key behaviours such as condom use. Programs should continue to target young people with appropriate messages by tailoring messages to their needs. Education should go beyond providing accurate information and service quality to challenging cultural and gender norms that promote multiple sexual partnerships. Some authors have suggested that targeting interventions at cultural and gender norms that encourage sexual promiscuity will ensure gender equity in terms of choice and decision making with regard to reducing risk (Mah & Halperin, 2010; Scott-Sheldon, Walstrom, Harrison, Kalichman, & Carey, 2013).

The majority of participants in the present study claimed that they were not in sexual relationships and had never had sex. This may merely be because students wanted to provide socially desirable responses, or because educated young people are more likely to delay or defer sexual relationships and sex, given that they are presumed to understand the consequences of illicit sex on their lives (Hargreaves et al., 2008; Kirby, 2002). For example, Hargreaves et al. (2008) found that attending school was associated with having fewer sexual partners and delaying sexual intercourse. If the current outcome is a result of the latter, school attendance has great potential to influence sexual behaviour among young people. The priorities should be to achieve universal access to education, as well

as to reduce school drop-out rates, for their potential of influencing healthy sexual and reproductive behaviours.

Despite the purported high awareness of condoms and knowledge of their usefulness among young people in Ghana, the present study found that only 46% of sexually active respondents used condoms in their sexual encounters. These findings were consistent with the observations of other researchers (Appiah-Agyekum & Afi Kayi, 2013; Bankole et al., 2007; Tagoe & Aggor, 2009). Appiah-Agyekum and Afi Kayi (2013) linked this outcome to a preference for other methods like the pill as a main contraceptive method, while Tagoe and Aggor (2009) saw broader social, cultural, and economic barriers, such as relationship stability, condom availability, commuting distance to pharmacies, and other life challenges that often overshadow STIs as a concern. Low condom use in the present study and other studies raises questions about possible inefficiencies and ineffectiveness of sexual and reproductive health education and interventions provided to young people such as abstinence-only-until-marriage programs, given the high level of knowledge about condoms and STIs in Ghana. Clearly, knowledge of STIs, HIV, and condoms is not necessarily related to intentions to use condoms in sexual encounters. Possibly, it may be an expression of an inability to make use of this information. Teitelman (2011) noted that young people, especially young women, experience barriers that may take the form of physical abuse and threat, emotional manipulation, and condom sabotage which make them unable to effectively use sexual and reproductive health information. These barriers are usually rooted in gender norms that create a heightened power imbalance in negotiating condom use. STI

prevention personnel should pay attention to these barriers that prevent young women from translating knowledge of condom use to practice. Education programs should work hard at overcoming these barriers, by instilling self-beliefs in young people that they can use condoms at any time at no social cost to themselves. These programs should go beyond basic programming like access to condoms, how to put on a condom, abstinence, and STI knowledge, to teaching interpersonal and communication skills that will help young people explore their values, goals, and options. More importantly, programming for young people should give attention to gender-specific obstacles to condom use. Muñoz-Silva et al. (2009) noted that normative gender imbalances in sexual relations may cause some young people to disregard the preventive aspect of sexual behaviour such as condom use for unprotected sex. The authors suggested that when one partner feels less powerful in the relationship, she yields to the needs of the other partner. Hence she is less likely to engage in protective behaviour like condom use and most likely will avoid the unpleasant consequence of negotiating its use. Risk reduction programs should therefore consider the issue of relationship power during the design and implementation of these programs. Programs should ensure that young people of all genders are well educated with regard to safer sex and more equitable sexual relationships because traditional programs that target individuals on one side of the power spectrum are less likely to succeed (Pulerwitz, 2002). Finally, masculinity ideologies that support male relationship control should be challenged by health educators, given that these ideologies increase the risk of STIs transmission.

Determinants of Condom Use Intentions

The primary objective of the study was to identify the psychosocial and behavioural factors that determine young adults' intentions to use condoms in Ghana. The extended version of the TPB explained 56% of the variance in intention to use condoms during every sexual encounter. In order of decreasing importance, perceived behavioural control, moral norms, attitudes, and past behaviour emerged as significant independent predictors of condom use intention. Thus, those university students who intended to use condoms in their next sexual encounters were more likely to perceive that condoms are easy to use, evaluate condom use as a positive behaviour, perceive that their personal principles and convictions towards condom use were positive, and also perceive past condom use as influential on future condom use.

The findings confirmed the premise of the TPB that attitudes, subjective norms, and perceived behavioural control can be used directly to predict a person's intentions to execute a particular behaviour and subsequent action depending on how these behaviour are evaluated (Ajzen, 1991). The observation further confirmed the utility of the TPB in health behaviour research, such as condom use in sub-Saharan Africa, as observed by other researchers (Baah-Odoom & Riley, 2012; Bosompra, 2001; Heeren et al., 2007; Schaalma et al., 2009). These findings suggest that the TPB is still valuable in identifying critical condom use mechanisms that must be addressed if one wishes to reinforce or change such behaviours. The theory provides a clearer conceptual understanding of behaviour and how it emerges, and will be useful in guiding the development and design

of programs and interventions that change condom use intentions by directing interventions at one or more of the predictive factors.

Although several studies and meta-analyses have confirmed adequacy of attitudes, subjective norms, and perceived behavioural control in the prediction of behaviour intentions (Cheng et al., 2005; Godin & Kok, 1996; Hagger et al., 2007; Riebl et al., 2015; Rossi & Armstrong, 1999; Sutton, 1998; Sutton et al., 1999), Ajzen (2015) suggested that in principle, the model allows the inclusion of additional predictors. With regard to this suggestion, the present study extended the TPB to include factors such as self-efficacy, moral norms, perceived risk, and past behaviour (Conner & Armitage, 1998; Conner et al., 2001; Godin et al., 2005; Godin & Kok, 1996) to ascertain other interactions that may play a role in determining condom use intentions.

Indeed, after the inclusion of the additional psychosocial factors, moral norms and past behaviour significantly improved the prediction of condom use. These findings imply that condom knowledge alone is not sufficient to stimulate young people to avoid risky behaviour if this knowledge is not directly tied to the immediate determinants of condom use. Walcott (2011) suggested that one's norms, values, beliefs, self-efficacy, and attitudes about sex and condom use are as important as, if not more important than, knowledge alone. Consistent with this assertion, the present study suggests that health programs for young adults should go beyond short-term actions like providing a onetime sex education and merely making condoms available at university clinics, to providing messages that challenge the moral norms, attitudes, perceived behavioural control, and past behaviours that serve as immediate predictors of intentions to use condoms. Learned

safer sex messages that challenge norms, attitudes, and intentions are likely to influence intentions, and consequently influence behaviour choices in the long term (Walcott).

Given that not many authors applied the TPB to examine condom use intentions among young people in sub-Saharan Africa, two points are worth noting. First, the findings confirmed the relevance of understanding the determinants of condom use intentions and the utility of the TPB in health behaviour research in sub-Saharan Africa. As such, the findings of the present study were consistent with other studies in the sub-continent that found an average of 50% explained variance in condom use intention (Baah-Odoom & Riley, 2012; Bosompra, 2001; Godin, Tinka Bah, Sow, Minani, Morin, & Alary, 2008; Heeren et al., 2007; McEachan et al., 2011; Schaalma et al., 2009). Secondly, the findings further suggest that the inclusion of additional psychosocial variables to Ajzen's (1991) theory may prove relevant in determining condom use intention. Indeed, moral norms and past behaviour, as suggested by Ajzen (1991), Baah-Odoom and Riley (2012), Conner and Armitage (1998), and Godin et al. (2005, 2008), emerged as a significant determinant of condom use intention after accounting for the original variables of the TPB. In this regard, the findings of the present study are well aligned with other studies in sub-Saharan Africa that examined the moral norms component as an additional predictor in the TPB (Baah-Odoom & Riley, 2012; Godin et al., 2008). The implication is that increasing the importance of moral evaluations or the anticipated regrets of not using condoms may be particularly useful in stimulating intentions to use them. Furthermore, it is also important to know that retrospective inferences about previous condom use may also play a relevant role in young peoples'

intentions to use condoms in the future. The present study has highlighted the importance of understanding the determinants of condom use intentions, given that this information could be relevant for the development of interventions and promotional strategies for university students and other young adults.

Relative Contribution of Factors to Condom Use Intention

This question examined the unique contribution of each of the study factors to condom use intention among university students in Ghana. Specifically, the objective was to look at the extent to which the variables of attitude, subjective norms, perceived behavioural control, self-efficacy, moral norms, perceived risk, and past behaviour uniquely contributed to the explained variance in condom use intention. As such, the contributions of each of these factors will be discussed in order of decreasing importance.

Perceived Behavioural Control

Perceived behavioural control reflects the anticipated obstacles and impediments as well as personal liabilities that may influence condom use intention. This factor emerged as the first predictor of condom use intention in the model. Therefore, university students in this study perceived themselves as able to use condoms in their next sexual encounter. These findings suggest that participants have adequate skills and control to negotiate and insist on condom use with their partners in their sexual encounters. An interesting observation of the perceived behavioural control variable was that female students had a higher mean score than did male students. This finding indicates that female students were more comfortable and skillful with negotiating and using condoms compared to male students. These observations significantly depart from the culturally-

based gender roles that perpetuate a feeling of powerlessness and self-sacrificial tendencies among females in sexual relationships (Sanders-Phillips, 2002). A probable reason for the strong perception of control over condom use intentions among females may be that the participants were highly educated individuals. Kirby (2002) noted that education is an invaluable asset regarding understanding the benefits of safer sex practices such as condom use. Acquiring education, therefore, may provide young people with a greater autonomy and capacity to successfully negotiate safer sex, as well as to master skills necessary to use condoms with their partners (Hargreaves et al., 2008; Mayaki and Kouabenan, 2015). Furthermore, sexually experienced females may be comfortable and more assertive in condom use negotiation. Kashima et al. (1992) suggested that previous performance of a behaviour provides an experience or knowledge as well as stability regarding the future performance of the behaviour. Simply put, young women are likely to form favourable intentions for behaviours they have frequently or previously performed (Norman & Smith, 1995).

From a theoretical standpoint, the findings also failed to support Sutton et al.'s (1999) suggestion that the effect of perceived behavioural control ceases to be significant when past behaviour is also an independent predictor of intentions. The results are, however, in line with those of Bennett and Bozionelos (2000) who found no improvement in the explanation of behavioural intentions when control variables were empirically distinct from efficacy judgments. In other words, the authors suggested that there is no improvement in the prediction of intentions when perceived behavioural control and self-efficacy are two separate predictors of condom use intentions. The

results of this study, however, concurred with the assumptions of the TPB (Ajzen, 1991); namely, the extent to which the individual has control over the performance of a behaviour affects his/her intentions and actual performance of the behaviour in question. The results also aligned with those observed by other researchers (Baah-Odoom & Riley, 2012; Bosompra, 2001; Cha et al., 2008; Godin et al., 2005; Guo et al., 2014; Heeren et al., 2009; Schaalma et al., 2009).

From a practical standpoint, the finding that perceived behavioural control was significant with regard to condom use intentions has an important implication for sexual and reproductive health programs and social marketing efforts. Programs geared towards young people in university environments should design messages that deal with both technical and control dimensions of condom use, given that this approach may have an effect on the young peoples' intentions to use them. Social marketing efforts targeting young people should not only simplify condom use messages for easy processing but should also promote youth's ability to control and take charge of the use of condoms. For example, social marketers and health promoters can use volunteers, celebrities, and role models to attest to the performance of different condoms through testimonies, as well as sponsor condoms to enhance young peoples' confidence in using them.

Moral Norms

Moral norms were shown to be the most significant factor in condom use intentions among university students in the context of this study, uniquely contributing 6% of the variance in intention. Moral norms refer to the feeling of personal conviction towards the performance of a given behaviour (Ajzen, 1991). Given that researchers have

described young people as particularly susceptible to normative pressures from significant people like their partner or peer with regard to taking sexual risk (Albarracín, Kumkale, & Johnson, 2004; Van Rossem & Meekers, 2011), it was unexpected to learn that moral norms were identified as the strongest predictor of intentions in this study. These findings suggest that the dynamics and direction of influence on sex practices have evolved over time. Previous authors have suggested that in collectivist cultures like those in Africa and Asia, the decision-making process is particularly responsive to group and family norms as opposed to the process in individualistic cultures like Western countries (Hofstede, 2001; Godin et al., 1996). However, considering that participants in the present study are university students, this assumption may not necessarily apply because education is a valuable asset that facilitates decision making. Hence, we can assume that individuals in the present study acted on personal convictions and judgments as opposed to what others suggest. As Mayaki and Kouabenan (2015) noted, external influence from significant individuals may only strongly predict intentions if the individual has strong confidence in the external influence; otherwise, individuals will act based on their personal judgment. From a practical perspective, the findings that personal moral value judgments play a crucial role in using condoms suggest that appealing to the moral values of young people about safer sex through health promotion may go a long way to change intentions, and consequently condom use behaviour. Furthermore, programs and interventions designed for young people should address the demographic of the target group and the evolving patterns of influence in decision-making with regard to condom

use, rather than to “one fits all” programs. This approach will ensure that programs are tailor-made to the needs of the individuals served.

Attitude

Attitude in the context of this study was defined as the positive or negative evaluation of performing a particular behaviour (Ajzen, 1985); that is, the individual’s tendency to assess a behaviour with some degree of favour or disfavour. Attitude in the present study emerged also emerged as a modest but significant predictor of university students’ condom use intentions, making a unique contribution of 2% to the explained variance in the present study. Thus, those students who evaluated condom use positively were more likely to intend to use a condom in their next sexual encounter. These results affirm the premise of the TPB that attitudes will correlate positively with intentions to execute a particular behaviour and subsequent action with regard to the particular behaviour when evaluated positively (Ajzen, 1991). The results of the present study were also consistent with observations from other researchers (Guo et al., 2014; Schaalma et al., 2009), who found similar moderate contributions of attitude to condom use intention. A probable explanation for this finding can be related to the assumption that young people display a strong tendency for risk-taking behaviours which are usually stimulated by their desire to pursue pleasure (Gahagan, Rehman, Barbour, & McWilliam, 2007; Maticka-Tyndale, 2012). Young people will not do something they think does not ‘feel’ good. They will only develop a favourable attitude towards a behaviour like condom use if they believe that protected sexual intercourse will have a valuable impact on their health outcomes (Albarracín et al., 2004). For young people, the benefits have to

outweigh the risks so as to compensate for their inclination to engage in sensual self-indulgent behaviours (Papalia, Olds & Feldman, 2006).

The modest contribution of attitudes to condom use intentions may be an indication that condom use education has not adequately addressed the importance of condoms during sexual encounters. Perhaps young people have not been given sufficient exposure to information regarding condom use so as to better appreciate the prevalence of STIs. It may be that the depiction of condom use in the media (e.g., TV, internet and films/movies) has not done justice in instilling safer sex practices among young people (Luder et al., 2011). This portrayal of unprotected sex in the media has the potential to influence young peoples' attitudes towards using condoms (Luder et al., 2011).

In the light of these findings, health promotion messages through various media of communication should propagate the advantages of condom use to stimulate positive attitudes towards using them. This is because the type of information on which an attitude is based has the capability of influencing its predictive value (Ajzen, 2005). Social marketing that targets young people should give serious attention to educational messages that increase positive association with condom use. These messages should include the benefits of using condoms (i.e., condoms can prevent the spread of STIs), as well portray condoms as items that add pleasure to sex (e.g., by using novelty condoms that are flavoured or glow in the dark), and encourage foreplay before sex. Finally, in Africa, the importance of personal security and the general expectation to act prudently may all be linked to attitude, given that HIV puts individuals at personal risk (Godin et al., 2008). Programs may thus require a different approach to get sexual and reproductive

health education across to young people in the African context. Therefore, health promotion and intervention programs should be cognizant of the context and differences in HIV prevalence in their design. Programs should not be imported wholly without adaptation to the context within which they will be implemented, given the fact that the contextual differences may impede their successful implementation.

Past Behaviour

The concept of past behaviour suggests that an individual's past condom use is an important factor in controlling his/her future intentions to use condoms. Past behaviour emerged as a significant predictor of condom use intentions. The variable made a 2% unique contribution to the explained variance to future intentions to use condoms. This result was consistent with the observations of other researchers (Albarracín et al., 2001; Conner & Armitage, 1998; Kidwell & Jewell, 2008), although the contribution of past behaviour on condom use intentions was not as strong as that reported in other studies. The findings suggest that young peoples' use of condoms in their past sexual encounters may influence whether they will think positively about condoms, have condoms handy, or negotiate with their partners to use condoms. According to Albarracín et al., (2001), a person's behaviour could be heuristic. That is, individuals have the propensity to learn from themselves. Hence, individuals' past behaviour might have a direct influence on their future actions independent of other factors or specific consequences of the behaviour that the individual might otherwise take into account. When young people are in a situation where they have to make a decision to use or not use a condom, they are likely to draw from their previous condom use behaviour in the formation of their future

intentions. In this regard, past condom use forms a heuristic basis for their intentions to use condoms in the future without considering their perceived control over the behaviour, moral norms and attitudes towards condom use (Albarracín et al., 2001).

The regression analysis indicated that individuals who responded *No* to the question about condom use during the most recent sexual encounter intended to use condoms in their next sexual encounter. Given that moral norms were a significant predictor of condom use, the probable reason for the present outcome may be that individuals who did not use a condom in their previous sexual encounter may have experienced moral dissonance because of that decision and now intend to use condoms in the future. These findings corroborate those about the importance of moral evaluations on condom use. Thus the personal assessments of an individuals' past actions or inactions play a significant role in guiding the performance or non-performance of a given behaviour, thus significantly affecting ethical decision making about human behaviour. It should be noted, however, that only intentions, and not actual behaviour, were examined in this study.

In summary, past behaviour exerted some impact on future intentions to use a condom. This outcome implies that when a person performs a particular behaviour, he/she acquires some experience or knowledge about the performance of that behaviour. Therefore, past behaviour affords some level of stability regarding the future execution of the behaviour (Kashima et al., 1992). Program planning and health promotion for populations similar to those in this study should also consider the impact of past condom use on future condom use intentions. There is the need to equip young people with

effective negotiation strategies and assertive communication skills to be able to overcome the barriers associated with consistent condom use, not only for the benefits of preventing STIs in current sexual exploits but also for the more critical value of shaping future actions with regard to condom use.

Subjective Norms

When people intend to perform a behaviour after they have evaluated it positively, they also try to find out whether other important people in their lives think they should perform it or not. Hence, subjective norms, in the context of the present study, reflect the perception of social pressure from significant referents to use condoms in sexual encounters. Although this factor remains a major component of the TPB, it did not significantly contribute to the explained variance in condom use intention. Subjective norms contributed less than 1% of the variance to condom use intention. This outcome suggests that the intentions of respondents were not influenced by perception of social pressure from significant referents.

These findings contradict those of Baah-Odoom and Riley (2012) and Bosompra (2001), who found a significant contribution of subjective norms to condom use intentions in student populations in Ghana. It is worth noting that the lack of predictive value of the subjective norms component is not entirely new to the TPB. Conner and Armitage (1998) and Godin et al. (2005) noted the lack of power of the subjective norms construct regarding the prediction of intention. For example, Conner and Armitage, in their meta-analyses of the efficacy of the TPB, found that the subjective norms predictor was the weakest predictor of intentions.

In the light of the current findings, two points may provide an explanation. First, the conceptualization of the mechanism by which normative pressure is exerted might have failed to elicit meaningful ways of social influence. In an examination of the most valued persons (MVPs) to whom young people looked for social approval and how such approval informed their decisions to use condoms in their sexual encounters, Van Rossem and Meekers (2011) noted that clearly identified ascribed and non-voluntary relationships with family and members of the community wielded significant social control over behaviours, including sexual and reproductive health. The present study was very liberal in the identification of people who may influence condom use behaviour among university students. Therefore, the construct may not have identified other relationships like those with school counselors, reproductive health resource centres, professors and other people who may exert considerable social pressure. Hence, the majority of people's intentions is unaffected by the significant referents used in this study.

Secondly, subjective norms are usually expected to be better predictors of intentions in collectivist cultures like those in Africa and Asia as opposed to individualistic cultures like Western countries (Godin et al., 1996). People in the former usually subscribe to group identity. This is manifested in a commitment to family, extended relationships, and groups or organizations. In this kind of society, healthy relationships are fostered where people take responsibility for fellow members of their groups. Usually, relationships in these types of societies are perceived in moral and

normative terms; for this reason, behaviour regarded as untoward leads to shame and loss of face (Hofstede, 2001; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988).

However, the fact that subjective norms did not contribute significantly to condom use intention in the present study may suggest that moral norms, attitudes, and perceived control take precedence over the views of significant referents, especially in a higher learning environment where individuals act based on personal convictions and judgments. This result was consistent with the findings of Mayaki and Kouabenan (2015), who found that women with schooling were less subject to normative influence than those without. They noted that in environments like these, normative pressure might only strongly predict intentions when the actor or individual has much confidence in the advice of significant referent. Otherwise, attitudes better predicted condom use intentions. Perhaps subjective norms did not have the expected influence on condom use intention in the present study because of the social change brought about by secular institutions like universities, resulting in the erosion of the role of traditional institutions like family, community, and significant referents who hitherto exerted normative influence on sexual attitudes and behaviour (Anarfi, 1999; Mensch et al., 1999)

Regardless of the findings in the present study, normative influences remain an integral part of health promotion and intervention programs in Ghana (Baah-Odoom and Riley, 2012; Bosompra, 2001). Programs should also take contextual and demographic factors into consideration when planning services for various populations to ensure that they are designed to meet the specific normative influences that pertain in such environments. Furthermore, the subjective norms construct requires further empirical

attention, such as a broader conceptualization of significant referent in evolving settings where social change is apparent, to properly capture persons or groups of individuals perceived to influence peoples' actions.

Self-Efficacy

Self-efficacy was defined in the present study as the individual's belief in his/her capability to organize and use condoms in his/her sexual encounters. In the present study, no relationship was found between self-efficacy and condom use intentions. These findings are aligned with Ajzen's (1991, 2002) suggestion that the concept of perceived behavioural control overlaps with the concept of self-efficacy. This overlap can be observed by the strong correlation between the two concepts ($r = .71$). Notwithstanding this overlap, the lack of influence of self-efficacy may be because of participants' positive assessment of their health and their ability to take control of their health behaviours, which includes their intentions to use condoms in their next sexual encounter. It could also be that respondents may have given responses that were socially desirable.

An alternative explanation may be that the respondents had a substantial amount of control over whether or not to use condoms in their next sexual encounter but chose to use them for reasons not elicited. Perceived behavioural control or other more salient beliefs like moral norms might have overshadowed the beliefs in the protective benefits of condom use among university. The present findings should be noted with caution, given that several other authors observed a substantial contribution of both self-efficacy and perceived behavioural control when the constructs are distinguished from each other (Armitage & Conner, 2001; Godin et al., 2005; Manstead & Van Eekelen, 1998; Pertl et

al., 2010). For example, Armitage and Conner (2001) found comparable correlations between the two constructs and intentions. Self-efficacy explained 7% and perceived behavioural control an additional 5% of explained variance in intentions.

Although self-efficacy was not significant in the present study, previous research has demonstrated the importance of an individual's personal belief in his or her ability to perform behaviours such as condom use (Armitage & Conner, 2001; Godin et al, 2005; Manstead & Van Eekelen, 1998; Pertl et al., 2010). From the observations of these researchers, it is important that young people exhibit self-control over their sexual and reproductive health behaviour at all times to reduce exposure to HIV and other STIs. Young people need to have a positive assessment to believe that they can use condoms and that by using condoms, they will avert the threat of STIs with little or no social cost. This is because knowledge about risk and prevention methods only determines a knowledge outcome, but does not determine a behaviour or intention outcome (Casey, Timmermann, Allen, Krahn, & Turkiewicz, 2009). Therefore, future research should explore this concept further by exploring other components of the concept, such as response-efficacy, to understand the degree to which a person perceives the use of condoms as an effective response that will provide a satisfactory solution to STIs.

Perceived Role Beliefs

Role beliefs or self-identity represent an individual's self-perception of the appropriateness of engaging in a behaviour expected from a person in a social position similar to that of the individual or self (Conner & Armitage, 1998; Godin et al., 2005). What this means is that irrespective of social factors, individuals strive to act in

consonance with how they identify themselves to validate their status as a role member. Role beliefs did not emerge as significant as an independent predictor of condom use intention. However, it is worth noting that young persons may intend to use condoms in their sexual encounters because this action is necessary for the maintenance self-identity. These findings were consistent with findings of Conner and Armitage (1998) and Godin et al. (2005), who did not find a strong contribution of self-identity to condom use intentions but yet acknowledged its importance in health behaviour. The outcome of this study is more aligned to that of Conner and Armitage's meta-analytical review, which revealed that self-identity accounted for minimal explained variance in intentions after controlling for the TPB components. They suggested that it is reasonable to assume that self-identity may be a determining factor in the execution of certain behaviours, most especially, repetitive behaviours like condom use.

Notwithstanding the non-significant contribution of role beliefs to condom use intention in the present study, it would not be out of place to give further attention to this variable in future research. It will also be important to consider this factor in health promotion and programming for young people. Perhaps in understanding behaviours such as condom use, there is the need to consider the role of beliefs an individual holds about condom use. Decisions around condom use may not only be based on moral judgments, positive or negative evaluations, or degree of control; young people may have carved some self-identity for themselves with regard to condom use. Hence, their actions may be merely necessary for the maintenance of the role beliefs or self-identity.

Perceived Risk

Perceived risk represents an individual's subjective evaluation of his/her risk of contracting a condition (Rosenstock, 1974). The concept connotes a young person's personal evaluation of the possibilities of contracting an STI vis-a-vis the execution of a protective action to prevent its occurrence. Perceived risk was found to be unrelated to condom use intention in the present study, hence failing to support the claim that increasing the perception of risk for STIs among young people would improve condom use (Tschann et al., 2002). A possible reason for this outcome may be that risk perception has an indirect effect on condom use intentions through an interaction effect that was not explored in the present study (Godin et al., 2005). My findings were consistent with the observations of Cha et al. (2008) and Godin et al. (2005), whose empirical studies also failed to identify a significant relationship between perceived risk and condom use intentions.

Nonetheless, this study found the variable worthy of further exploration. Specifically, it is suggested that an exploration of possible interaction of perceived risk with other variables be carried out to look for indirect relations with condom use intentions. This recommendation is based on the utility of perceived risk in the development and design of sexual and reproductive health interventions, by increasing risk perception of high-risk populations like young people (Conner & Armitage, 1998; Tschann et al., 2002).

Epidemiological Factors Associated with Condom Use Intention

The present study also examined the association of epidemiological factors with condom use intention among university students. These epidemiological factors embody the events, characteristics, or more general factors that have the potential to bring about a change in the sexual health of young people and their condom use. I examined the possible linkages between these factors and condom use intention, with the understanding that these are important components for STI prevention programs and crucial entry points for behaviour change (Fonner, Denison, Kennedy, O'Reilly, & Sweat, 2012). The epidemiological and sexual risk factors included in this study were having contracted an STI, having taken an HIV screening test, and knowledge of HIV status. The present study did not find any direct association between these epidemiological factors and condom use intentions. These findings aligned with those of Godin et al. (2005), who did not find an association of these factors with condom use intention after controlling for epidemiological factors. Fonner et al. (2012) also failed to find a significant overall effect of voluntary counselling and testing, which encompassed most of the epidemiological factors considered in this study on condom use. The findings of the current study suggest that having a previous history of STI, having taken an HIV screening test, and knowledge of one's HIV status and knowing someone who is HIV positive did not determine condom use intention among university students.

Two major reasons may account for the weak association of epidemiological factors with condom use intention. First, the epidemiological factors may be distal with a rather indirect impact on the proximal determinants of condom use intentions in the

expanded TPB model. The second reason is related to the pattern of responses to the epidemiological questions, which included: (a) the majority of the population in the present study noted that they have never contracted an STI: (b) more than half of the study participants indicated that they have never taken an HIV screening test: and (c) three-quarters of the study population did not know at least one person with HIV. Observations from several researchers suggested that, depending on the level of knowledge and awareness of STI and HIV risk-related factors, the expectations are that young people will adjust their sexual behaviour depending on their personal risk evaluation or perceptions towards STIs (Appiah-Agyekum & Afi Kayi, 2013; Bankole et al., 2007; Tagoe & Aggor, 2009).

On the contrary, the present study did not find an association between knowledge of STI and HIV risk-related factors with condom use intentions. This outcome could be linked to the fear and anxiety associated with testing and the stigma that comes with being HIV positive, as suggested by Tagoe & Aggor (2009), or perhaps, most of these young people did not perceive themselves to be at risk for STIs. If these assumptions are correct, it will result in a negative influence on peoples' intentions to use condoms in their sexual encounters.

Given the increasing importance of epidemiological factors in programming and behaviour change, more research should be conducted to assess the pathways by which epidemiological factors affect condom intentions and subsequent condom use. This will help identify some modalities that will successfully increase the desire to know one's HIV status and influence appropriate protective behaviour. This is because programs that

address these epidemiological factors, like voluntary counselling and testing for STIs, have the capacity to affect behaviour change among young people (Fonner et al., 2012).

Summary of Discussion

Support was found for the TPB among university students in the present study, as the three predictor variables of the theory accounted for 54% variance in condom use intentions. Subjective norms, however, did not emerge as a significant predictor of condom use among participants in the present study. Some support was found for the expanded model in the context of this study, as moral norms emerged as the strongest predictor of condom use intentions among these university students in Ghana. However, the other psychosocial factors included in the expanded model did not prove relevant to the prediction of condom use intentions among participants in the present study.

A significant association related to measure of moral norms and intentions to use condoms was observed. The relationship suggests that university students are more likely to plan to use condoms in their next sexual encounter because they evaluated condom use as a morally acceptable action. In other words, university students' personal conviction and value judgments about condom use were an important determining factor influencing their intention to use condoms during sexual encounters. Based on the results of this study, program planning and promotions for condom use should address the moral principles held by university students towards condom use—particularly in a religious setting where condom use elicits a strong moral evaluative reaction.

Attitudes towards condom use intention emerged as a moderate predictor of condom use among participants in the present study. Participants who evaluated condom

use positively were more likely to intend to use a condom in their next sexual encounter. Thus, health promotion messages through various media should propagate the advantages of condom use to stimulate positive attitudes towards using them.

Perceived behavioural control also emerged as a significant predictor of condom use intentions. University students who perceived a greater control of condom use had a stronger intention of using condoms in their next sexual encounter. Promotion of condom use in the context of the present study should pay attention to anticipated obstacles and impediments as well as personal liabilities that may influence condom use.

Only subjective norms among all the original predictors of intentions in the TPB did not show any relevance to the prediction of condom use intention. This outcome is not unique, given that other researchers have made similar observations related to the lack of predictive value of the subjective norms component. Possible reasons for the lack of predictive value of subjective norms in the present study may be methodological, or the construct did not have the expected influence because of the social change brought about by secular institutions like universities, resulting in the erosion of the role of traditional institutions like family, community, and significant referents, which hitherto exerted normative influence on sexual attitudes and behaviour.

The additional psychosocial variables in the expanded model in this study, like self-efficacy, role belief/self-identity, perceived risk, and past behaviour, were not significant predictors of condom use intention among participants in this study. Notwithstanding the non-significant contributions of these factors to condom use

intention, these factors are worth consideration in future research into program planning, based on the observations of other researchers.

Finally, the present study did not find any direct association between epidemiological factors, like having contracted an STI, having taken an HIV screening test, and knowledge of HIV status and condom use intention. This outcome was assumed to have come from the demographic composition of the sample, or the epidemiological factors may have presented as distal factors that had a rather indirect impact on the proximal determinants of condom use intentions in the expanded TPB model.

Recommendations

University students in Ghana face some challenges with regard to their sexual and reproductive health which impedes them from protection against STIs. Although there are clinics on university campuses that provide students with information and services, these clinics do not provide the privacy and non-judgemental environment within which student can effectively utilize these services. Effective sexual and reproductive health service settings should be able to help young people to avoid risky behaviours, establish positive norms about gender, sexuality, and create a climate for building skills and confidence (Walcott, 2011). Comprehensive campus-based programs are needed to provide students with the motivation and confidence they require to use skills acquired through sex education (Centers for Disease Control, 2014). This type of programming provides strategies for changing behaviour or modifying risk factors associated with sexual behaviour. Some of these include building relationship and negotiation skills, addressing social norms and behaviour, and educational programs focusing on increasing

awareness, changing beliefs related to all the psychosocial determinants of behaviour discussed in this study (Centers for Disease Control, 2014).

The findings of this study lead to some recommendations for programs targeting condom use among university students. I propose that programs and interventions need to go beyond the skills and knowledge required to refuse sex or practice safer sexual behaviours, to providing young people with motivation and confidence needed to put these skills and knowledge into practice. At the individual level, capacity building regarding teaching interpersonal and communication skills will help young people explore their values, goals, and options about their sexual and reproductive health.

At the school level, social marketing on social media platforms that provide information on healthy relationships and risk reduction should be used. In addition to making condoms available at university clinics and providing education on the technical aspects of condom use, programs should identify the psychosocial factors that impact on condom use, to be able to align behaviour change messages to the factors that determine condom use intentions. Learned safer sex messages that challenge norms, attitudes, and intentions are likely to influence behaviour choices in the long run (Walcott, 2011).

With regard to sexual and reproductive health policy, efforts should be made by governments to outline practices and provide policy guidelines that address sexual and reproductive health on university campuses. An equivalent of youth friendly services provided at the community level could be made available on university campuses in the form of peer promotion facilities to deliver information and services, engage young people in intentional, productive and constructive sexual and reproductive health

conversations and seminars to help build self-belief, negotiation skills, and egalitarian relationships.

Implications for Health Promotion, Theory, and Research

The present study has several implications for health promotion, theory, and research. These implications should be considered cautiously due to the size of the sample and the sampling procedure employed (i.e., convenience sampling). Therefore, it will be prudent to consider these ideas as exploratory.

Health Promotion

The results of the present study provided further insight to the growing body of evidence that although young people may report positive attitudes and beliefs towards condom use, this does not necessarily translate into consistent use of condoms in sexual encounters. In light of this, it is crucial that health professionals and counsellors in the area of promoting sexual and reproductive health of young people address more than just basic knowledge, but also ensure that young people acquire a comprehensive understanding of STIs, properly evaluate their risks and vulnerabilities, and also gain an understanding of the importance of condoms in reducing the associated risks.

The individual's feelings of personal convictions and value judgments towards condom use have an important implication for health promotion efforts. These personal rules of conduct and moral principles emerged as a strong determinant of condom use among university students. Therefore, it is suggested that young people be supported and provided with information that stimulates a positive personal conviction or judgment of condoms to enhance their use. Professionals should also address the moral beliefs

associated with condom use among this population to diffuse the associated myths and resistance, where condom use is apparently considered a behaviour that elicits a strong moral evaluative reaction.

The results of this study emphasized the importance of young people's evaluation of condoms, whether positive or negative, in their decision to use them or not. Since students who evaluated condom use positively were more likely to intend to use a condom in their next sexual encounter, it is important that health promotion messages, through various means of communication, propagate the advantages of condom use to stimulate positive attitudes. This is in view of the probability that young people will see condoms positively if they believe that protective sexual intercourse has a valuable impact on their health and wellbeing.

The fact that control factors proved an important determinant of condom use indicated that young people still encounter obstacles and impediments to their use. Therefore, based on this study, condom use promotion should address these barriers as well as personal liabilities such as condom availability and self-efficacy that may influence condom use in sexual encounters. Health promotion programs should also address gaps between condom use and the control factors that come into play, such as access to condoms and the time interval between access to condoms and sexual acts by making condoms available at vantage points like halls of residence where sexual encounters are likely to occur.

Finally, given that past condom use is a significant predictor of intentions to use condoms in the future, young people should be encouraged to continuously insist on

condom use in their sexual encounters not only for the purpose of protection against STIs but also for its value of shaping future actions.

Theory and Research

The results of this study provide some implications for consideration regarding theory and future research. These implications include modification of the TPB, further examination of the subjective norms component, and examination of the interaction effects of various factors.

The findings support the continuous use and modification of the TPB for research in the area of sexual and reproductive health. The application of the theory not only guides the development of the intervention but also provides a clearer conceptual understanding of behaviour and how it emerged. The findings further suggest that modification of the TPB could prove very useful in the study of sexual health. Indeed, the inclusion of additional psychosocial variables to Ajzen's (1991) theory could prove relevant, given that some of these factors offered further explanations for condom use intentions.

The impact of subjective norms is usually expected to be a better predictor of intentions in collectivist-type cultures like those in Africa and Asia. However, this factor was irrelevant in the prediction of condom use in the present study. One of the possible reasons was that the identification of important people who may influence condom use behaviour among university students was rather liberal. Hence, the construct may not have tapped important social relationships like school counsellors, reproductive health resource centres, professors, and other specific people who may exert considerable social

pressure on condom use intention of university students. It is suggested that future studies conceptualize the subjective norms construct in broader terms, with reference to the population under study, to capture significant others or referent groups in constantly changing settings where social change is apparent.

Most of the additional psychosocial and epidemiological factors were not significant in the prediction of condom use intentions. Most of these factors may have an indirect effect on condom use intentions through an interaction effect that was not explored. Similar studies could explore possible interaction of these factors with other variables to look for indirect relations with condom use intentions. An examination of these relationships would provide a detailed account of the pathways through which these factors impact condom use intentions. This information will help in the designing of effective programs that target these factors at every stage of condom use decision making.

Given that most of the participants in the present study were not sexually active, a comparative study should be conducted between young people who are sexually active and those who are not sexually active, which could help determine whether these two groups require different attention with regard to the planning of interventions. This information would be salient for program planning and design to enhance condom use.

Study Limitations

There are a number of limitations in this research; some have already been discussed. It is, however, crucial to point out that by using a cross-sectional design, I am unable to establish a cause and effect relationship. Nonetheless, the associations among

the constructs of the model were established and assessed in relation to the TPB (Ajzen, 1985). Furthermore, the ecological validity of the results may be weakened by using a non-representative sampling technique like convenience sampling, thus making it difficult to generalize to other populations of young people. To overcome this, I made sure that samples were selected and studied in a theoretically thoughtful way. This was done by methodologically undertaking an exhaustive sample selection to generate data that would be representative of the target population, and by theoretically pursuing the analysis of data in a manner that would have lasting intellectual value.

Another limitation of the study is that the coefficient of the Cronbach's alpha for subjective norms was rather weak compared to the other factors. This low coefficient may suggest that the internal consistency of the items in this variable is not high enough. However, this should not be an issue given that the number of test items for this variable was only three. Using three items was deemed sufficient to avoid redundancy (Streiner, 2003). Secondly, the alpha was a more conservative measure of the internal consistency of the items. Initial factor analysis before the regression showed items on this variable loading very well. Hence this does not affect the internal consistency of the scale used.

Some of the psychosocial and epidemiological factors were not significant in the prediction of condom use intentions. Most of these factors may have an indirect effect on condom use intentions through an interaction effect that was not explored. Future studies could examine possible interaction of these factors with other variables to look for indirect relations with condom use intentions. Also, although intentions may be necessary to predict behaviour, they are not in any way the same as actual behaviour. Therefore, a

measure of actual behaviour will be needed to determine the variables that are crucial to condom use.

The present study did not examine the predictive value of each of the constructs of the TPB in each of the universities, between genders and among years of study because of time and resource limitations. Future studies should therefore pursue this analysis to be able to establish the unique importance of each of the factors.

Finally, due to the intimate and sensitive nature of behaviour research, there was the potential of encountering a social desirability bias. However, this bias was curtailed by pretesting the questionnaire to ensure that it was culturally acceptable and appropriate for data collection. Secondly, the use of the questionnaire with no personal identifiers ensured that respondents felt their anonymity was better protected. This action further decreased the possibility of social desirability bias.

Conclusion

In this study, I attempted to gain an understanding of how attitudes, subjective norms, perceived behavioural control, self-efficacy, moral norms, role beliefs, perceived risk, and past condom use influences condom use intentions among undergraduate university students in Ghana. A descriptive correlation study was conducted in an attempt to describe the relationships among these independent variables and condom use intentions in a convenient sample of undergraduate students in three universities in Ghana.

The results showed that sexually active young people were not using condoms consistently in their sexual encounters. Three factors emerged as strong determinants of

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condom use intentions. In order of decreasing importance, perceived behavioural control, moral norms, attitudes, and past behaviour emerged as significant independent predictors of condom use intentions. Thus, those university students who intended to use condoms in their next sexual encounters were more likely to perceive that their personal principles and convictions towards condom use were positive, were more likely to perceive that condoms are easy to use, more likely to evaluate condom use as a positive behaviour, and individuals who had a previous condom use experience were less likely to use condoms. The findings of this study carry useful implications for health promotion, theory, and research.

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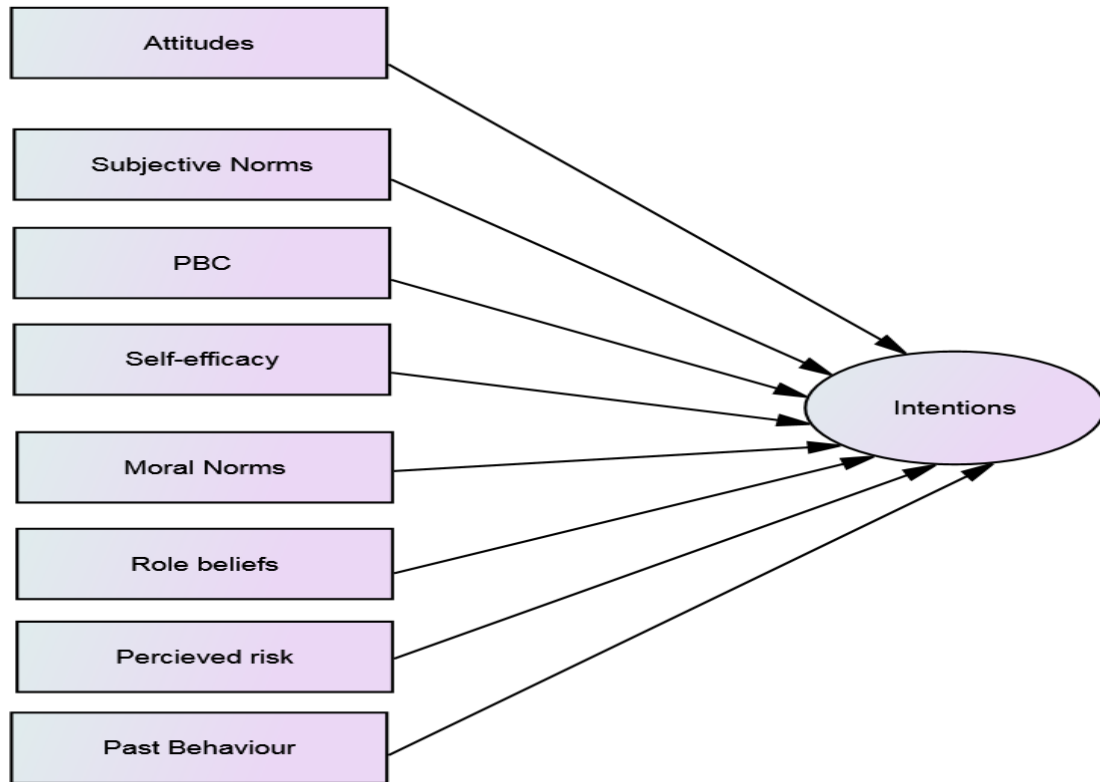
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Appendix A

Conceptual Framework



Legend

PBC: Perceived Behavioural Control

Schematic representation of Godin et al.'s (2005) modified model of Ajzen's (1991)

Theory of Planned Behaviour

Appendix B

Condom Use Survey¹

1. What is your age? _____ years
2. Gender: _____
3. What is your marital status?
 - (a) Single and not in a sexual relationship
 - (b) Single and in a monogamous sexual relationship
 - (c) Single and in more than one sexual relationship
4. What is your level of study?
 - (a) 100
 - (b) 200
 - (c) 300
 - (d) 400
5. When was the last time you had sexual intercourse?
 - (a) During the past 3 months
 - (b) More than 3 months ago, but less than a year
 - (c) More than a year ago
 - (d) Never had sex
6. Did you use a condom during your last sexual encounter?
 - (a) Yes
 - (b) No
 - (c) Not applicable
7. Have you ever contracted a sexually transmitted infection?
 - (a) Yes
 - (b) No
 - (c) I don't know

¹ Questionnaire adapted from Godin et al. (2005).

PREDICTING CONDOM USE

8. Have you ever taken an HIV screening test?
 - (a) Yes
 - (b) No
 - (c) I don't know

9. If you have taken an HIV screening test, did you learn your status afterward?
 - (a) Yes
 - (b) No

10. Do you know someone who is HIV positive?
 - (a) Yes
 - (b) No
 - (c) I don't know

PREDICTING CONDOM USE

Instructions

Please read each statement or question carefully and answer it to the best of your ability. Circle the number that best describes your response. There are no correct or incorrect responses; we are merely interested in your personal point of view.

Please circle a number to indicate your response:

	Question	Not at all/ Never					Very Much/ Always
1	Do you have the intention of using a condom during each sexual intercourse over the next year?	1	2	3	4	5	6
2	Are you motivated to use a condom during each sexual intercourse over the next year?	1	2	3	4	5	6
3	Over the next year, the chances of using a condom during each sexual intercourse are...?	1	2	3	4	5	6
4	Up to what point do you personally determine that you should use a condom during each sexual intercourse?	1	2	3	4	5	6
5	Up to what point will you feel guilty for not using a condom during each sexual intercourse	1	2	3	4	5	6
6	If you do not use a condom during each sexual intercourse, up to what point do you think that would be acceptable?	1	2	3	4	5	6

PREDICTING CONDOM USE

Please shade the circle to indicate your response:

For you, always using a condom during each sexual intercourse over the next year would be?

#	Question	1	2	3	4	5	6	
17	Not Useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Useful
18	Not Prudent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Prudent
19	Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
20	Disagreeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agreeable
21	Stressful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Stressful
22	Embarrassing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Embarrassing

PREDICTING CONDOM USE

Please circle a number to indicate your response:

#	Question	Not at all/ Never					Very Much/ Always
23	Over the next year, are most of the people important to you able to influence your decision to use a condom?	1	2	3	4	5	6
24	Over the next year could a new sexual partner influence your decision to use a condom?	1	2	3	4	5	6
25	Over the next year could health professionals influence your decision to use a condom?	1	2	3	4	5	6
26	Up to what point are you sure of using a condom during each sexual intercourse over the next year?	1	2	3	4	5	6
27	Up to what point do you feel able to convince a new partner to use a condom over the next year?	1	2	3	4	5	6
28	In your opinion, is it correct for a man (for a woman) not having a steady sexual partner to use a condom during each sexual intercourse?	1	2	3	4	5	6
29	Taking into account your sexual habits, up to what point do you believe yourself at risk of contracting AIDS or other STIs?	1	2	3	4	5	6

PREDICTING CONDOM USE

Please circle a number to indicate your response:

#	Question	Not at all/ Never						Very Much/ Always
Over the next year....								
30	...if you have sexual intercourse and you have condoms handy, up to what point do you believe you could use them?	1	2	3	4	5	6	
31	...if you have sexual intercourse after having consumed a lot of alcohol or drugs, up to what point do you believe you could still use a condom?	1	2	3	4	5	6	
32	...up to what point do you believe sexual excitement could make you forget to use a condom?	1	2	3	4	5	6	
33	...if you or your partner uses a means of contraception such as the pill or an IUD (intra-uterine device), up to what point do you believe you could still use a condom?	1	2	3	4	5	6	
34	...if you have sexual intercourse with a person whom you have known for a certain time, up to what point do you believe you could still use a condom?	1	2	3	4	5	6	
35	...if you have sexual intercourse with a person who says he or she has recently tested negative for AIDS or an STI, up to what point could you still use a condom?	1	2	3	4	5	6	
36	...if you meet a partner who refuses to use a condom, up to what point could you refuse to have sexual intercourse with him or her?	1	2	3	4	5	6	

Appendix C

Permission Letter

Faculty of Health Sciences
University of Lethbridge
Lethbridge, Alberta
Canada T1K 3M4

July 1, 2015

To Whom It May Concern:

PERMISSION TO CONDUCT RESEARCH SURVEY

Sakeah James is a graduate student in the Faculty of Health Sciences at the University of Lethbridge in Canada, and I am his supervisor. He is undertaking a study entitled “Determinants of Condom Use among University Students in Ghana,” in partial fulfillment of the requirements for the degree of Master of Science. Recent research has acknowledged the effectiveness of condoms for HIV and other sexually transmitted infection prevention. However, condom use remains low and inconsistent among Ghanaian adolescents and young adults. The present study specifically explores students’ beliefs and practices regarding the use of condoms during sexual intercourse.

I write to request permission for Sakeah James to access your students and class room premises to administer the research surveys.

If approval is granted, the survey should take no longer than 20 minutes and will be done at your convenience. The results of this study will remain confidential and will only be used for educational purposes. A copy of the final report or a presentation could be made available to your faculty upon request for academic purposes and also to foster behaviour change.

This research study has been reviewed by the Human Subject Research Committee at the University of Lethbridge and was granted approval (Protocol 2015-055) on July 23, 2015.

Your approval to conduct this survey will be greatly appreciated. If you have any questions, please feel free to contact me.

Sincerely,

Dr. Jean Harrowing, RN
Associate Professor, Faculty of Health Sciences
Research Affiliate, Prentice Institute for Global Economy and Populations
University of Lethbridge
Email: harrjn@uleth.ca
Phone: 403.394.3944

Appendix D

Information Letter

You are invited to participate in a survey to explore students' beliefs and practices regarding the use of condoms during sexual intercourse. This form details the purpose of the research, a description of your involvement, and your rights as a participant.

This study is a research project of a University of Lethbridge (Canada) student (Sakeah James). This study is conducted in partial fulfillment of the requirements for the degree of Master of Science. If you decide to participate, your involvement will be limited to completion of the attached survey. The survey will take about 15-20 minutes to complete. Please return this questionnaire to the researcher after you have completed it.

The survey is completely anonymous. There are no personal identifiers on the survey, and no records will be collected on who did or did not complete it. By completing and returning this questionnaire, you are giving consent for your responses to be included in the study. All information you provide remains confidential. The completed surveys will be kept in a locked filing cabinet in my room while I am in Ghana. These completed surveys will be brought back to Canada for review and reference. They will also be locked up in a filing cabinet in the University of Lethbridge. I will ensure that all electronic data relating to this research are password-protected. The information will be used for the purpose of research and will be destroyed after five years' time.

Your participation in this research is completely voluntary and refusal to participate will not result in any penalty or loss of benefits to which you might otherwise be entitled. You have the right to quit the survey at any time, for any reason, and without risk of penalty. If you choose to withdraw, please mark the first page of the survey with a large "X" to indicate your withdrawal. If you choose to withdraw, all information you provided will be destroyed immediately. However, withdrawal of responses after survey has been handed in will not be possible because there will be no direct personal identifying information collected on the questionnaire. You also have the right to skip any question and continue with the rest of the survey. There are no anticipated risks or direct benefits to you from your participation in the survey. The results from this research will be reported at group level; responses will be aggregated and described in my thesis. As well, findings may be presented in manuscripts submitted for publication in scientific journals or oral and/or poster presentations at scientific meetings, seminars, and/or conferences. The results may also be used for the development of teaching resources.

If you wish to receive a copy of the results of this study, or if you have questions about this research, the survey questions, or this consent process, you can contact the researcher [email address] or [phone #]. You may also contact the supervisor Dr. Jean Harrowing at [email address] or [phone #]. Questions regarding your rights as a participant in this research may be addressed to the Office of Research Services, University of Lethbridge ([email address] or [phone #]).

Please keep this page for your future reference.

Appendix E

In-Class Recruitment Verbal Script

Hello, my name is Sakeah, James Kotuah and I am an MSc Student in the Faculty of Health Sciences at the University of Lethbridge in Canada. I am currently working on my master's Thesis with Professor Jean Harrowing. My thesis explores students' beliefs and practices regarding the use of condoms during sexual intercourse. This research will potentially lead to a better understanding of what factors determine condom use and may inform the development of more effective interventions in the future for people at risk such as young people.

If you volunteer as a participant in this study, you will be asked to stay in the lecture room for these last 20 minutes to answer a survey that contains 36 questions. There are no personal identifiers on the survey, and no records will be collected on who did or did not complete it. By completing and returning this questionnaire, you are giving consent for your responses to be included in the study. All information you provide remains confidential. The completed surveys will be kept in a locked filing cabinet in my room while I am in Ghana. These completed surveys will be brought back to Canada for review and reference. They will also be locked up in a filing cabinet in the University of Lethbridge. The completed surveys will be kept in locked filing cabinet in my office at the University of Lethbridge. Your participation in this research is completely voluntary and refusal to participate will not result in any penalty or loss of benefits to which you might otherwise be entitled. You have the right to quit the survey at any time, for any reason, and without risk of penalty. If you prefer not to participate, please leave the room now. If you start the survey and then decide to withdraw, please mark the first page of the survey with a large "X" to indicate your withdrawal. If you choose to withdraw, all information you provided will be destroyed immediately. However, withdrawal of responses after the survey has been handed in will not be possible because there will be no way to identify and remove your survey.

Further information about the research will be provided to you on a sheet of paper for your reference.

I would like to assure you that this study has been reviewed and received ethics approval from the University of Lethbridge Human Subject Research Committee. However, the final decision about participation is yours.

If you are interested in participating, please remain in your seat and I will bring questionnaire to you. All completed surveys should be dropped in this box when exiting the lecture room.

Are there any questions?

Thank you!