

INFLUENCE OF SOCIOECONOMIC STATUS ON RISKY SEXUAL BEHAVIORS
AMONG WOMEN IN GUYANA

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ABSTRACT

Background: Lack of access to resources of development position Guyanese women vulnerable in economic and education contexts. Evidence suggests, socioeconomic status directly influences health outcomes. The available research surrounding the influences of sexual health behavior of women is limited and inconclusive.

Objective: The objective of this study was to explore the extent education and household wealth influences birth control use and engaging with multiple partners. Also, how those socioeconomic influences transform when age, relationship status, and residence type are considered in the models.

Methods: The Demographic Health Survey for Guyana from 2009 was used to conduct a quantitative study. Participants were women between the ages of 15 and 49 years old (n = 4,996). Chi-square for independence and logistic regression analyses were performed to explore the associations and odds of education and household wealth in relationship to birth control use and engaging with multiple partners. Multiple models were run in order to see what changes occurred when controlling for specific demographic variables.

Results and Discussion: Socioeconomic factors were generally associated with risky sexual behavior but no conclusive statements can be made about the direction of socioeconomic status and risky sexual behavior's relationship. Sequential changes among variable categories were not consistent outside of the relationship of wealth and engaging with multiple partners. As socioeconomic status increased, the odds of engaging in risky sexual behavior increased when controlling for age, relationship status, and residence type. Various factors can explain this adverse behavior including, but not limited to, upward mobility, education quality, and gender inequity.

Conclusion: The results of this study were inconclusive but generally showed trends of increased risky sexual behaviors as socioeconomic status increased with noteworthy influence from control variables; age, relationship status, and residence type. The findings of this study highlight the necessity for further research of sexual behavior for the field of health promotion

1. INTRODUCTION

1.1 Background

Women's comprehensive health research is one development aspect that requires further advancement. For time, the health research field has been criticized for not fully encompassing relevant concerns deteriorating the health of women (Andersen & Cyranowski, 1995; Bustreo, Knaul, Bhadelia, Beard & Araujo de Carvalho, 2012; Peters, Woodward, Jha, Kennedy & Norton, 2016). Even on global scales, the scope of woman's health is narrowed. The third goal of the Sustainable Development Goals is to ensure good health and promote well-being (United Nations, 2015). The few specific mentions of women's health within this goal pertain specifically to maternal and reproductive health (United Nations, 2015). Although warranting attention and possessing inarticulable significance, maternal health and reproductive related events only focus on a fraction of a woman's life (Peters et al., 2016). It is argued that as a result of this narrowed concentration there is limited research on a variety of women's health areas, one of which is sexual health (Andersen & Cyranowski, 1995; Bustreo et al., 2012; Peters et al., 2016).

The existing literature leaves knowledge about women's sexual health scarce. Despite the scarcity, certain studies have found that women are disproportionately impacted by sexually transmitted infections and diseases (Chersich & Rees, 2008; Reid, Malow & Rosenberg, 2012) and also reap the health consequences of unplanned/unwanted pregnancies more directly than men (Zhao, Kim, Peltzer, 2017). Some research even argues that women are more vulnerable to STD acquisition when engaging in risky sexual behavior because of their biological anatomy (Zhao et al., 2017; Chersich & Rees, 2008; Sutherland, 2016). Johnson, Mercer, and Cassell (2006) share that unsafe sex is a main driver of disease burden and mortality, and also add that the marginalized and economically vulnerable communities experience higher rates of poor sexual health. Considering the social vulnerabilities that women face, the lack of knowledge surrounding sexual health of women is negligent.

Gender inequality among women, dissimilar to men, is an issue that occurs across the globe in relationship to health and society. Dorius and Firebaugh (2010) describe gender inequality as when one gender possesses a disproportionate amount of valued goods in society over the other. We can see this manifest through the women's experiences in society. Limited access to education or other methods of acquiring knowledge, distance women from obtaining economic opportunities that combat poverty and the consequences poverty invite (Bullock, 2013). This limited, or sometimes inaccessible, education then influences women's opportunities to obtain available and fair labor (Aremu, 2013). In some cultures the discrimination of women begins at birth (Storkey, 2015) while others may experience exclusion through inaccessible opportunities as a result of developing or struggling economies (Aremu, 2013). The United Nation's (UN) SDGs addressed the issue of gender equality and specifically notes that women and girls continue to experience discrimination in access to education and work (United Nations, 2015). Various studies show that women are disproportionately impacted by poverty as compared to men (Bullock, 2013; Dintwa, 2012). Understanding the barriers to women's participation in society is detrimental to achieving equity and meeting an economy's full working potential (United Nations, 2015) especially considering that women comprise half of the world's population (United Nations, 2015).

1.1.1 Guyana

Guyana is located on the north Atlantic coast of South America. The only nation in South America with English as the official language, Guyana is home to many cultures and shares a struggling history of post-colonization and redevelopment (United Nations, 2010). World Bank (2019) showcases a steady increase of the nation's GDP since 1999 but in 2001, Guyana's GDP per capita ranked as the second poorest country in the Caribbean, following Haiti (Allen et al., 2006). In 2007, the Organization for Economic Co-operation and Development described Guyana as a "Heavily Indebted Poor Country (HIPC)" (United Nations, 2010, p. 7). Later in 2010, the nation progressed to meet the World Bank's standards to be classified as a lower-middle income country (United Nations, 2010). The economic struggles that the nation faced could contribute to explaining the decline in government expenditure on education from 8.5% in 2005 to

3.3% in 2009 (World Bank, n.d.). Guyana's Ministry of Education states that providing primary education was not a major issue, citing a rough average 75% attendance rate, but that there was a deficit in trained teachers and teaching equipment (Ministry of Education, n.d.). Based on data from 2006-2007, the Ministry of Education in Guyana also states performance in general core subjects were poor and performance was even worse in rural areas (Ministry of Education, n.d.).

Less information is known about the sexual health that citizens in Guyana receive prior to 2009, when the DHS Guyana study was conducted. Various sources make mention of the Health and Family Life Education (HFLE) program. HFLE is described as “a comprehensive, life skills based program” (United Nations Children's Fund, 2013; Whitman, 2004). Dating back to the 1980s, HFLE is a program with a curriculum, intended to develop healthier lifestyles and encourage healthy decision-making, offered to Caribbean students grades 1-9 (United Nations, 2013; Whitman, 2004). Sexual and reproductive health is one of many health topics included in this comprehensive health curriculum (United Nations, 2013). In 2004, the International Monetary Fund (IMF), stated that Guyana's Ministry of Health and their partners, promoted responsible sexual behavior through condom promotion and counseling services to individuals living with HIV/AIDS implemented in a few hospitals (IMF, 2004). During the 1990s to the early 2000s' developing adequate sexual health programs continued to remain on the nation's agenda as an area requiring further development (Ministry of Health, n.d.; United Nations, 2010; United Nations, 2013)

1.1.2 Women in Guyana

The participation of women in Guyana's society leaves tremendous room for improvement. The International Labor Organization (ILO) (2018) stated that in Guyana females had school attendance and school performance rates at higher levels than that of males. Even so, since 2000, women still experience lower rates of participation in the labor force, simultaneously equating to higher unemployment rates (ILO, 2018). Female participation in education seems to illustrate a positive progression towards gender equity but ILO states that pregnancy and female-headed households can pose a barrier to

women's socioeconomic development (ILO, 2018). Guyana holds high rates of female-headed households and the highest rates of teenage pregnancy in Latin America and the Caribbean (ILO, 2018; Rose, Rajasingam, Derkenne, Mitchell & Ramlall, 2016). Considering the role women play in family life, the barriers they may face while attempting socioeconomic progression are consequential on, both, personal and national scales.

1.1.3 HIV

The data surrounding sexual health behavior in Guyana is centered on HIV and with good reason. The nation experiences HIV prevalence rates higher than that of other Latin American and Caribbean nations. In 2005, it was estimated that the HIV prevalence was 2.5% (WHO, 2005) and, four years later, the prevalence rate decreased to 2.4% in 2009 (Hubbard, 2009). The 2018 prevalence rates of HIV in Guyana, while almost 1% less than 2005 at 1.4%, is still relatively high compared to other nations in Latin America and the Caribbean (UNAIDS, 2018d). HIV prevalence rates of nations in Central and Latin America: Mexico with a rate of 0.2%, Costa Rica with 0.4%, Brazil with 0.5% and Chile with 0.5% according to UNAIDS' data from 2018 (UNAIDS, 2018e, 2018c, 2018a, 2018b). This prevalence rate sparks this study's curiosity to the nation's sexual health. Although, this study does not focus on HIV, the knowledge from the various studies provide still speak to sexual behaviors, transmission of STIs/STDs, and drivers of sexual health risk and therefore will be used to provide sexual health context in this study.

1.1.4 Risky Sexual Behavior

Kebede, Molla, Gerensea (2018) defined risky sexual behavior as behavior that heightens an individual's risk to issues concerning sexual and reproductive health. Risky sexual behaviors include, but are not limited to, early sexual debut, having unprotected sex, engaging with multiple sexual partners, irregular condom use, sexual affairs with sex workers and not utilizing contraceptives (Tefaye et al., 2019). Son et al. (2016) state that trying to understand the sexual behaviors of women has the potential to help alleviate some of the consequences that result from risky sexual behaviors, such as unwanted

pregnancies and transmission of STDs/STIs. This study will focus on two risky sexual behaviors: engaging with multiple partners and contraceptive use, more specifically birth control usage.

Admiora and Schoenbach (2013) define concurrency as “overlapping partnerships” (p. 16); also referred to as engaging with multiple partners in this study. These authors go on to share that these concurrent partnerships can be found more common among individuals who are not married, young adults, men, and those not in monogamous partnerships (Admiora & Schoenbach, 2013). The risk lies in high transmission potential because engaging with multiple partners encourages, a more rapid and, widespread transmission of STDs and STIs (White, 2013; Exavery et al. 2012). The combination of engaging with multiple partners and having unprotected sex, amplifies the risk of infection and disease. Certain studies have found that men engage in sexual behavior at higher rates than women and that women often underestimate the rates of concurrency of their partners (Jonanson & Fisher, 2009; O’Sullivan, Hoffman, Harrison & Dolezal, 2006; Lenoir, Adler, Borzekowski, Tschann & Ellen, 2006). Engaging in concurrency is risky by nature. Engaging in concurrency without knowledge of the rates in which sexual partners are also engaging in concurrency heightens the risk even further.

Zorea (2012) defines birth control as the intentional prevention and control of human conception, inclusive of natural and artificial methods (Zorea, 2012). Adequate and safe contraception methods allow for controlling the number of desired children and the time in between pregnancies (Gakidou & Vayena, 2007). There are numerous factors that influence contraceptive use among women, some of which include access, economy, social norms, and personal choice (Eisenberg & Brown, 2000; Speroff & Darney, 2010). The lack of birth control use amplifies the risk of unwanted or unplanned pregnancy, which is also understood to be one consequence of risky sexual behavior (Zhao et al., 2017). Two major influences of birth control usage, globally, are accessibility and sexual health education (Gakidou & Vayena, 2007).

1.2 Contribution to Health Promo & Global Development

Green, Tones, Cross, and Woodall (2015) define health promotion as a comprehensive term relating to all the activities aiming to improve health. These authors go on to say that the efforts of health promotion utilize public policy and health education to address issues concerning health determinants (Green, Tones, Cross & Woodall, 2015). This study is positioned in the field of health promotion. This study aims to contribute to a body of work that pushes socioeconomic equity to the forefront of the global health conversations to improve the health of women. The data supporting the notion that socioeconomic influence on health outcomes is endless. The barriers that limit women's access to opportunities of economic progress in society significantly reduce women's ability to control their health. Understanding the drivers of health, and the influences from society, culture, and environment, can provide the context for implementing successful health improving avenues (Zhao et al., 2017; Son et al., 2016). Socioeconomic determinants of health, the health promotion theory of this study, will be discussed with more detail in the following chapter.

On a global scale, sexual health is a growing concern. Across the world, issues of unprotected sex and disease transmission are leading causes of death (Johnson et al., 2006). Sexual behavior is often unaddressed in current health research but sex continues to be a vital aspect in human life ranging from social relationships to reproduction (Johnson et al., 2006). Consequences of poor sexual health threaten future economies and a nation's ability to sustain itself (Buvé et al., 2002). This study aims to direct attention towards sexual health behavior as an area of research that requires more attention. Simultaneously addressing gender inequity and economic inequity through the lens of health, the contribution of this study towards global development manifests through providing more context to the sexual health conversation. The World Health Organization (2016) positions health and wellbeing to only be achievable through promoting the SDGs and engaging every aspect of society in the efforts. The solutions aiming to address to health challenges must also address the influence of complex societal factors on health outcomes. This study aims to contribute to the body of research aiming to understand the interconnectedness of systems in life that influence health.

1.3 Thesis Aim

This thesis aims to gain a greater understanding of how societal factors influence women's sexual behavior in Guyana. How influential is education and wealth in regards to health behavior? Does this influence change when specific demographics are considered? These are the questions this study hopes to understand based on existing literature and data analyses.

2. THEORETICAL FRAMEWORK

2.1. Social Determinants of Health

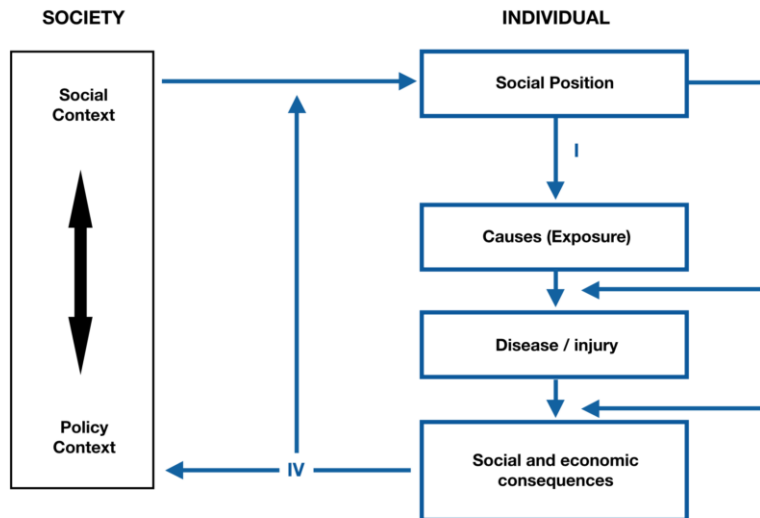
Michael Marmot's social determinants of health (SDOH) is the theoretical framework that will be used in this study. WHO (n.d.) defines this framework, "The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels" (p. 1). The factors within the social determinants include socioeconomic status, education, physical environment, employment and education, to name a few (Artiga & Hinton, 2018). The intersectionality of the determinants, and the level of a particular determinant an individual has, can determine health and behavior patterns.

The theory is applicable to this study because it recognizes how socioeconomic characteristics contextualize the many ways individuals interact with health. More importantly, this theory emphasizes the systematic influences that shape socioeconomic characteristics and the afforded privileges or consequences that follow. This study takes the stance that socioeconomic characteristics have the ability to directly influence human behavior. The knowledge that comes from studying these relationships may better inform decisions intended to "improve overall health outcomes and reduce health inequities..." (CSDH, 2008, p. 178).

Foundations of this framework draw upon the work of many researchers and health professionals but the most predominant influence comes from Finn Diderichsen (CSDH, 2008). Diderichsen and Hallqvist's 1998 model of social production of disease has since been developed with the help of other researchers (Solar & Irwin, 2010). To start, the model highlighted the path from society to social position and the exposures to health that follow (Solar & Irwin, 2010). It was then, later developed to emphasize the systems that influence the stratification of health outcomes as well as the mechanisms within society that create and "distribute, power, wealth, and risk" (p. 23) which, inevitably, govern the

shape of social stratification (Solar & Irwin, 2010). The socioeconomic aspects of this framework draw inspiration from Karl Marx and Max Weber (Wright, 1995).

Figure 1: Diderichsen’s Model of the social production of disease (Solar & Irwin, 2010)



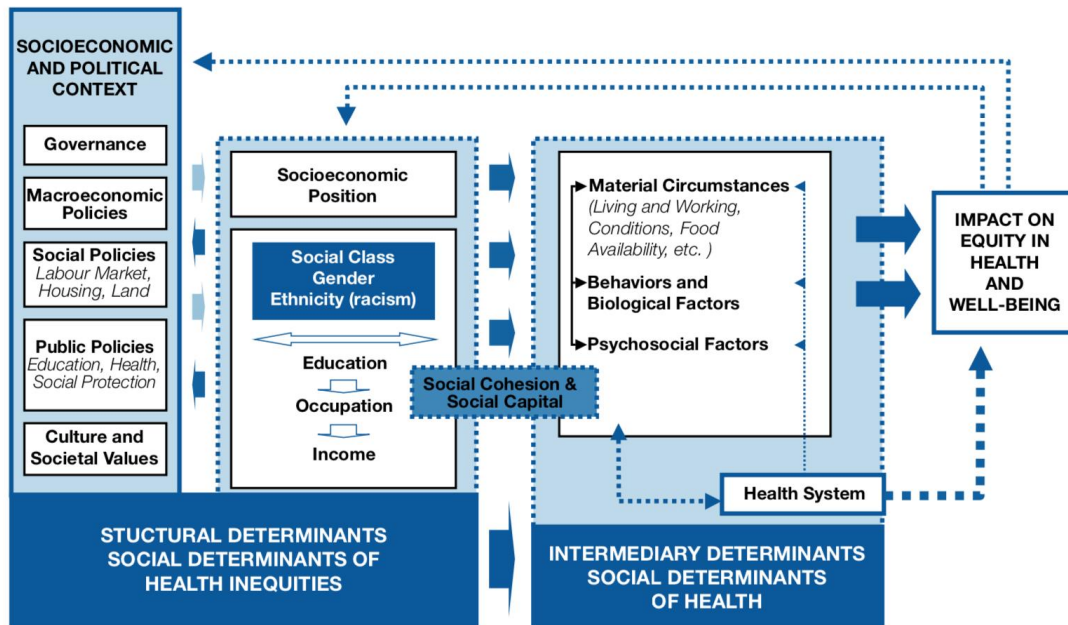
Marx understood class to be dictated by socioeconomic status and social relationships generated by societies where the individual was classified by their relation to production means (Wright, 1995). Weber understood position in society to be influenced by three elements: class, status and power (Barbalet, 1995). Weber defined class as an economic base, implying ownership and measured by income and considered status to imply accessibility of chances in life on the basis of social and cultural elements (Barbalet, 1995). Lastly, Weber’s element of power refers to contexts of politics influencing an individual’s position in society (Barbalet, 1995). Both of these perspectives take into consideration the underlying structures of society that rank individuals by their means or production. This ranking system influencing the opportunities, or lack thereof, of access to resources that aid life longevity and health. The purpose of this brief background to provide context to the foundation in which the social determinants of health were shaped and the power structures that influence individuals behavior.

The framework identifies power as a significant mechanism when understanding and utilizing the social determinants of health. Solar and Irwin (2010) state, "... that any serious effort to reduce health inequities will involve changing the distribution of power within society to the benefit of disadvantaged groups" (p. 22) and, also, shares that structural changes are vital to sustain any micro-level changes. Solar and Irwin (2010) describes social stratification and social class as significant variables used to operationalize socioeconomic position in studies of social inequities of health. Stratification directly linking to power, or lack thereof, as it relates to social hierarchies that arrange individuals or groups within society. Class refers to power over productive resources (Turner, 2001). The factors within socioeconomic status (i.e. education, gender, wealth) are all attributed degrees of power that uphold the arrangement of a specific social hierarchy.

The framework is comprised of three elements: (1) socio-economic and political contexts, (2) structural determinants of health inequities, and (3) intermediary determinants of health (CEHPASDH, 2016). Reference Figure 2. For the purposes of this study, the only element of this framework that will be examined is the structural determinants of health inequities.

The social determinants of health are the social factors that, both, promote and undermine the health of individuals and populations. The social processes are also influential as they fundamentalize the unequal distribution that result in unequal positions within society (Turner, 2001). Solar and Irwin (2010) describes structural determinants as "the interplay between socioeconomic-political contexts, structural mechanisms, generating social stratification and the resulting socioeconomic positions of individuals" (p. 28). Through hierarchies of power and access, position in society is stratified and, within socioeconomic context, is influenced by systems and institutions (Gkiouleka, Huijts, Beckfield, Bambra, 2018). The framework positions income and education as "social outcomes of stratification processes" while gender and social class "operate as important structural determinants" (Solar & Irwin, 2010, p. 30).

Figure 2. Social Determinants of Health Conceptual Framework (Solar & Irwin, 2010)



Income

Measuring income is complex and the framework recognizes income as an outcome of stratification (CSDH, 2008). There are various factors in an individual’s life that can influence how much income they receive, how much of their income is disposable and to what extent they are able to utilize their income to access resources. Household income can sometimes represent a standard of living and cohabitating may alleviate some financial burdens through shared resources (Perelli-Harris et al., 2018). There are dynamics in relationships that complicate the use of household income as a measure in research.

Power dynamics of households are not always visible through the assumed even distribution of income. This is especially true for women in socioeconomic contexts where inequality affects opportunities, income, and, as a result, relationship dynamics (Muchomba, Wang, & Agosta, 2014). An additional dynamic that influences income is age. Different age groups may represent income stability in ways more common than in other groups. It may be difficult to translate income into socioeconomic position as different stages of age influences economic participation and ability among households of

varied ages (Solar & Irwin, 2010). Lastly, income that has been measured during a singular point in time may record unique experiences that may not accurately represent socioeconomic characteristics of an income level i.e. short-term income instability (Solar & Irwin, 2010).

Even considering all of these dynamics that influence income as a measure, income remains the source of insight into socioeconomic status as it relates to class. The value of income derives from its ability to reflect access to basic needs, access to services that improve health, and influence on social capital and self-esteem (Solar & Irwin, 2010). Occupation is strongly related to income and is connected to particular health outcomes due to the accessibility provided by occupation. As mentioned, women are particularly vulnerable in socioeconomic contexts. Domestic, informal and/or illegal occupations may also influence income and should be considered in addition to other characteristics to adequately reflect socioeconomic characteristics or status (Williams, Mohammed, Leavell & Collins, 2010). These additional considerations are able to add clarity or complexity depending on the intersectionality of identity characteristics. This study utilizes household wealth as the variable to represent economic position in the DHS dataset but access, as it relates to income and occupation, are closely related. The factors of income and occupation contribute to resource access and the resources measured by DHS to determine household wealth.

Education

An additional factor to consider is education level or attainment. Education level provides unique insight into an individual's life. Education level is able to provide context into the early life of an individual as access to education may depend on the parent's financial ability (Gooding, 2001). Considering educational progress is measured by the adequate completion of the previous levels, access in early age can determine how far an individual can progress early on. The framework acknowledges education to affect an individual in two important ways. The first is through cognitive abilities and the second is health history (Solar & Irwin, 2010). Through the content learned and skillset developed, individuals are better equipped to interpret and apply the messages of health education

into their lives (Solar & Irwin, 2010). Health history speaks to a child's experience with illness or health condition, resulting in an inability to attend school, which, also influences their health as an adult.

Education connects to socioeconomic status through the opportunities educational attainment presents through occupation and income (Solar & Irwin, 2010). This measure, similar to wealth or income, has its advantages and disadvantages. Attainment in years or academic level does not translate to quality of education. For instance, nations that experience high levels of poverty and low economic development are more likely to have issues with education quality (Gooding, 2001). Also, there is little knowledge surrounding the personal experience of education a student receives (Solar & Irwin, 2010). For example, personal life hardships can influence student comprehension of academic material therefore complicating the benefits and the related privileges of education.

As mentioned the framework states income and education are understood to be outcomes of social stratification but gender and social class are understood to be structural determinants of health (Solar & Irwin, 2010). The framework recognizes gender as a social construct that shapes behavior and relationships through cultural norms and societal values (Neculaesei, 2015). Solar and Irwin (2010) state, that in many societies, gender is used as a foundation for discriminative conduct as it affords specific groups more or less privilege in everyday life. Women are found to experience negative health consequences at rates disproportionate to men as a result of gender discrimination. This discrimination drastically influences the educational and employment opportunities for girls and women on a global scale. In addition, women are more likely to work in hazardous, high risk environments often engaging the most in "lower professional ranks", exposing them to even greater health risks (Solar & Irwin, 2010, p. 34).

Social class is an interesting concept to explore as it is related to all of the factors recently discussed. Within the framework social class as being a predominant predictor of health and that it provides context into, and between, the various systems in life ranging from

personal to political (Manstead, 2018; Solar & Irwin, 2010). There is also specific mention of how class issues are often “perceived as legitimate while gender... inequalities are not” (Solar & Irwin, 2010, p. 33). This study does not focus on social class directly but acknowledges the potential prioritization of class related issues above gender issues as an additional form of discrimination.

2.2 Linking Sexual Behaviors and Socioeconomic Status

Johnson et al. (2006) explore social determinants through sexual health and sexual behavior in Marmot and Wilkinson’s book *Social Determinants of Health*. In the chapter, they state “The sexual health of a population results from the complex interplay of demographic, social, medical, legislative, health service, and public health interventions” (Johnson et al., 2006, p. 331). Further, they include that biomedicine, while of significant importance, is only one approach to improving sexual health and that socioeconomic status needs to also be considered (Johnson et al., 2006). Johnson et al. (2006) illustrate that socioeconomic hardships can force women into risky sexual behavior through a variety of ways some of which will be explained below.

Economic stability heavily influences a nation’s likelihood to prioritize and provide health and social services, which impact sexual behavior and knowledge. Women are particularly impacted as they are disproportionately exposed to negative health outcomes (Chersich & Rees, 2008; Reid, Malow & Rosenberg, 2012). Johnson et al. (2006) states economic hardships, for example poverty, can influence the level of concern for HIV and that financial burdens encourage sex work. Social norms influence the economic opportunities of women and, in societies with high gender inequity simultaneously, increase sexual risk (Johnson et al., 2006). While the consequences are higher among women, men are not exempt. Sexual health risks have consequences and death is among them, influencing mortality rates among adolescents, young adults, and the “economically productive age groups” which has economic consequences for the future (Buvé et al., 2002, p. 2006). Socioeconomics influence sexual health and the inequity has the ability to amplify the sexual health risk within societies leaving the most marginalized populations vulnerable.

3. LITERATURE REVIEW

This study utilized Google Scholar and the search engine Oria utilizing, primarily, reports and peer-reviewed journal articles. The information below represents the data that was related to the key themes of this research. This review attempts to illustrate the relationships between socioeconomic factors and sexual behaviors related to Guyana and/or generalized in relationship to similar nations in respect to development.

3.1 Education and Birth Control

The data focusing on education and birth control use is, simultaneously, narrow and broad. When trying to research the impact of formal education on birth control use, sexual education tends to dominate, and narrow, the search engine results. In the same breath, the data, although not widespread, showcases research interacting with different cultural and societal norms that influence sexual decisions. This study is interested in general education knowledge as it relates to birth control, as it is more common and consistent globally than sexual health education (Mackay, 2001; Bearinger, Sieving, Ferguson, & Sharma, 2007). Different cultures engage in sexual experience in ways that vary vastly including cultural, economic, political, and interpersonal (Mackay, 2001) therefore the societal impacts, of said factors, are varied as well.

While limited, there are studies that address the relationship of education influencing birth control use. The literature that will be used, has defined contraceptives as a variety of actions that attempt to avoid unintended pregnancy; birth control included (Dias, De Oliveira & Zhang, 2015; Crissman, Adanu & Harlow, 2012). The term birth control and contraceptives will be used interchangeably moving forward. Dias et. al (2015) found that as women's education increased so did their use of modern contraceptives in Mozambique: 6.1% of women with no education, 12.7% of women with primary education, and 34.1% of women with secondary or higher education (Dias et al., 2015). Crissman, Adanu and Harlow (2012) analyzed sexual empowerment and contraceptive use in Ghana among women who were not pregnant or had no desire to conceive. These authors state that 16.4% of women with no education used contraceptives while 35.5% of

the women who had obtained some education used contraceptives (Crissman et al., 2012). While it may seem that the more education a woman has the more likely she is to utilize birth control, this relationship is not always true.

In their study centered on socioeconomic inequalities in newly independent states, Janevia, Sarah, Leyla & Elizabeth (2012) found that women in Central Asia had different responses in contraception use. In three nations, women of the poorest communities were less likely to utilize modern contraceptives but in Kyrgyzstan the women of the same socioeconomic class were more likely to use modern contraceptives. Generally speaking, although some studies do not find clear correlations, the research does tend to find education positively associated with contraceptive use. Bentley, Kavanagh, and Smith (2009) studied how area disadvantage, socioeconomic status and women's contraceptive use were related in the United Kingdom. These authors found that the likeliness of contraceptive use was higher among women with higher education levels; the women with lower levels of formal education were less likely to use contraceptives (Bentley et al., 2009).

Education as an influence to sexual behavior has been researched in a variety of ways. Whether regarding general education or sexual health education, correlations have been tested to understand how knowledge acquisition influences individuals when making sex-related decisions. Jung, Arya & Viswanath (2013) shares that education is strongly associated with knowledge and behavior and also mentions that knowledge is a significant factor in influencing health behavior. The role of increased social capital, as a result of education has positive impacts on healthy sexual behavior. Zanin, Radice & Marra (2014) found that education directly impacts individuals because it “stimulates new ideas, enhances individual talents, and improves social capital, job opportunities, healthcare and knowledge, and the ability to make informed decisions” (p. 361). Exavery et al. (2012) attributes the positive relationship of education and contraceptive use to be a result of the social capital it provides to women, as it enhances their agency through esteem, confidence, and freedom in relationship to their intimate and biological dispositions. All of these factors potentially influencing positive associations between

education and healthier sexual decisions. The combination of varied data results and the lack of information regarding the relationship between education attainment and birth control usage in Guyana encourage this research.

3.2 Education and Multiple Partners

Quite similarly to the relationship between birth control and education, the data concerning multiple partnerships and education is limited (Kenyon, Boule, Badri, Asselman, 2010). The data available tends to focus on quantifying the rates of concurrency differences among genders (Warren et al., 2015; Sawers & Stillwaggon, 2010; O’Sullivan, Hoffman, Harrison & Dolezal, 2006; Lenoir, Adler, Borzekowski, Tschann & Ellen, 2006). Based on the research conducted for this study, the data provides insufficient research exploring academic attainment as an influencing measure for concurrency on a global scale and unavailable within Guyana. While scarce, a few studies shed light on this complex relationship.

As mentioned earlier, the risk in engaging in multiple partnerships, or concurrency, predominantly lies in the heightened opportunity for STD/STI transmission among a sexual network (White, 2013 & Exavery et al., 2011). Adimora et al. (2002) studied concurrency among all races of women in the United States. Adimora et al. (2002) found that among the race groups, African American women had the highest numbers across all education categories and, also, had the highest levels concurrency. These findings contrasting the claim that the more education an individual has the better sexual health decisions they will make (Dias et al., 2015; Adebowale, Gbadebo, & Afolabi, 2016; Pascoe et al., 2015). Kenyon et al. (2010) states that the relationship between education and concurrency was not clear during their multivariate analysis of young South Africans, resulting in negligible support for a positive relationship between education and concurrency. Lastly, Son et al. (2011) finds that there was a weak relationship among education and concurrency while studying early sexual debut and concurrency among Vietnamese women.

Adimora and Schoenbach (2013) share that sexual partners are typically of similar social backgrounds within their social networks as people generally interact with others in close proximity or with similar demographics. This could potentially explain higher or lower concurrency rates among specific social groups. For example, this could translate to individuals of a similar educational background or neighborhood of a particular income class. Adimora & Schoenbach (2005) state that social attributes influence sexual networks and community norms can influence the rates and risks of exposure.

3.3 Wealth and Birth Control

The relationship between wealth and contraception has studied for decades. This relationship is widely understood to be positively correlated – as an individual’s wealth increases so does the likelihood of their contraceptive use (Dias et al., 2015; Chauhan & Nagarajan, 2019; Gonzalez, Houweling, Marmot & Brunner, 2010). Dias et al. (2015) found, while studying the effects of wealth and contraceptive use among women in Mozambique, that levels of education and wealth “...revealed the most substantial differences in contraceptive prevalence” (p. 6). While they found that the wealth positively influenced contraception use, in contrast Dias et al. (2015) also found that employed women had a lower contraception use rate than women who were not employed. Chauhan and Nagarajan (2019) studied contraception use among women with at least one child in northern India and found similar results to Dias et al. (2015). Household wealth was found to be a significant variable impacting contraception use and the authors attribute this finding to poorer households being unable to meet their basic needs while wealthier families are able allocate more funds to health costs (Chauhan & Nagarajan, 2019). Lastly, Gonzalez, Houweling, Marmot, and Brunner (2010) found that, among women in Colombia, the percentages of women who stated they did not use contraceptives decreased as the wealth quintiles increased.

3.4 Wealth and Multiple Partners

Greif, Dodoo and Jayaraman (2011) analyzed urbanization, poverty, and sexual behavior in five African cities. These authors found that individuals, who resided in urban areas with high levels of poverty, were more likely to engage in sexual concurrency than

individuals who did not reside in slums (Greif, Doodoo and Jayaraman, 2011). Greif et al. (2011) attribute this the lack of wealth, as a result of unemployment and low wages, to influence a range of risky sexual behaviors one of them including sexual concurrency. While studying the dynamics of land ownership and HIV infection in Kenya, Muchomba, et al. (2014) found that the greater the household wealth was associated with higher number of sexual partners. Muchomba et al. (2014) findings contrast the findings of Greif et al. (2011).

The data on women, wealth and sexual concurrency remains scarce (Shelton, 2009; Van Wagoner, Harbison, Drewry, Turnipseed & Hook, 2011), a range of studies examine the relationship between poverty and wealth inequality as an influence to risky sexual behaviors. Kenyon et al. (2010) state that many studies have found that poor women are encouraged by their circumstances to engage in concurrency to acquire resources to meet their basic needs. The findings of Pascoe et al. (2015) support this claim. Pascoe et al. (2015) examined poverty and sexual behavior among rural women in Zimbabwe found that poorer women were more likely to report engaging in sexual concurrency and engaging in sexual activities for resource gain.

While it may seem appropriate to assume the increase of wealth may positively increase an individual's health, the complexity of the world urges a more critical analysis. There is a notable amount of data available, exploring the relationship between wealth and sexual behavior, predominantly focusing on poor women (Kenyon et al., 2010; Pascoe, et al., 2015; Greif et al., 2011). The research conducted for this literature review found limited studies showcasing the differences, or similarities, among different wealth quintiles and sexual concurrency.

3.5 Demographic Characteristics

3.5.1 Age

When discussing sexual behavior, age is one of the most significant factors in relationship to fertility (George & Kamath, 2010), contraceptive use (Dias et al., 2015),

and developing sexual behaviors (Zhao et al., 2017). Birth control is designed specifically for medically delaying pregnancy among women (Zorea, 2012). Childbearing age abilities can range anywhere from 12 years of age, and in some cases even lower, to around 51 years of age (Exavery et al., 2012). Dias et al. (2015) found in Mozambique, that contraception use was higher among ages 20-39 while those aged 15-19 and 40-49 were the lowest due to young age and infertility. The low contraception rates among 15-19 is concerning especially considering that individuals within this age range are still sexually active. Zhao et al. (2017) found that in the US, adolescents between 12-19 years of age had higher pregnancy rates than adolescents in other nations, irrelevant of development status. Zhao et al. (2017) also found that individuals within the age range of 15-24 years of age explain 25.7% of new HIV infections (CDC, 2013, as cited in Zhao et al. 2017). Exavery et al. (2012) supports this claim and states that almost half of the new infections, globally, occur within the age group 15-24.

3.5.2 Relationship Status

Relationship status is one aspect that has been studied to better understand the role it plays in sexual health and sexual behaviors. Even so, it is important to understand that depending on the norms of the society in question, the definition of relationships and fidelity can range drastically (Figueroa, 2014). Throughout history, faithful monogamous relationships have been understood to lessen the risk of negative sexual risks due to limited sexual partners (Adimora et al., 2002). For societies that engage in altered forms of monogamy, this may not suffice as a realistic sexual health option. Figueroa (2014) found that within Caribbean culture, relationships are common where woman engage with one man as their predominant partner without condoms, but exercise trust and believe that he will engage with other partners safely (with condoms). Hubbard (2009) found that abstinence and fidelity as a healthy sexual practice does not address sexual drive and, are therefore, insufficient in combating negative consequences. Sexual drive or pleasure has been found to be one explanation for not engaging in faithful monogamous relationships (Campos, Benoit & Dunlap, 2016).

There have been some studies conducted on the impact of relationship status on risky sexual behavior. Dias et al. (2015) found in their study, conducted in Mozambique, that women's marital status did not influence contraceptive use but that the prevalence rates among women cohabitating with their partners were higher. Adimora et al. (2002) found that populations of color in the U.S. have higher rates of concurrency and attribute this to lower marriage rates within their communities. Adimora et al. (2002) also claim that lower marriage rates could explain the higher prevalence rates of STI/STD rates within communities of color.

3.5.3 Residence Type

Lastly, residence type has been understood to be a factor in influencing specific sexual behaviors, both directly and indirectly. Characteristics of note include distance to health care facilities, access to usage of facilities/resources, and wealth distribution (Dias et al., 2015). While studying gender, power, and reproduction, Nii-Amoo and Tempenis (2002) state that due to more opportunities in education, careers, and financial gain, urban areas are able to provide women more social capital in decision-making. These authors also found that in rural areas fertility rates were higher and as a result of traditional influence being greater, women have less power in sexual and/or reproductive decisions (Nii-Amoo & Tempenis, 2002). Although rural areas may experience specific issues of access, urban areas are not immune. Adebawale et al. (2016) found that nation's experiencing low economic development and poverty, like Nigeria, are limited in the ways they are able to provide to the urban and slum areas of their cities as well. More research is required to understand the impacts of residence type on sexual behaviors.

Moving Forward

The existing literature creates a great foundation for sexual health research development. The gaps in the literature, present opportunities for future research to be conducted and make space for studies, such as this thesis, to contribute to the field of sexual health research. Gaining better understandings of sexual health behaviors and the factors that influence sexual health consequences aligns with the efforts of health promotion and development by understanding the barriers that limit the agency of individuals.

4. RESEARCH QUESTIONS

The main focus of this study is to explore the relationship between specific socioeconomic factors and risky sexual behaviors. More specifically, the aim is to understand the predictive abilities of education and wealth on birth control usage and engaging with multiple sexual partners. The existing research available focusing on Guyanese women and the aspects that influence their health encouraging or health declining behaviors is limited. The goal of this study is to provide more insight into these relationships, and predictive abilities, that could potentially influence healthier sexual behavior among Guyanese women.

The research questions this study focuses on are:

1. To what extent does education level predict the likelihood of birth control use and engaging with multiple sexual partners among Guyanese women?
 - a. When controlling for age, residence type, and relationship status – how does the predictions of likelihood change?

2. To what extent does household wealth predict the likelihood of birth control use and engaging with multiple sexual partners among Guyanese women?
 - a. When controlling for age, residence type, and relationship status – how does the predictions of likelihood change?

5. METHODS

5.1 Epistemology

Epistemology is the “nature of knowledge” (O’Gorman & MacIntosh, 2017, p. 1) or, as Neumann (2011) describes, “...how we know the world around us...” (p. 93). The epistemological approach of this research is post positivism. Post-positivism as an epistemological approach was birthed through the limitations of positivism (Zammito, 2004). Positivism often criticized for considering claims of knowledge as pure or absolute truths. Post-positivism takes the stance that, when studying human behavior and human life, pure truths are not possible (Creswell, 2014). While sharing the same deterministic framework as positivism, post-positivism is centered on understanding causes of phenomenon as they relate to outcomes (Creswell, 2014; Neumann, 2011).

The diversity and multifaceted nature of human behavior and experience exist outside of overgeneralizations of absolute truths. Context enriches social science and is regarded in post-positivism as the possibility of subjectivity (Neumann, 2011). The post-positivistic epistemological approach is suitable for this study because this research is concerned with assessing the socioeconomic influences on human behavior and creates space for contextual considerations (Creswell, 2014).

5.2 Data

This study utilized secondary data from The Demographic and Health Survey (DHS) conducted in Guyana for the year 2009. The 2009 survey was the most recent DHS survey for Guyana; if a more recent survey were conducted it would have been utilized in this study. Within the 2009 Guyana survey, there are three questionnaires: the Household Questionnaire, the Women’s Questionnaire and the Men’s Questionnaire (Ministry of Health: Guyana, 2010). Regarding the participants, the DHS Guyana Report states that all of the eligible individuals surveyed were, either, permanent residents or visitors within the households prior to the night that interviews were conducted (Ministry of Health: Guyana, 2010)

The data collection process was conducted for the duration of 5 months (Ministry of Health: Guyana, 2010). The DHS survey utilized a two-stage sample design (Ministry of Health: Guyana, 2010). The first stage consisted of selecting enumeration districts from the master sample, derived from the 2002 Population and Housing Census (Ministry of Health: Guyana, 2010). The second stage consisted of narrowing the sample group down by systematic random sampling from the households within each of the enumeration areas (Ministry of Health: Guyana, 2010). Data processing commenced directly after the data was collected over a 5 month long period (Ministry of Health: Guyana, 2010).

5.3 Study sample

This study utilized the data from the Women’s Questionnaire, which gathered data from Guyanese women from 15 to 49 years of age (Ministry of Health: Guyana, 2010). The questionnaire surveyed participants about various health themes. The relevant themes that will support this study include information regarding education, household wealth, marriage, sexual activity, and contraception use (Ministry of Health: Guyana, 2010). Out of the 5,547 women who were identified and considered eligible to participate in the survey, 4,996 women were interviewed (Ministry of Health: Guyana, 2010).

5.4 Measures

Dependent Variables

The dependent variables of the study are risky sexual behaviors. This includes whether participants are using birth control and the number of partners they are engaging with. The variable of birth control usage was recoded from the variable titled “Pattern of use” where responses were measured through four levels; 1: Currently using, 2: Used since last birth, 3: Used before last birth, and 4: Never used. The purpose of this variable was to represent whether participants were using or not using birth control. The original measures were recoded to reflect this purpose. Response levels 1 and 2 were coded into “using” and responses levels 3 and 4 were coded into “not using”. The variable measuring number of partners was recoded from the variable “No. of partners other than

husband”. The responses were recoded and any response above “1” represented multiple partners and responses of “0” represented no other partners.

Independent Variables

The independent variables used in this study were the socioeconomic characteristics of the participants. This includes education and wealth, both categorical, within the dataset. Within the survey, the education variable was measured at four levels; 0: No education, 1: Primary, 2: Secondary, and 3: Higher. The category no education had a frequency value of 1.6% and, therefore, was collapsed into the primary education category leaving the education variable with only three categories; primary, secondary, and higher.

Primary education represents six years of schooling beginning at the age of six (Ministry of Health: Guyana, 2010). After completing primary school and passing the Secondary School Entrance Exam, students are able to choose three options for continuing education (Ministry of Health: Guyana, 2010). Those three options include general secondary school, multilateral school, and community high school (Ministry of Health: Guyana, 2010). General secondary school includes Forms I – VI, with year VI equating to the American senior year of high school (Ministry of Health: Guyana, 2010). Multilateral school, quite similar to general secondary, includes Forms I – VI but allows for students to specialize in specific subjects in the later years (Ministry of Health: Guyana, 2010). Lastly, community high school provides students, aged 12 and above, the opportunity train within work environments (Ministry of Health: Guyana, 2010). Higher education represents participation within trade school or university after receiving secondary education (Ministry of Health: Guyana, 2010).

The DHS wealth index is used regularly as a tool to examine economic status as an influence or dictator of health (Rutstein, 2008). The wealth variable in the DHS is based on the wealth index where it is assumed that measures can be made to respectively represent economic status (Ministry of Health: Guyana, 2010). The wealth variable is measured at five levels representing the different wealth quintiles; 1: Poorest, 2: Poorer, 3: Middle, 4: Richer, 5: Richest. The wealth quintiles of the wealth index are determined

by household ownership of specific assets, materials, and access to particular resources (Ministry of Health: Guyana, 2010). Items measured to determine wealth included household items, such as televisions or refrigerators, as well as access to resources such as water sources or sanitation (Ministry of Health: Guyana, 2010). These assets, materials, and resources are weighted or scored and these values are used to organize participants within the quintiles that represent their wealth status based on the comprehensive sample. Aiming to represent all economic levels, the DHS study has approximately 20 percent of the population in each quintile (Croft, Aileen & Courtney, 2018). The even, or uneven, distribution of households may vary by geographic area resulting in varying percentages among different quintiles (Croft et al., 2018).

Control Variables

The control variables include age, residence type, and relationship status. The age variable was split into seven categories; 1: 15 – 19, 2: 20 – 24, 3: 25 – 29, 4: 30 – 34, 5: 35 – 39, 6: 40 – 44, and 7: 45 – 49 (Ministry of Health: Guyana, 2010). This study wanted to present age within a simpler spectrum reflecting categories of young, middle, and older, therefore the original age categories were collapsed into three new age categories. The new categories reflecting the age groups include 1: 15 – 24, 2: 25 – 39, and 3: 40 – 49. The residence type variable was measured through two categories: rural or urban. Lastly, relationship status was measured through the variable “current marital status” which was comprised of five categories; 1: Never married, 2: Married, 3: Living together, 4: Divorced/Separated, and 5: Widowed (Ministry of Health: Guyana, 2010). The purpose of this variable within this study was to represent whether individuals were in relationships or not. These categories were recoded so categories 2 and 3 represented “in a relationship” and categories 1, 4, and 5 represented “not in a relationship”.

5.5 Statistical Analyses

The program used to conduct the statistical tests for this study was IBM SPSS Version 25. The tests run within this program include frequency descriptives, chi-square tests for independence, and binary logistic regression. Prior to these tests being run the data set

was screened for errors. The variables utilized for this study were checked to ensure participant's responses fit into the appropriate ranges of measured values.

5.5.1 Descriptive Analyses

Once the data was assessed, descriptive statistic analyses were conducted. Frequencies analyses were performed on every variable to gain a more detailed overview of the distribution of participants within each variable category. To conduct frequencies the “weight on” setting was used and then turned off for further statistical tests. This was because data files are adjusted to account for differences in size within subgroups or areas, essentially leveling out the data set for balanced representation within categories (DHS, n.d. (c)). Turning on the weight setting, adjusts the data file to the original quantities for proper representation (DHS, n.d. (c)).

Once frequencies were conducted, variables with too low of membership were collapsed into similar categories. For example, the variable education, as mentioned earlier, was originally split into four categories; 0: no education, 1: primary, 2: secondary, and 3: higher. Membership in the no education category was 1.6% and was collapsed into the primary education category for a more balanced representation.

5.5.2 Bivariate Analyses

To explore the relationships between the variables, bivariate analyses were conducted using chi-square test for independence. This test specifically tests relationships between categorical variables (Pallant, 2016). All of the independent and control variables were tested in relationship to the dependent variables.

1. Birth control in relationship with education, wealth, age, residence type, and relationship status.
2. Number of partners in relationship with education, wealth, age, residence type, and relationship status.

Field (2013) describes this test to compare the frequencies within the categories to the frequencies expected, within those categories, by chance.

5.5.3 Logistic Regression Analyses

Binary logistic regression was the most appropriate test for the variables utilized. All of the variables were categorical and the dependent variables, specifically, were dichotomous (Pallant, 2016). Binary logistic regression tests for the predicted outcomes of the categorical variables (Pallant, 2016). The regression will test for the predicted abilities of how wealth and education predict the outcomes of birth control use and the number of partners that participants engage with. Within this same test, the subsequent model will include the control variables to see how the model changes or improves. Probabilities, significance, odds ratios, and variance within the models are the values being sought through this regression.

5.6 Ethics

There were three significant themes within the ethical considerations of the DHS data utilized in this study. The first theme was the approval of the International Classification of Functioning (ICF) Institutional Review Board (IRB) of the methods and surveys used to establish compliance of the protocols ensuring protection of participants on general and local levels (DHS, n.d. (a)). Neither the Guyana DHS report, nor the DHS website, explicitly stated the ICF's approval over the results of the Guyana report but the ICF participated within the process. The questionnaires were based on programs of the ICF and ICF staff specially trained the personnel responsible for data processing.

The second theme was the consent that is acquired prior to engagement informing participants of the topics including, but not limited to, the aim, length, risks and benefits of the study as well as the contact information for further inquiries (DHS, n.d. (a)). Prior to conducting any data acquisition, DHS staff members read consent statements, emphasizing voluntary participation, to the respondents who are then able to accept or decline to participate (DHS, n.d. (a)). The third theme included the confidentiality of the

participant's information and communication as their responses contain personal information regarding their personal and family lives (DHS, n.d. (a)). DHS states that data acquisition is conducted as privately as possible (DHS, n.d. (a)). For example, when married couples are interviewed; participants are not interviewed with other participants present (DHS, n.d. (a)). The data retrieved is only shared between team members, which is also limited to include necessary aspects for communication (DHS, n.d. (a)).

5.7 Quality

Data Training and Processing

Staff members, that participated in the DHS data acquisition and processing, went through various training processes (Ministry of Health: Guyana, 2010). The Guyana DHS report states staff members that participated in fieldwork received training on the main survey for almost a year (Ministry of Health: Guyana, 2010). During this time, members received skills in interviewing procedures and became familiar with the questionnaires through presentations, practice interview, and assessments with the questionnaires used (Ministry of Health: Guyana, 2010). Following this initial training, another training course was provided to staff members due to fieldwork being delayed (Ministry of Health: Guyana, 2010).

As mentioned above, ICF participation was consistent throughout the survey process through participating in “the survey, assisting with questionnaire design, training for data collection, data processing and tabulation, field supervision of interviews...” (Ministry of Health: Guyana, 2010, p. 3). The data collection process was conducted for five months in 2009 (Ministry of Health: Guyana, 2010). The ICF trained staff processed the data as it was received from the Bureau of Statistics (BOS) (Ministry of Health: Guyana, 2010). CSPro, a program developed to process complex surveys, was used to process the data collected from fieldwork (Ministry of Health: Guyana, 2010).

Data Screening

The data screening process conducted by DHS was thorough. The data was screened at various points throughout the survey process. Screening processes included, but were not

limited to, before conducting the questionnaire, directly after conducting the questionnaire, after data entry, and once more when data entry is conducted for the second time (DHS, n.d. (b)). The repetition of data entry was conducted to ensure accuracy; all data was entered twice and then compared to seek inconsistencies that required rectifying (DHS, n.d. (b)). DHS (n.d. (b)) generally mentions how within their complex and comprehensive surveys, it is difficult to fully avoid contradictions in participant responses.

Missing Data

DHS makes specific mention about how developing nations are susceptible to incomplete or impartial reporting and the implications of inconsistent data on the analysis process (DHS, n.d. (b)). DHS does not make specific mention of how they address this issue but make mention of how there are policies for editing and imputation to ensure the data file is an accurate representation of the population in question (DHS, n.d. (b)). Missing variables, variables with no response or incomplete responses, are assigned missing values within the data set (DHS, n.d. (c)). DHS states that there are particular procedures and rules for how to deal with missing values and that these values are handled accordingly (DHS, n.d. (c)). The issue of missing data is not significant within the Guyana DHS survey.

6. RESULTS

6.1 Introduction

This chapter includes the results of the statistical tests conducted to answer how well socioeconomic factors predict risky sexual behaviors and how those predictive abilities change or improve when controlling for specific variables. To begin, the results from the descriptive analysis are presented for all dependent, independent, and control variables including the frequencies and percentages. Following the descriptive analysis, the bivariate analysis results utilizing chi square tests for independence are presented between dependent, independent, and control variables. Lastly, the results from the binary logistic regression, from two groups, are presented with each group representing analyses for each of the independent variables. The following results are being reported and presented as recommended by Pallant (2016) and Field (2013).

6.2 Statistical Analyses

6.2.1 Univariate analysis

To assure for the quality of the data file, descriptive analyses were run on the dependent variables. For birth control, the original mean (.58) and trimmed mean (.59) were very similar, meaning the mean values when the top and bottom 5% are removed the means are not drastically different (Pallant, 2016). The Kolmogorov-Smirnov statistic for birth control (.000) was significant which indicates that the assumption of normality has been violated; Pallant (2016) states that this is common amongst large data samples. The Q-Q plots for birth control were normally distributed and the point on the graph was near the zero-line (Pallant, 2016). Number of partners, similar to birth control, received an original mean (.17) and trimmed mean (.13) that were similar. The Kolmogorov-Smirnov statistic for number of partners (.000) was also significant. The Q-Q plots for numbers of partners were normally distributed and the points within the detrended plot were near the zero-line. Preliminary descriptive analyses were run on all of the study variables. Frequencies were conducted with weighted cases (n = 4996).

TABLE 1

Frequencies and corresponding percentages representing birth control use in Guyanese women aged 15 – 49 years (n= 4996) (Guyana Demographic and Health Survey, 2009).

Birth Control Use	Frequency	Percentage
Using Birth Control	2137	42.8 %
Not Using Birth Control	2859	57.2 %
Total	4996	100 %

TABLE 2

Frequencies and corresponding percentages representing whether Guyanese women, aged 15-49, had sexual partners other than their husbands (n= 4996) (Guyana Demographic and Health Survey, 2009).

Number of Sexual Partners	Frequency	Percentage
One Partner (Husband)	4044	80.9 %
Multiple Partners	844	16.9 %
Missing	108	2.2 %
Total	4996	97.8 %

Dependent Variables

The category of not using birth control had the most cases with 2859 (57.2%) leaving the participants using birth control to comprise 2,137 (42.8%) of the sample. Reference Table 1 for birth control descriptive analyses results. Regarding the number of partners that participants engaged with, 844 (16.9%) engaged with multiple partners while 4,044 (80.9%) stated they did not engage with anyone other than their husband. The variable measuring number of partners had 108 missing cases; total 4,888 cases were measured in the variable. Reference Table 1 and 2 for number of partners' descriptives analyses results.

Independent Variables

Of the participants, 1,019 (20.4%) obtained primary education, 3,568 (71.4%) obtained secondary education, and 409 (8.2%) obtained higher education. For wealth, the category

with the most cases was the richest wealth category accounting for 1,151 (23%) of participants while the poorest wealth category, accounting for the category with the least cases, comprised of 779 (15.6%) participants. The middle wealth category, acting as the median group, accounted for 1,025 (20.5%) participants. Reference Table 3 for independent variable descriptives analyses.

TABLE 3

Frequencies and corresponding percentages for education, household wealth, age, residence types, and the relationship status of Guyanese women aged 15-49 (n= 4996) (Guyana Demographic and Health Survey, 2009).

Variables		n	%
Education	Primary	1019	20.4 %
	Secondary	3568	71.4 %
	Higher	409	8.2 %
Household Wealth	Poorest	779	15.6 %
	Poorer	957	19.2 %
	Middle	1025	20.5 %
	Richer	1084	21.7 %
	Richest	1151	23.0 %
Age	15 – 24	1783	35.7 %
	25 – 39	2000	40.0 %
	40 – 49	1213	24.3 %
Relationship Status	In a relationship	3305	66.2 %
	Not in a relationship	1691	33.8 %
Residence Type	Urban	1475	29.5 %
	Rural	3521	70.5 %

Note. The data above reflects a weighted dataset.

Control Variables

The distribution of participants among the age groups are fairly balanced; 1,783 (35.7%) participants were aged 15-24, 2,000 (40.0%) participants were aged 25-39, and 1213 (24.3%) of participants were 40-49. The majority of participants were in a relationship, the category representing 3,305 (66.2%) participants. Residence type, similar to relationship status, was not balanced: urban residency representing 1,475 (29.5%) and rural 3,521 (70.5%). Reference Table 3 for control variable descriptives analyses.

6.2.2 Bivariate analyses

Chi-square tests for independence were conducted to determine the relationships between the independent and dependent variables, the independent and control variables, and the dependent and control variables. The bivariate, and logistic regression, analyses were run with unweighted data. In the Guide to DHS Statistics (Rutstein & Guillermo, 2006), it is included that it is not appropriate to use sample weights when estimating relationships, as estimated in chi-square tests for independence and binary logistic regression. The recent edition of this publication, published in 2018, states that it is no longer inappropriate to use sample weights (Croft, Aileen, Courtney et al. 2018), possibly due to recent developments. This study will follow the 2006 recommendation as the Guyana dataset was published in 2009, closer to the publication date of the original recommendation.

Dependent variables and independent variables

Birth control and number of partners were explored in relationship to, both, education and household wealth. Reference Table 4 for chi-test for independence results. None of the relationships violated any assumptions, meaning no cells had an expected count of less than 5 (Pallant, 2016). All of the relationships were statistically significant, meaning there are associations between each of the independent and dependent variables.

TABLE 4

Chi-square test of independence results for household wealth and education in relationship to birth control and number of partners of Guyanese women aged 15 – 49 years (n= 4996) (Guyana Demographic and Health Survey, 2009).

Variables	Birth Control				phi	Number of Partners				phi
	Using		Not Using			No other partners aside from husband		Multiple partners		
	n	%	n	%		n	%	n	%	
Education					.063***					.158***
Primary	465	22.3 %	658	22.6 %		1006	24.7 %	89	11 %	
Secondary	1421	68.3 %	2079	71.3 %		2820	69.2 %	600	74.4 %	
Higher	196	9.4 %	177	6.1 %		248	6.1 %	117	14.5 %	
Household Wealth					.106***					.081***
Poorest	414	19.9 %	840	28.8 %		1064	26.1 %	159	19.7 %	
Poorer	383	18.4 %	516	17.7 %		741	18.2 %	136	16.9 %	
Middle	413	20.8 %	523	17.9 %		767	18.8 %	150	18.6 %	
Richer	434	20.8 %	550	18.9 %		803	19.7 %	163	20.2 %	
Richest	438	21.0 %	485	16.6 %		699	17.2 %	198	24.6 %	

Note. $p < .001 = ***$

Birth Control in relationship to:

- Education: $\chi^2 = 19.835$
- Household Wealth: $\chi^2 = 56.398$
- All analyses 0 cells (0.0%) have expected count less than 5

Number of partners in relationship to:

- Education: $\chi^2 = 122.413$
- Household Wealth: $\chi^2 = 31.806$
- All analyses 0 cells (0.0%) have expected count less than 5

Birth control and Education

The values of participants using and not using birth control was similar within different education categories. Amongst participants who have obtained higher education, which is also the category with the lowest membership, the values for using birth control was 9.4% (n = 196) and not using was 6.1% (n = 177). The category with the highest membership belongs to the participants who have obtained secondary education. With participants who have obtained secondary education, the value for using birth control was 68.3% (n = 1,421) and not using was 71.3% (n = 2,079).

Birth control and Household Wealth

The category with the highest membership not using birth control is comprised of the poorest wealth quintile with the value of 28.8% (n = 840) and the lowest membership not using birth control is comprised of the richest wealth quintile of 16.6% (n = 485). The highest membership using birth control is comprised from the richest quintile with the value of 21% (n = 438) but the lowest membership of not using birth control comes from the poorer wealth quintile with 18.4% (n = 383).

Number of partners and Education

Secondary was the education level with the most cases. Participants who have obtained secondary education comprise the category with highest membership engaging with multiple partners with the value of 74.4% (n = 600). Of the participants only engaging with their husband, the category with the highest membership belonged to participants with secondary education as well with 69.2% (n = 2,820).

Number of partners and Household Wealth

Among participants who engaged with multiple partners, the number of cases within each wealth quintile was very low. With the category of having multiple partners, the highest number of cases is comprised by the richest wealth quintile with 24.6% (n = 198). Within the category of not engaging with anyone other than husband the highest membership is comprised from the poorest quintile with 26.1% (n = 1064).

Dependent variables and control variables

Birth Control and number of partners were explored in relationship to age, relationship status, and residence type. Reference Table 5 for chi-test for independence results. None of the relationships violated any assumptions. Just as the tests between the dependent and independent variables, all relationships were statistically significant. All of the relationships explored resulted in statistically significant associations between dependent and control variables.

TABLE 5

Chi-square test of independence results for birth control and number of partners in relationship to age, relationship status and residence type for Guyanese women aged 15 – 49 years (n= 4996) (Guyana Demographic and Health Survey, 2009).

	Birth Control Use				phi	Number of Partners				phi
	Using		Not Using			No other partners aside from husband		Multiple partners		
Variables	n	%	n	%		n	%	n	%	
Age					.170***					.143***
15 – 24	582	28 %	1209	41.5 %		1373	33.7 %	405	50.2 %	
25 – 39	1037	49.8 %	979	33.6 %		1654	40.6 %	298	37.0 %	
40 – 49	463	22.2 %	726	24.9 %		1047	25.7 %	103	12.8 %	
Relationship Status					.204***					.346***
In a relationship	1631	78.3 %	1715	58.9 %	(Continuity Correction)	3010	73.9 %	241	29.9 %	(Continuity Correction)
Not in a relationship	451	21.7 %	1199	41.1 %		1064	26.1 %	565	70.1 %	
Residence Type					.066***					-.131***
Urban	665	31.9 %	755	25.9 %	(Continuity Correction)	1049	25.7 %	336	41.7 %	(Continuity Correction)
Rural	1417	68.1 %	2159	74.1 %		3025	74.3 %	470	58.3 %	

Note. $p < .001 = ***$

Birth Control in relationship to:

- Age: $\chi^2 = 144.806$
- Relationship Status: $\chi^2 = 207.547$
- Residence Type: $\chi^2 = 21.416$
- All analyses 0 cells (0.0%) have expected count less than 5

Number of Partners in relationship to:

- Age: $\chi^2 = 100.442$
- Relationship Status: $\chi^2 = 583.347$
- Residence Type: $\chi^2 = 83.315$
- All analyses 0 cells (0.0%) have expected count less than 5

Birth control and Age

The age group 25 – 39 had the highest membership in the category of using birth control with 49.8% (n = 1037). With age groups 15 – 24 and 40 – 49, higher percentages were found in the category of not using birth control than using. 41.5% of participants 15 - 24 and 24.9% of participants 40-49 years of age were not using birth control.

Birth control and Relationship Status

The values for participants using birth control were higher amongst participants within relationships with 78.3% (n = 1631). For participants not using birth control, those in a relationship accounted for 58.9% (n = 1715) while those not in a relationship accounted for 41.1% (n = 1199). The Continuity Correction value was documented instead of the Pearson Chi-Square value because both variables only contained two categories.

Birth control and Residence Type

Birth control use, and nonuse, was higher within participants who resided rurally. Participants who resided rurally that were using birth control were 68.1% (n = 1,417) and those not using 74.1% (2,159). Majority of participants resided in rural areas (n = 3,576). Continuity Correction was documented instead of the Pearson Chi-Square because both variables only contained two categories.

Number of partners and Age

The age group 15-24 had the highest membership within the category of having multiple partners with 50.2% (n = 405). The group with the lowest membership within engaging with multiple partners was 40 – 49 with 12.8 % (n = 103). Age group 25 – 39 had the highest membership within engaging with no one other than husband with 40.6% (n = 1,654).

Number of partners and Relationship Status

Participants who were not in a relationship, accounted for 70.1% (n = 565) of those engaging with multiple partners. Participants in a relationship accounted for 29.9% of

those engaging with multiple partners. Continuity Correction was documented instead of the Pearson Chi-Square because both variables only contained two categories.

Number of partners and Residence Type

Participants residing rurally accounted for 58.3% (n = 470) of those engaging with multiple partners while participants residing in urban areas engaging with multiple partners accounted for 41.7% (n = 336). Continuity Correction was documented instead of the Pearson Chi-Square because both variables only contained two categories.

Independent Variables and Control Variables

Education and household wealth were explored in relationship to age, relationship status, and residence type. Reference Appendix A and Appendix B for tables of chi-test for independence results of independent and control variables. Just as the sections above state, none of the relationships explored within these particular variables violated any assumptions. While the majority of relationships were significant, one was not: the relationship between household wealth and age (p = .130). Reference tables in Appendix A and Appendix B for footnotes.

Education and Age

Within the age group of 15 – 24, secondary education was the level of education with the most cases with 42.1% (n = 1,474). The age group 25 – 39 account for 47.7% (n = 178) for the participants who have obtained higher education. Within the age group 40 – 49, primary education was the category with the most cases with 37.9% (n = 426).

Education and Relationship Status

The trend within education and relationship status observed was that with an increase in education there followed a decrease in values for being in a relationship. Participants who were in relationships and had obtained their primary education account for 86.7% (n = 974) and secondary education with 62.5% (n = 2,188) of participants. The opposite of this trend occurred with not being in a relationship. As the education level obtained increased, the percentage of participants not in a relationship increased.

Education and Residence Type

Of the participants who obtained their primary education, 86.5% (n = 971) were residing rurally and 13.5% (n = 152) were residing in urban areas. Secondary education was the education category with the most cases (n = 3500). Of those with secondary education, 69.8% (n = 2,442) resided rurally. Within those with who have obtained higher education, 56.3% (n = 210) account for those living in urban areas.

Household Wealth and Age

The relationship between wealth and age was the only relationship that was not statistically significant. Within the age group 15-24, the percentage of membership within the household wealth quintiles decrease as the household wealth quintiles increase.

Within the age group 15-24, the poorest quintile represents the highest membership with 38.4% (n = 481) while the richest quintile represents the lowest with 32.4% (299). The opposite relationship exists within the 40 – 49 age group; the membership increases the as the quintile increases. Within the 40 – 49 group, the poorest quintile represents the lowest membership with 22.2% (n = 279) while the richer quintile represents the highest membership with 25.6% (n = 252). The representation of participants within the 25 – 39 age group is distributed fairly evenly throughout the household wealth quintiles. Of the 25 – 39 age group the highest membership belongs to the richest quintile with 42.6% (n = 393).

Household Wealth and Relationship Status

The membership of participants within relationships decreases as the household wealth quintiles increase. Within those in a relationship the highest membership belongs to the poorest quintile with 75.9% (n = 952) and the richest quintile representing the lowest membership with 57.5% (n = 531). The opposite relationship exists with participants who are not in a relationship. The highest membership belongs to the richest quintile with 42.5% (n = 392) and the lowest membership belongs to the poorest quintile with 24.1% (n = 302).

Household Wealth and Residence Type

Within residence type, the number of participants who resided in urban areas increased as the wealth quintile increased. Participants who resided in urban areas, the poorest quintile had the lowest membership with 5.3% (n = 67) and the richest quintile had the highest membership with 56.4% (n = 521). The relationship amongst residence type and wealth quintile has the opposite pattern; the membership within rural residences decreases as the wealth quintile increases. Participants who resided rurally, the poorest quintile had the highest membership with 94.9% (n = 1,187) and the richest with the lowest membership with 43.6% (n = 402).

6.2.3 Binary Logistic Regression Analyses

Binary logistic regression was conducted to determine the predicted probability of the independent variables, wealth and education, in relationship to each of the dependent variables, birth control usage and number of partners. Two groups of binary logistic regression analyses were run, one group for each of the dependent variables. Each group involved two models, resulting in four models total. The first group was unadjusted for control variables and including independent variables and the second adjusted for control variables. Reference Table 6 and Table 7 for binary logistic results.

TABLE 6

Binary logistic regression of birth control with Model 1.0 (unadjusted for control variables) and Model 1.1 (adjusted for control variables). Guyanese women aged 15-49 (n = 4996) (Guyana Demographic and Health Survey, 2009).

	Model 1.0					Model 1.1				
	b (SE)	P value	Odds Ratio (OR)	95 CI for OR		b (SE)	P value	Odds Ratio (OR)	95 CI for OR	
Variables				Lower	Higher				Lower	Higher
Education – Primary is the reference group										
Secondary	.162 (.073)	.025*	1.176	1.020	1.356	-.005 (.077)	.953	.995	.856	1.158
Higher	-.207 (.127)	.103	.813	.634	1.042	-.447 (.135)	.001*	.640	.491	.834
Household Wealth – Poorest is the reference group										
Poorer	-.427 (0.91)	.000*	.652	.546	.780	-.434 (.094)	.000*	.648	.538	.779
Middle	-.491 (0.91)	.000*	.612	.512	.731	-.516 (.095)	.000*	.597	.496	.719
Richer	-.482 (.090)	.000*	.617	.517	.737	-.526 (.096)	.000*	.591	.490	.714
Richest	-.590 (.094)	.000*	.554	.461	.667	-.611 (.104)	.000*	.543	.443	.665
Constant	.616 (.074)	.000	1.852							
Age – 15 – 24 is the reference group										
25 – 39						-.317 (.077)	.000*	.728	.626	.847
40 – 49						.255 (.090)	.012*	1.253	1.051	1.493
Residence Type – Urban is the reference group										
Rural						.266 (.072)	.000*	1.305	1.132	1.504
Relationship Status – In a relationship is the reference group										
Not in a relationship						1.031 (.078)	.000*	2.804	2.406	3.267
Constant						.340 (.123)	.000*	1.405		

Note. Birth Control (0 = Using Birth Control, 1= Not Using Birth Control)

- a. Model 1.0: p = .000,
- b. Model 1.0: 1.4 % (Cox and Snell R square) to 1.9% (Nagelkerke R square)
- c. Model 1.1: p = .000
- d. Model 1.1: 7.6 % (Cox and Snell R square) to 10.3% (Nagelkerke R square)

Birth Control

In Model 1.0, the education and household wealth variables were included with birth control usage as dependent variable. The model correctly classified 58.3% of the cases. This classification represents the assumption the model has made on how many participants would not use birth control without any independent variables in the model. The model, including the predictor variables, was statistically significant, $\chi^2 (6, n = 4,996) = 71.724, p = .000$ representing support for the model and that the model was able to determine who did and did not use birth control. The model explained between 1.4% (Cox and Snell R square) and 1.9% (Nagelkerke R square) of the variance in birth control usage, and correctly classified 58.8% of the cases; only a .05% increase from the preliminary classification.

Results from Model 1.0 showed education and household wealth were significantly associated with birth control usage. The variable categories that were significant include secondary education, and of the household wealth quintiles: poorer, middle, richer, and richest. Secondary education was the strongest predictor of participants reporting not using birth control with an odds ratio of 1.176 representing a positive relationship. Meaning that participants who obtained their secondary education were 1.176 times more likely than those with primary education to not use birth control. The confidence interval of Model 1.0 was 1.176, meaning we can be 95% sure that the value lies between 1.020 – 1.356. In the poorer household wealth quintile, the odds ratio was .652, indicating that participants within this quintile were .652 times less likely than the participants within the poorest quintile to not use birth control, representing a negative relationship. Within the household wealth quintile richest, the odds ratio was .554 indicating the participants within this quintile were .554 times less likely than the participants within the poorest quintile to not use birth control, also representing a negative relationship.

In the second model (Model 1.1), the variables included were household wealth, education, birth control, and all of the control variables, which included age, relationship status, and residence type. The second model was statistically significant $\chi^2 (10, n = 4,996) = 396.515, p = .000$. SPSS correctly classified 62.2% of the cases, which is a 3.9%

increase from the preliminary classification without the predictor variables included. This classification value is an improvement from the model without the control variables. This model is statistically significant $\chi^2 (10, n = 4,996) = 396.515, p = .000$ representing support for the model. The model explained 7.6% (Cox and Snell R square) and 10.3% (Nagelkerke R square) of the variance in birth control usage.

Results from Model 1.1 showed that education and wealth were significantly associated with number of partners. From the control variables, age, relationship, and residence type were also significant. The variable categories that were significant included higher education, and of the household wealth quintiles: poorer, middle, richer, and richest, the age group 25-39, age group 40-49, not being in a relationship, and urban residence. Secondary education was the only variable category that was not significant. The variable categories that were the strongest predictors included not being in a relationship, urban residence, and the age group 40-49. Participants who were not in a relationship were predicted to be 2.804 times more likely than those in a relationship to not use birth control, representing a positive relationship. Participants who were resided in urban areas were predicted to be 1.305 times more likely than those residing rurally to not use birth control, representing a positive relationship. Participants within the age group of 40-49 were 1.253 times more likely to not use birth control than participants within the age group of 15-24, representing a positive relationship as well. The other significant variables had odds ratios with values less than 1, representing negative relationships.

TABLE 7

Binary logistic regression of number of partners with Model 2.0 (unadjusted for control variables) and Model 2.1 (adjusted for control variables). Guyanese women aged 15-49 (n = 4996) (Guyana Demographic and Health Survey, 2009).

Variables	Model 2.0					Model 2.1				
	b (SE)	P value	Odds Ratio (OR)	95 CI for OR		b (SE)	P value	Odds Ratio (OR)	95 CI for OR	
				Lower	Higher				Lower	Higher
Education – Primary is the reference category										
Secondary	.837 (.122)	.000*	2.310	1.819	2.934	.357 (.133)	.007*	1.429	1.101	1.854
Higher	1.568 (.166)	.000*	4.798	3.462	6.650	.896 (.182)	.000*	2.450	1.715	3.500
Household Wealth – Poorest is the reference category										
Poorer	.086 (.128)	.501	1.090	.848	1.401	-.048 (.137)	.727	.953	.729	1.246
Middle	.070 (.126)	.579	1.072	.838	1.373	-.150 (.137)	.273	.860	.658	1.126
Richer	.066 (.124)	.598	1.068	.837	1.362	-.288 (.138)	.037*	.750	.572	.983
Richest	.256 (.124)	.040*	1.291	1.012	1.648	-.205 (.144)	.156	.815	.614	1.081
Constant	-2.480 (.125)	.000	.084							
Age – 15 – 24 is the reference category										
25 – 39						.508 (.107)	.000*	1.662	1.348	2.049
40 – 49						-.111 (.136)	.413	.895	.686	1.168
Residence Type – Urban is the reference category										
Rural						-.456 (.096)	.000*	.634	.525	.765
Relationship Status – In a relationship is the reference category										
Not in a relationship						1.947 (.102)	.000*	7.008	5.735	8.565
Constant						-2.637 (.189)	.000*	.072		

Note. Number of Partners (0 = No other partners aside from husband, 1 = Multiple partners)

- Model 2.0: $p < .001$
- Model 2.0: 1.4 % (Cox and Snell R square) to 1.9% (Nagelkerke R square)
- Model 2.1: $p < .001$
- Model 2.1: 7.6 % (Cox and Snell R square) to 10.3% (Nagelkerke R square)

Number of Partners

Similar to the models of birth control, the first model (Model 2.0) included the variables number of partners and both of the independent variables, household wealth and education. The model correctly classified 83.5% of the cases. This classification represents the assumption that the model has made on how many participants would engage with multiple partners without any independent variables in the model. The model including the predictor variables was statistically significant $\chi^2 (6, n = 4,880) = 126.782$, $p = .000$ representing support for the model. The model explained 2.6% (Cox and Snell R square) to 4.3% (Nagelkerke R square) of the variance in number of partners and correctly classified 83.5% of the cases. There was no improvement from the model without any predictor variables compared with the model with the predictor variables.

Within this model only three variable categories were significant. Those variables categories include secondary education, higher education, and the richer wealth quintile. Of the significant variable categories, the strongest predictor was higher education and is followed by secondary education. Participants with higher education were 4.798 times more likely than participants with primary education to engage with multiple partners, representing a positive relationship. Participants with secondary education were 2.310 times more likely than participants with primary education to engage with multiple partners, representing a positive relationship. Lastly, participants within the richer wealth quintile were 1.291 times more likely than participants within the poorest wealth quintile to engage with multiple partners, also representing a positive relationship.

The second model (Model 2.1) was statistically significant $\chi^2 (10, n = 4,880) = 651.239$, $p = .000$. The model explained 12.5% (Cox and Snell R square) and 21.1% (Nagelkerke R square) of the variance in number of partners, and correctly classified 83.9% of the cases – only .05% increase from the model without predictor variables. Six variable categories were statistically significant when the predictor variables and control variables were included. Those variable categories were secondary education, higher education, richer wealth quintile, the age group 25-39, in a relationship, and urban residence. Participants who were not in a relationship were 7.008 times more likely than those in a

relationship to engage with multiple partners, representing a positive relationship. Participants with higher education were 2.450 times more likely than participants with primary education to engage with multiple partners, representing a positive relationship as well. Participants who resided in urban areas were .634 times less likely than those residing rurally to engage with multiple partners. Participants within the richer wealth quintile were .750 times less likely to engage with multiple partners than participants within the poorest quintile, representing a negative relationship.

7. DISCUSSION

7.1 Summary of results

The interest of the research questions sought to understand to what extent education influences risky sexual behavior among women in Guyana. The findings of this study's result are not in alignment with the existing literature and, generally, found that the higher the socioeconomic status of the women, the higher the engagement in risky sexual behavior. This discussion chapter will begin summarizing the results in relationship to the research questions. Following the summary of questions, potential explanations to the findings will be presented.

The following summary will now reflect the unadjusted logistic regression models. This study found that there was no conclusive statement that could be made about the general trend of education and birth control use. Higher education was the only significant education variable category. Women with higher education were .64 times less likely to not use birth control than women with primary education. When it came to engaging with multiple partners, both education levels were significant with odds ratios higher than 1, attributing association to the effects of education. As education increased the likelihood of engaging with multiple partners increased. The odds of engaging with multiple partners was almost doubled that of secondary (1.4), compared to higher (2.5) with primary education as the reference category. Regarding wealth and birth control, all of the wealth quintiles were significant. As wealth quintiles increased, the likelihood of women not using birth control decreased. The richer wealth quintile was the only significant wealth category in relationship to engaging with multiple partners. Women within the richer wealth category were .75 times less likely to engage with multiple partners than women in the poorest quintile.

When controlling for age, residence and relationship status higher education became the only significant education relationship with birth control. The odds also slightly decreased and the likelihood of not using birth control decreased as education increased. Wealth remained consistent when control variables were added. All wealth quintiles

remained statistically significant but the odds of not using birth control slightly decreased compared to the first model (Model 1.0). As the wealth quintiles increased, the likelihood of not using birth control decreased.

Education categories were still statistically significant when adding the control variables with engaging with multiple partners. As education categories increased, women were more likely to engage with multiple partners but when controlling for age, residence type, and relationship status the odds for engaging with multiple partners decreased. The odds for higher education almost double that of secondary in both models. Wealth completely transforms when control variables are added. In Model 2.0, the only significant wealth category is richest but in Model 2.1 the only significant wealth category is richer. In Model 2.0, richest is 1.29 times more likely to engage with multiple partners but in Model 2.1, richer is .75 times less likely to engage with multiple partners as compared to women in the poorest quintile. Relationship status produced the highest odds in both regression models. The odds of not using birth control while not being in a relationship was 2.8 compared to women who were in a relationship Model 1.1. The odds of engaging with multiple partners were 7.0 compared to women who were in a relationship in Model 2.1.

Lastly, there was a lot of unexplained variance within all four of the models ran in the logistic regressions. Both of the adjusted models produced an increase in explained variance but, overall, the unexplained variance remained high even after control variables were added. The models used in this study were limited. Future research is encouraged to examine socioeconomic influence further and examine other social influences on health behaviors as well.

7.2 Potential Explanations

Although this study was not able to determine a conclusive relationship between socioeconomic statuses as predictors of risky sexual behaviors, there are factors that may explain why the results were inconclusive. Potential factors of influence include, but are

not limited to, early life circumstances, quality of education, gender and social norms, and influences of demographic characteristics.

7.2.1 Early Life Circumstances

Socioeconomic positions are heavily influenced by early life circumstances and the theoretical framework of this study supports this claim (Solar & Irwin, 2010). Adverse health conditions can be a result of certain privileges being accessible or inaccessible, which socioeconomic position influences (Solar & Irwin, 2010). This can manifest through access to health care, education, and other health influencing environments (Solar & Irwin, 2010). A child growing up in a lower socioeconomic class is exposed to the health habits and behaviors of those in their immediate environment (Solar & Irwin, 2010). Considering the high rates of female-headed households and teenage pregnancy in Guyana as well as the economic reality for women, there is a heightened risk for lower socioeconomic positions as financial needs influence educational attainment (ILO, 2018; Rose et al. 2016). This could potentially explain childhood exposure to lower socioeconomic statuses or conditions where health behavior is learned or developed.

A potential explanation for women with higher levels of education engaging in risky sexual behavior could be a social class progression. If a change in culture or community is experienced, it is not uncommon for differences in values, beliefs, or norms to become apparent (Ashford, 1990). Adjustments within new contexts, for example, adapting to new standards and knowledge, occurs differently for every individual (Ashford, 1990). By this explanation, women who have experienced upward mobility may have retained the health behavior developed in access-limited environments. The explanation of upward mobility is only applicable to women who have experienced socioeconomic progression. This is not applicable to women who have remained in the same socioeconomic class or for the women who have fallen into a lower socioeconomic class.

7.2.2 Quality of Education

The influences of globalization on education are undeniable and have created collective standards that nations across the globe have tried to achieve. Quality of education is a

difficult factor to measure. Quality versus quantity in education has been acknowledged as nations interpret and implement educational efforts in different ways (Napier, 2014). Globally, common issues include lack of training or support for teachers and academic staff, impertinent curriculums, inadequate tools to measure progress and challenges that hinder effective implementation (Napier, 2014). This is especially true for nations that have experienced colonization as the development processes are significantly concerned with providing services previously denied (Napier, 2014). Characteristics including who is defining quality, the factors selected to measure quality, and the understood purpose of education all complicate the meaning of education quality. Nevertheless, information concerning quality of education can provide valuable insight into sources of health information and economic prosperity.

Education is widely understood to influence health and health behavior (Solar & Irwin, 2010). The theoretical framework of this study acknowledges that the positive effects of education include being able to interpret and apply health messages as well as access to economic opportunities (Solar & Irwin, 2010). This study found existing literature measuring education quality in Guyana through performance rates and attendance. In Guyana, females have higher school attendance and school performance rates than that of their male counterparts (ILO, 2018). As risky sexual behavior relates to education categories, the results of this study's findings do not show an increase in health improving behaviors among higher socioeconomic categories. One potential explanation for this could be the quality of the education provided. The number of educational attainment in years is just one dimension of education (UN, 2010). In the 2006, Guyana experienced issues with acquiring trained academic professionals to teach students, levels from nursery to secondary, as well as issues in accessibility with academic tools and equipment (Ministry of Education, n.d.). In order to combat this, educational investments from the nation need to be increased and adequate policies to follow (WHO, 2008).

Issues of education quality are not unique to Guyana. Guyana's expenditure on education has lessened by more than half since 2005, and continued to decrease into 2012 (World Bank, n.d.). In 2006, the year the Ministry of Education mentioned issues with access for

trained teachers and teaching tools, the expenditure on education was approximately 5% but in 2009, the year of the DHS survey, the percent was approximately 3.3% (Ministry of Education, n.d.; World Bank, n.d.) Considering the hardships of access in 2006 with the higher expenditure on education, it can be presumed that as the education expenditure decreased over the years the issues were exasperated. The quality of education is threatened when educators are not adequately trained in academic content and teaching methods. If the quality of education is threatened, the benefits of interpreting and applying health improving content, as well as decreased economic opportunities, expose women to greater health vulnerabilities.

The quality of education a nation can provide is primarily related to their economic development and their ability, and intention, to allocate funding to education (WHO, 2008; Solar & Irwin, 2010). Guyana's history of debt and developing status can partially explain the struggle the nation faces in ensuring quality of education through paying trained staff and equipping academic environments with the tools necessary to succeed (Ministry of Education, n.d.). This also relates to education about sexual health and more specifically birth control use. Women cite not using birth control due to not knowing or understanding the various birth control methods as well as access to the methods outside of condoms (Sámano et al., 2019) but lack of knowledge is not always the case (Brown & Guthrie, 2010). Understanding the extent of birth control knowledge and preferred methods in Guyana can provide insight into if lack of birth control use is a result of poor health education. The HFLE, the comprehensive health program provided to students in Guyana, may not provide adequate sexual health education. From what this study found, HFLE seems to incorporate knowledge surrounding sexual health and reproduction (UN, 2013) but little was found regarding whether various birth control methods and information about sexual concurrency were provided or effective.

The process of successfully applying health knowledge to behavior begins with education (Glanz, Rimer & Viswanath, 2015). Health education efforts that unload substantial amounts of health knowledge on students have been criticized for not including methods of applicability towards better health (Herbert & Lohrmann, 2011). Herbert & Lohrmann

(2011) state that when teaching adolescents about health-deteriorating activities, prioritization should be allocated to developing the skills to navigate those situations. A potential explanation of unsuccessful implementation of theory to practice in health behavior can be attributed to the top-down approach to health promotion education (Braunack-Mayer & Louise, 2008). The top-down approach can be understood as health experts disseminating health information down to communities; addressing health issues they believe to be significant (Braunack-Mayer & Louise, 2008). Often criticized for poor community engagement efforts, the top-down approach contradicts notions of health empowerment by limiting community agency (Braunack-Mayer & Louise, 2008). The implication of this lies in neglecting the influence of society and communities in socializing health risks and behavior (Gilkey, Earp & French, 2008). More information regarding HFLE in Guyana can shed light on the effectiveness of the program's methods on health promotion outcomes.

7.2.3 Gender and Social Norms

Gender and social norms can explain what society deems socially acceptable and consequential among different genders. The theoretical framework in agreement with this claim, stating that in many societies gender is used as “basis of discrimination” (p. 33) for women and, as a result, they experience disproportionate health consequences (CSDH, 2008). A widely understood gender norm in Latin American and the Caribbean is men are understood to display their masculinity and emotional process through particular behaviors (Kempadoo, 2003). One of these behaviors in particular is promiscuity (Kempadoo, 2003; Peake & Trotz, 2002; Djellouli & Quevedo-Gomez, 2015). In Guyana, male promiscuity is understood to be a natural result of masculinity and therefore regarded as an acceptable behavior among some in society (Kempadoo, 2003; Peake & Trotz, 2002.) In contrast to this view, women are often shamed for engaging in similar sexual behavior. In Guyana, women's sexual exploration or concurrency is socially acceptable when children are a result (Kempadoo, 2003; Peake & Trotz, 2002).

As education and wealth opportunities increases, social capital is expected to follow and, subsequently, a woman's freedom to organize her life becomes an increasingly

independent process (Zanin, 2014; Exavery, 2012). Women engaging in riskier sexual behaviors could be attributed to more egalitarian societies. In Guyana, women are producing higher academic performance rates that can shift dependency narratives as women become more independent (ILO, 2018). As societies become more equitable and women's social capital increases, the likelihood of financial independence are higher and, potentially, affording women the mobility to experience sexuality on their terms (Kempadoo, 2003; Reid et al, 2012; Exavery, 2012). This explanation applicable to decreased odds of women within higher wealth quintiles and birth control use; women of higher socioeconomic status may be able to support themselves financially if considering reproduction independently.

Gender norms can be influential in health outcomes as well. One example of this can be illustrated through safe sex negotiation between partners (Johnson, et al., 2006). Studies have shown males reluctant to condom use for a variety of reasons, a commonly cited reason relating to pleasure and woman have been known to engage in unprotected sex even with knowledge of concurrency (Shelton, 2009). The combination of concurrency and unprotected sex, with a partner that is also engaging in concurrency, is amplifying the risk of STD/STI transmission. The norm of centralizing male pleasure and male preference in sexual relationships can be harmful to women's skills to negotiate safer sex practices. Further knowledge development on achieving pleasure for women during sexual practice could prove beneficial to women's health, as it has been referenced that unsatisfactory sexual encounters also encourage concurrency (Shelton, 2009).

7.2.4 Control Variables

The results of the logistic regression model, for both independent variables, transformed considerably when controlling for age, relationship status, and residence type. The influences of these factors need to be acknowledged. The odds of not using birth control decreased as wealth quintiles increased when controlling for age, relationship status, and residence type. With birth control, all of the control variables were significantly associated. Women who were in rural areas and women who were not in relationships had the highest odds of being more likely to not use birth control. The only control

variable category that was not significantly associated with engaging with multiple partners was the age category 40-49 years of age. The highest odds were found among women who were not in relationships and within the age category of 25-39. These results were expected.

Age and relationship status can have noteworthy influence on the sexual behaviors of women. Age can represent a level of sexual exploration or behavior development (Kempadoo, 2003) as the data shows that earlier sexual debut can result in higher lifetime partners (Johnson et al., 2006). Age also relates to birth control as a woman's reproductive abilities begin and decline at specific ages and, therefore, influence decisions to engage in contraceptive use (George & Kamath, 2010; Dias et al., 2015). The literature finds that age is correlated to sexual behavior development (Zhao et al., 2017) which could potentially explain the variations among association levels, and directions, within different age categories. Relationship status has the potential to regulate sexual partners and family planning decisions (Adimora et al., 2002). Studies have found birth control use to be influenced by relationships (Dias et al., 2015) but sexual concurrency within intimate contexts is also becoming increasingly common (Admiora & Schoenbach, 2013). The Caribbean context on relationship norms may provide insight into the likelihood of sexual concurrency and the role Guyanese women are able to play in negotiating healthy sexual behavior (Figueroa, 2014).

Lastly, women residing in rural areas were more likely to not use birth control and less likely to engage with multiple partners. Rural areas, compared to urban areas, have been found to maintain traditional lifestyles, which also can influence gender inequality (Nii-Amoo & Tempenis, 2002). In regards to gender, women may have less agency in sexual or reproductive related decisions (Nii-Amoo & Tempenis, 2002) potentially translating to riskier sexual consequences. Matters of access are also incredibly important to consider. Issues with access and geographical location have also been studied with respect to residence type. These issues are often attributed to proximity to resource providers or cultural knowledge of contraception tools (Dias et al., 2015).

7.3 Methodological Considerations

In research there is only so much that researchers can control. That being said, no research is immune to the reality of human error whether that manifest through technology, conductors or participants. In this section, limitations will be discussed to acknowledge potential influences on the results as well as encourage critical analyses.

7.3.1 Limitations

Cross sectional data

The DHS survey used in this study was cross-sectional. Cross-sectional data captures a specific group at a specific point in time and, therefore cause and effect is not measurable within this survey (Pandis, 2014). Instead, the survey is able to provide insight into potential relationships and prevalence among variables within a particular point in time (Pandis, 2014).

Generalizability

This study was conducted with data from 2009, which was also the last DHS survey conducted in Guyana (Ministry of Health: Guyana, 2010). The aim of this study was not to generalize the findings towards other populations or contexts but, instead, to demystify the relationship of socioeconomic factors on sexual behavior in Guyana (Punch, 2014). If generalizability were to be sought and achieved in this study, a more recent data set would be required to be more representative of Guyana's current state. Although, while over a decade old, the dataset is still able to provide insight through societal norms, socioeconomic positions and family planning information to create stronger future hypotheses surrounding sexual behavior. As mentioned earlier in this thesis, among other nations in Latin American and the Caribbean, Guyana is quite unique in sexual behavior and sexual statistics.

Self-reporting

Discussing socially sensitive topics can influence the responses from participants as risks of discomfort are heightened. When asking questions, especially in face-to-face scenarios, participants may respond in ways they believe to be expected or in manners that will retain social reputations (Rubin & Babbie, 2009; Lavrakas, 2008). Lavrakas

(2008) states that this can result in measurement error and that this can occur in three different ways. The three ways are (1) through lack of understanding of what is being asked, (2) inability to produce a relevant answer, or (3) through misinformation or dishonesty (Lavrakas, 2008). Lavrakas (2008) goes on to state that interviews have higher vulnerabilities of measurement error as participants are less inclined to share that they engage in behaviors that are stigmatized.

The data for this study was retrieved through interviews conducted by DHS staff and various, generally understood sensitive topics were discussed (Ministry of Health: Guyana, 2010). Studies have found women to underreport their sexual activity (Gakidou & Vayena, 2007) which ties back to gender norms around the sexual behavior of women (Kempadoo, 2003; Peake & Trotz, 2002; Djellouli & Quevedo-Gomez, 2015). The consequences of promiscuity or, simply, sexual behavior outside of norms can pose serious social issues for women (Kempadoo, 2003). These consequences need to be considered when asking women to disclose sensitive information that influence their livelihood. This study supports the safety of women but notes that incorrect or dishonest responses from participants would dismantle the foundation of this study. The statistical tests ran to explore relationships, the nucleus of this research, would have no value if analyzing invalid information. Nevertheless, valuable information can be deduced for future research pertaining to social or gender norms that lead women to feel unsafe or uncomfortable disclosing sexual health related information.

Measuring Risky Sexual Behavior

As mentioned in the introduction, there are a variety of behaviors that could be identified as risky sexual behaviors. Some of those behaviors include but are not limited to, early sexual debut, having unprotected sex, engaging with multiple sexual partners, irregular condom use, sexual affairs with sex workers and not utilizing contraceptives (Tsfaye et al., 2019). The decision to focus on birth control use and multiple partners was based on themes from existing literature and the DHS dataset. The existing literature placed sexual concurrency as the main driver of STD/STI transmission (White, 2013) and found high teenage pregnancy rates in Guyana (ILO, 2018). The DHS dataset was compatible in

measuring these variables and were selected for the statistical analyses ran. Descriptive analyses were ran on other measures, for example condom use, and were found to have categorical responses with unbalanced representation in responses. The results of this study may have yielded different results if other measures were included.

Wealth

Household wealth as a measure of women's wealth or income is complex. In Guyana, the rise in female-headed households works in favor of the household wealth variable representing women's income (ILO, 2018), but this is not always the case. In less egalitarian societies, the likelihood of men being predominant income earners, and spenders, is not uncommon (Muchomba et al., 2014). The issue with household wealth as a measure is that it is a comprehensive variable that may refer to possessions and ownership but not directly reflect a woman's ability to access basic needs (Muchomba et al., 2014). Considering that women's employment rates in Guyana were lower of that of their male counterparts (ILO, 2018), inferences can be made about the potential financial dependencies as well as issues with pay equity for women in the labor force.

The potential of the household wealth not representing a valid illustration of access, and standard of living, is problematic. This potential of inaccuracy also complicates associations of health behavior and wealth. The purpose of wealth as a measure is to reflect access and social capital as it intersects with other socioeconomic factors (CSDH, 2008). These factors, as they relate to sexual health behavior, may not be accurately represented if the wealth variable does not adequately reflect a women's access to the wealth measured. For example, women in higher wealth quintiles with partners as predominant earners may not reflect the reality of access of the woman in question. The dynamics of relationships and gender inequality in economy, and within the home, need to be considered when analyzing the results of this study. With respect to the possibilities of household wealth misrepresenting wealth of women in this study, household wealth can still potentially provide some context into self-esteem, access to basic needs and access to health services (Solar & Irwin, 2010).

7.1.3 Strengths

DHS Survey

The Demographic Health Survey is a widely recognized survey that dates back to 1984 (Corsi, Neuman, Finlay & Subramanian, 2012). This survey offers a range of comprehensive health and socioeconomic measures to analyze health conditions (Choi, Fabic & Adetunji, 2016). The DHS survey is used to measure prevalence rates ranging from small research scales to larger scales within recognized institutions like the World Bank (Rutstein, 2008). By utilizing the Guyana DHS data to investigate the research questions, this study had access to a large and nationally representative sample making comprehensive analysis possible and inclusive (Choi et al., 2016).

Understanding Sexual Behavior

Sexual behavior among women in Guyana is a field of health research that requires considerable development. Gender inequality, social norms, and current health trends make Guyana an interesting country to research. This study sought to understand how women's position in society influences their sexual health outside of contexts of sex work and motherhood. The strength of this study is centered on the light it sheds on the limited knowledge surrounding sexual behaviors of women in Guyana. Sexual activity is required for the sustainability of the human race and is a natural aspect of adult relationships (Johnson et al., 2006). Understanding the risks women face, the resources needed to combat these risks and the appropriate action to dismantle systems of health vulnerabilities are vital to attaining equitable societies.

8. CONCLUSION

8.1 Recommendations

Mixed Methods

A mixed methods approach, combining quantitative and qualitative methods, can encourage a greater learning opportunity by employing various data retrieval methods. Simply put, quantitative methods can offer trend patterns in large samples and qualitative methods can offer explanatory narratives and texture (Punch, 2014). A combination of self-reporting surveys and interviews (Johnson et al., 2006) could combat the issues of measurement error by inquiring about sensitive topics in private, self-reported methods accompanied with information from interviews. When studying sensitive topics such as sexual health, combining these research methods increases the data available to be analyzed and, as a result, the learning opportunity may become greater (Punch, 2014).

Relevant Sexual Health Information

The field of sexual health research needs to focus on behaviors that reflect the relevant sexual issues of today. Sexual health research is difficult to measure and the current research is inadequate and limited. In addition to socioeconomic characteristics, sexual behaviors are influenced by emotions, attraction, and pleasure, which are measures that have not been widely researched (Johnson et al., 2006; Campos et al., 2016). Including the factors just mentioned in DHS data would allow for future research to analyze their effects on sexual behavior patterns. Future research needs to address the gaps existing literature on sexual health as it relates to women's inequality, nonmedical influences, and value of sex in society. Furthermore, although women may be disproportionately impacted by risky sexual health behavior in heterosexual relationships (Sutherland, 2016), men's behaviors also need to be researched to better understand this disproportionality.

Diversity in Socioeconomic Focus

The majority of the literature used to support this thesis focused on the behaviors of individuals within lower socioeconomic classes. Even the theoretical framework was positioned against lower socioeconomic reference points (Solar & Irwin, 2010). More research concerning the behaviors of middle or higher socioeconomic statuses are necessary to challenge or reference for findings against lower socioeconomic positions. This study found that higher socioeconomic statuses were associated with some of the risky behaviors. This study had difficulty finding studies that sought to understand the sexual behaviors of women among middle or higher socioeconomic positions. As discussed in previous chapters the findings of this study contrasted with the limited, existing research. Understanding the differences in behaviors among different socioeconomic classes can provide insight into relationship dynamics, quality of education, and sexual health knowledge as these factors are known to influence access to wealth as a tool to improve health.

8.2 Health Promotion and Global Development Implications

Sex is a universal practice (Mackay, 2010). Unwanted or unplanned pregnancy and the transmission of disease and infection are two potential consequences of sexual behavior (Kebede, Molla & Gerense, 2018). Risky sexual behavior increases the likelihood of these outcomes. Globally, deaths caused by STD/STI transmission are a growing concern and existing research is finding low educational attainment levels to be correlated to teenage pregnancy (Johnson et al., 2006). The value individuals place on sex through intimate relationships, pleasure, and reproduction all position understanding sexual health as a health promotion concern (Johnson et al., 2006). The field of health promotion is concerned with empowering communities through increased agency to encourage individuals to achieve their best health (Green et al., 2015). If health data is not providing relevant health information, individuals become vulnerable through limited agency in obtaining optimal health. Global efforts concerned with improving health among citizens must further the knowledge surrounding sexual health while also addressing the gender inequalities of health consequences.

The consequences of poor sexual health not only threaten the longevity and quality of life among individuals but pose economic challenges as well. Buvé et al. (2002) states that as a result of sexual health consequences, nations may experience threats to their workforce population resulting in economic challenges or instability. The majority of new STD and STI infections are among individuals within the age range of 15 to 24 years old (Exavery et al., 2012). This age range includes economically productive individuals and, therefore, influences a nation's economy. While economic development warrants attention, it is not the only aspect of development. Gender inequity warrants immediate attention and action. Women experience disparities in health outcomes and the consequences of health inequity sustain the vulnerabilities women face. The United Nations has addressed these issues in the Sustainable Development Goals through different goals (United Nations, 2015). In 2030, when progress of SDGs are analyzed further research should be conducted in order to assess the state of health in Guyana.

8.3 Closing Remarks

This study explored the influences of socioeconomic factors on women's risky sexual behavior in Guyana. The findings of this study were inconclusive but showcase a curious increase in risky sexual behavior among women of higher socioeconomic status. Relationship direction among variables was easier to determine when controlling for the demographic characteristics used in this study. The transformation of statistical models when adding demographic variables, reinforce the significance of context in health behavior. Socioeconomic status while providing insight on various aspects of human life, are not fully representative of the influences of social life and social norms. Education and wealth are tools that are understood to encourage healthier behavior but that does not necessarily translate to improved healthy behavior, as referenced by the findings of this study. The results of this study maintain the significance of age, relationship status, and residence type on the influence of sexual behavior.

This study illustrates the complexity of sexual health research. Despite the statistics of academic progress for women in Guyana, the nation is still experiencing higher rates of teenage pregnancy and disease transmission than neighboring nations. As mentioned

earlier, the relationship among higher socioeconomic factors and sexual behavior required further development. Understanding the ways higher individual agency may contribute to health, positively or negatively, can offer insight into health behaviors outside of socioeconomic vulnerability.

Future research may benefit from utilizing a mixed methods approach to explore sexual health behavior. The research complexities of sexual health may be alleviated through the additional context provided by both research methods in contrast to using just one research method. In order to understand the various ways socioeconomic characteristics influence health, the interconnectedness of social and structural systems must be incorporated in health research. It is through this interconnected understanding that health quality and health equity can progress.

REFERENCES

- Adebowale, A., Gbadebo, B. & Afolabi, F. (2016). Wealth index, empowerment and modern contraceptive use among married women in Nigeria: Are they interrelated? *Journal of Public Health*, 24(5), 415-426.
- Adimora, A. & Schoenbach, V. (2013) Social determinants of sexual networks, partnership formation, and sexually transmitted infections. In S. Aral, K. Fenton, J. Lipshutz J. (Eds.), *The new public health and STD/HIV prevention* (p. 13-33). New York: Springer.
- Adimora, A., Schoenbach, V., Bonas, D. Martinson, F. Donaldson, K. & Stancil, T. (2002). Concurrent sexual partnerships among women in the United States. *Epidemiology* 13(3), 320-327.
- Adimora, A. & Schoenbach, V. (2005). Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *The Journal of Infectious Diseases*, 191(1), S115-22.
- Allen, C., Edwards, M., Williamson, L., Kitson-Piggott, W., Wagner, H., Camara, B. & Hospedales, C. (2006). Sexually transmitted infection service use and risk factors for HIV infection among female sex workers in Georgetown, Guyana. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 43(1), 96-101.
- Andersen, B. & Cyranowski, J. (1995). Women's sexuality: behaviors, responses, and individual differences. *Journal of consulting and clinical psychology*, 63(6), 891–906. <https://doi.org/10.1037//0022-006x.63.6.891>
- Aremu, O. (2013). The influence of socioeconomic status on women's preferences for modern contraceptive providers in Nigeria: A multilevel choice modeling. *Patient Preference and Adherence*, 2013(7), 1213-1220.
- Artiga, S. & Hinton, E. (2018). Beyond health care: The role of social determinants in promoting health and health equity. *KFF Henry J Kaiser Family Foundation, May Issue Brief*. Retrieved from <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>.
- Ashford, S. (1990). Upward mobility, status inconsistency, and psychological health. *The Journal of Social Psychology*, 130(1), 71-76. <https://doi.org/10.1080/00224545.1990.9922935>
- Barbalet, J. (1985). Power and Resistance. *The British Journal of Sociology*, 36(4), 531-548. DOI:10.2307/590330

- Bearinger, L., Sieving, R., Ferguson, J. & Sharma, V. (2007). Global perspectives on the sexual and reproductive health of adolescents: Patterns, prevention, and potential. *The Lancet*, 369(9568), 1220-1231.
- Bentley, R., Kavanagh, A. & Smith, A. (2009). Area disadvantage, socioeconomic position and women's contraception use: A multilevel study in the UK. *Journal Of Family Planning And Reproductive Health Care*, 35(4), 221-226.
- Braunack-Mayer, A. & Louise, J. (2008). The ethics of community empowerment: Tensions in health promotion theory and practice. *Promotion & Education*, 15(3), 5-8. DOI: 10.1177/1025382308095648
- Brown, S. & Guthrie, K. (2010). Why don't teenagers use contraception? A qualitative interview study. *Eur J Contracept Reprod Health Care*, 15(3), 197-204. DOI: 10.3109/13625181003763456
- Bullock, H. (2013). *Women and poverty: Psychology, public policy, and social justice*. Hoboken: Wiley.
- Bustreo, F., Knaul, F., Bhadelia, A., Beard, J. & De Carvalho, I. (2012). Women's health beyond reproduction: Meeting the challenges. *World Health Organization. Bulletin of the World Health Organization*, 90(7), 478-478A.
- Buvé, A., Bishikwabo-Nsarhaza, K. & Mutangadura, G. (2002). The spread and effect of HIV-1 infection in sub-Saharan Africa. *The Lancet*, 359(9322), 2011-2017. [https://doi.org/10.1016/S0140-6736\(02\)08823-2](https://doi.org/10.1016/S0140-6736(02)08823-2)
- Campos, S., Benoit, E. & Dunlap, E. (2016). Black women with multiple sex partners: The role of sexual agency. *Journal of Black Sexuality and Relationships*, 3(2), 53-74. <https://doi.org/10.1111/j.1549-0831.2002.tb00093.x>
- Chauhan, B. & Nagarajan, G. (2019). Contraceptive use and unmet need for family planning among women with at least one child in rural Uttar Pradesh: The role of wealth and gender composition of children. *Journal of Public Health*, 27(5), 637-648. <https://doi.org/10.1007/s10389-018-0984-7>
- Chersich, M. F. & Rees, H. V. (2008). Vulnerability of women in southern Africa to infection with HIV: Biological determinants and priority health sector interventions. *AIDS*, 22 Suppl 4(4), S27-S40.
- Choi, Y., Fabric, M. & Adetunji, J. (2016). Measuring access to family planning: Conceptual frameworks and DHS data. *Studies in Family Planning*, 47(2), 145-161. Retrieved from www.jstor.org/stable/24720387
- Corsi, D., Neuman, M., Finlay, J. & Subramanian, S. (2012). Demographic and health surveys: A profile. *International Journal of Epidemiology*, 41(6), 1602-1613.

<https://doi.org/10.1093/ije/dys184>

- Creswell, J. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles: SAGE.
- Crissman, H., Adanu, R. & Harlow, S. (2012). Women's sexual empowerment and contraceptive use in Ghana. *Studies in Family Planning*, 43(3), 201-212.
- Croft, T., Aileen, M., Courtney, A. (2018). Guide to DHS statistics. Rockville: ICF. Retrieved from https://www.dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_DHS-7.pdf
- CSDH. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva: World Health Organization.
- Demographic and Health Survey (n.d.)(a). Protecting the privacy of DHS survey respondents. Retrieved from <https://dhsprogram.com/What-We-Do/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm>
- Demographic and Health Survey. (n.d.)(b). Data processing. Retrieved from <https://www.dhsprogram.com/data/Data-Processing.cfm>
- Demographic and Health Survey (n.d.)(c)). Data quality and use. Retrieved from <https://www.dhsprogram.com/data/Data-Quality-and-Use.cfm>
- Dias, J., De Oliveira, I. & Zhang, M. (2015). Multilevel effects of wealth on women's contraceptive use in Mozambique *PLoS One*, 10(3) <http://dx.doi.org/pva.uib.no/10.1371/journal.pone.0121758>
- Dintwa, F. (2012). Economic status, education and risky sexual behavior for urban Botswana women. *Journal of International Women's Studies*, 13(3), 153-170.
- Djellouli, N. & Quevedo-Gomez, C. (2015). Challenges to successful implementation of HIV and AIDS-related health policies in Cartagena, Colombia. *Social Science & Medicine*, 133, 36.
- Dorius, S. & Firebaugh, G. (2010). Trends in global gender inequality. *Social Forces*, 88(5), 1941-1968. <https://doi.org/10.1353/sof.2010.0040>
- Eisenberg, L. & Brown, S. (2000). Socioeconomic and cultural influences on contraceptive use. *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families* (p. 183-217). Washington: National Academies Press.

- Exavery, A., Kanté, A., Jackson, E., Noronha, J., Sikustahili, G., Tani, K., Mushi, H., Baynes, C., Ramsey, K., Hingora, A. & Phillips, J. (2012). Role of condom negotiation on condom use among women of reproductive age in three districts in Tanzania. *BMC Public Health*, 12(1). <https://doi.org/10.1186/1471-2458-12-1097>
- Figuroa, J. (2014). Review of HIV in the Caribbean: Significant progress and outstanding challenges. *Current HIV/AIDS Reports*, 11(2), 158-167.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Los Angeles: Sage Publications.
- Frieden T. (2010). A framework for public health action: the health impact pyramid. *American Journal of Public Health*, 100(4), 590–595. <https://doi.org/10.2105/AJPH.2009.185652>
- Gakidou, E., Vayena, E. & Gillespie, D. (2007). Use of Modern Contraception by the Poor Is Falling Behind. *PLoS Medicine*, 4(2), 381-389. <https://doi.org/10.1371/journal.pmed.0040031>
- George, K. & Kamath, M. (2010). Fertility and age. *Journal of Human Reproductive Sciences*, 3(3), 121-123.
- Gilkey, M., Earp, J. & French, E. (2008). Applying health education theory to patient safety programs: Three case studies. *Health Promotion Practice*, 9(2), 123-129. DOI: 10.1177/1524839907312703
- Gkiouleka, A., Huijts, T., Beckfield, J. & Bambra, C. (2018). Understanding the micro and macro politics of health: Inequalities, intersectionality & institutions. *Science & medicine (1982)200*, 92–98. <https://doi.org/10.1016/j.socscimed.2018.01.025>
- Glanz, K., Rimer, B. K. & Viswanath, K. (Eds.). (2015). *Health behavior: Theory, research, and practice*. Retrieved from <https://ebookcentral-proquest-com.pva.uib.no>
- Gooding, Y. (2001). The relationship between parental educational level and academic success of college freshmen. *Retrospective Theses and Dissertations*. Retrieved from <https://lib.dr.iastate.edu/rtd/429>
- González, C., Houweling, T., Marmot, M. & Brunner, E. (2010). Comparison of physical, public and human assets as determinants of socioeconomic inequalities in contraceptive use in Colombia - moving beyond the household wealth index. *International Journal for Equity in Health*, 9(1), 2-12. <https://doi.org/10.1186/1475-9276-9-10>

- Green, J., Tones, K., Cross, R. & Woodall, J. (2015). *Health promotion: Planning & strategies* (3rd ed.). Los Angeles: Sage.
- Greif, M., Doodoo, F. & Jayaraman, A. (2011). Urbanization, poverty and sexual behavior: The tale of five African cities. *Urban Studies*, 48(5), 947-957.
- Herbert, P. & Lohrmann, D. (2011). It's all in the delivery! An analysis of instructional strategies from effective health education curricula. *The Journal of School Health*, 81(5), 258-264. DOI: 10.1111/j.1746-1561.2011.00586.x.
- Hubbard, J. & Rogers, R. (2009). Cultural factors influencing HIV-related attitudes and behaviors in the third world: Ethnicity and religion in Guyana. *Race/Ethnicity: Multidisciplinary Global Contexts*, 3(1), 97-114.
- International Labour Organization. (2018) *Gender at work in the Caribbean: Guyana*. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/publication/wcms_651947.pdf
- International Monetary Fund. (2004). Guyana; Poverty reduction strategy paper progress. *IDEAS Working Paper Series from RePEc*. Retrieved from <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Guyana-Poverty-Reduction-Strategy-Paper-Progress-Report-2004-17912>
- Janevic, T., Sarah, P., Leyla, I. & Elizabeth, B. (2012). Individual and community level socioeconomic inequalities in contraceptive use in 10 Newly Independent States: A multilevel cross-sectional analysis. *International Journal for Equity in Health*, 11, 69.
- Jonason, P. & Fisher, K. (2009). The power of prestige: Why young men report having more sex partners than young women. *Sex Roles*, 60(3-4), 151-159.
- Johnson, A, Mercer, C. & Cassell, J. (2006) Social determinants, sexual behavior, and sexual health. In M. Marmot & R. Wilkinson (2 ed.) *Social determinants of health*. (p. 318-340). Oxford: University Press.
- Jung, M., Arya, M. & Viswanath, K. (2013). Effect of media use on HIV/AIDS-related knowledge and condom use in sub-Saharan Africa: A cross-sectional study. *PLoS ONE*, 8(7). doi: 10.1371/journal.pone.0068359
- Kebede, A., Molla, B. & Gerensea, H. (2018). Assessment of risky sexual behavior and practice among Aksum University students, Shire Campus, Shire Town, Tigray, Ethiopia, 2017. *BMC Research Notes*, 11(1). <https://doi.org/10.1186/s13104-018-3199-7>

- Kempadoo, K. (2003). Sexuality in the Caribbean: Theory and research. *Social and Economic Studies*, 52(3), 59-88. Retrieved from www.jstor.org/stable/27865341
- Kenyon, C., Boulle, A., Badri, M. & Asselman, V. (2010). "I don't use a condom (with my regular partner) because I know that I'm faithful, but with everyone else I do": The cultural and socioeconomic determinants of sexual partner concurrency in young South Africans. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 7(3), 35-43. DOI: 10.1080/17290376.2010.9724967
- Lavrakas, P. (2008). *Encyclopedia of survey research methods*. Thousand Oaks: SAGE Publications. DOI: 10.4135/9781412963947
- Lenoir, C., Adler, N., Borzekowski, D., Tschann, J. & Ellen, J. (2006). What you don't know can hurt you: Perceptions of sex-partner concurrency and partner-reported behavior. *Journal of Adolescent Health*, 38(3), 179-185. <https://doi.org/10.1016/j.jadohealth.2005.01.012>
- Mackay, J. (2001). Global sex: Sexuality and sexual practices around the world. *Sexual and Relationship Therapy*, 16(1), 71-82.
- Manstead, A. (2018). The psychology of social class: How socioeconomic status impacts thought, feelings, and behavior. *The British journal of social psychology*, 57(2), 267–291. <https://doi.org/10.1111/bjso.12251>
- Ministry of Education, Guyana. (n.d.) Quality Education. Retrieved from <https://education.gov.gy/web/index.php/component/k2/item/456-quality-education>
- Ministry of Health (MOH), Bureau of Statistics (BOS), and ICF Macro. (2010). *Guyana: Demographic and Health Survey 2009*. Georgetown, Guyana.
- Muchomba, F., Wang, J. & Agosta, L. (2014). Women's land ownership and risk of HIV infection in Kenya. *Social Science & Medicine*, 114, 97-102. DOI: 10.1016/j.socscimed.2014.05.055
- Napier, D. (2014). *Qualities of education in a globalized world*. Retrieved from <https://ebookcentral-proquest-com.pva.uib.no>
- National Academies of Sciences, Engineering and Medicine. (2016). *A Framework for Educating Health Professionals to Address the Social Determinants of Health*. Washington, D.C.: The National Academies Press. <http://doi.org/10.17226/21923>
- Neculaesei, A. (2015). Cultural and gender role differences. *Cross Cultural Management Journal*, 17(1), 31-35. Retrieved from <https://ideas.repec.org/a/cmj/journal/y2015i7p31-35.html>

- Neumann, W. (2011) *Social Research Methods: Qualitative and quantitative approaches*. Boston: Pearson.
- Nii-Amoo, D. & Tempenis, M. (2002). Gender, power and reproduction: Rural-urban differences in the relationship between fertility goals and contraceptive use in Kenya. *Rural Sociology*, 67(1), 46-70.
<http://dx.doi.org/10.1111/j.1549-0831.2002.tb00093.x>
- O’Gorman, K. & MacIntosh, R. (2017). Top 10 hints for understanding your ontology, epistemology, and methodology. Retrieved from <http://www.itsnotyouitsyourdata.com/the-early-years/top-10-hints-for-understanding-your-ontology-epistemology-and-methodology/>
- O’Sullivan, L., Hoffman, F., Harrison, S. & Dolezal, A. (2006). Men, multiple sexual partners, and young adults’ sexual relationships: Understanding the role of gender in the study of risk. *Journal of Urban Health*, 83(4), 695-708. Retrieved from <https://link.springer.com/article/10.1007%2Fs11524-006-9062-5>
- Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using SPSS* (6th ed.). New York: Open University Press/McGraw-Hill.
- Pandis, N. (2014). Cross-sectional studies. *American Journal of Orthodontics & Dentofacial Orthopedics*, 146(1), 127-129. DOI: 10.1016/j.ajodo.2014.05.005
- Pascoe, S., Langhaug, L., Hargreaves, J., Jaffar, S., Hayes, R. & Cowan, F. (2015). Poverty, food insufficiency and HIV infection and sexual behavior among young rural Zimbabwean women. *PLoS One*, 10(1). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4307980/>
- Peake, L. & Trotz, A. (2002). *Gender, ethnicity and place: Women and identity in Guyana*. Retrieved from <https://ebookcentral-proquest-com.pva.uib.no>
- Perelli-Harris, B., Hoherz, S., Addo, F., Lappegård, T., Evans, A., Sessler, S. & Styrc, M. (2018). Do marriage and cohabitation provide benefits to health in mid-life? The role of childhood selection mechanisms and partnership characteristics across countries. *Popul Res Policy Rev* 37, 703-728.
<http://doi.org/10.1007/s11113-018-9467-3>
- Peters, S., Woodward, M., Jha, V., Kennedy, S. & Norton, R. (2016). Women's health: A new global agenda. *BMJ Global Health*, 1(3).
<https://doi.org/10.1136/bmjgh-2016-000080>
- Punch, K. (2014). *Introduction to social research: Quantitative & qualitative approaches* (3rd ed.). Los Angeles: Sage.

- Reid, S., Malow, R. & Rosenberg, R. (2012). Alcohol, drugs, sexual behavior, and HIV in Trinidad and Tobago—The way forward. *Journal of the International Association of Physicians in AIDS Care*, 11(1), 66-82. <https://doi.org/10.1177/1545109711416245>
- Rose, E., Rajasingam, D., Derkenne, R., Mitchell, V. & Ramlall, A. (2016). Reproductive health knowledge, attitudes and practices of adolescents attending an obstetric unit in Georgetown, Guyana. *The Journal of Family Planning and Reproductive Health Care*, 42(2), 116-118. DOI: [10.1136/jfprhc-2014-100994](https://doi.org/10.1136/jfprhc-2014-100994)
- Rubin, A. & Babbie, E. (2009). *Essential research methods for social work*. Belmont: Brooks/Cole.
- Rutstein, S. & Guillermo, R. (2006). *Guide to DHS Statistics*. Retrieved from https://www.dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_29Oct2012_DHSG1.pdf
- Rutstein, S. (2008). *The DHS wealth index: Approaches for rural and urban areas (2008 No. 60)*. Retrieved from https://pdfs.semanticscholar.org/d854/c88ee538869c7c183c4e123b9f438ed839a5.pdf?_ga=2.192981294.2081656642.1590455456-1766363011.1587571776
- Sámamo, R., Martínez-Rojano, H., Chico-Barba, G., Sánchez-Jiménez, B., Sam-Soto, S., Rodríguez-Ventura, A., . . . Sclavo-Melo, S. (2019). Sociodemographic factors associated with the knowledge and use of birth control methods in adolescents before and after pregnancy. *International Journal of Environmental Research and Public Health*, 16(6). <https://doi.org/10.3390/ijerph16061022>
- Sawers, L. & Stillwaggon, E. (2010). Concurrent sexual partnerships do not explain the HIV epidemics in Africa: A systematic review of the evidence. *Journal of the International AIDS Society*, 13(1). <https://doi.org/10.1186/1758-2652-13-34>
- Shelton, J. (2009). Why multiple sexual partners? *The Lancet*, 374(9687), 367-369. [doi:10.1016/S0140-6736\(09\)61399-4](https://doi.org/10.1016/S0140-6736(09)61399-4)
- Solar, O. & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health*. Social Determinants of Health Discussion Paper 2. Geneva: World Health Organization.
- Son, D., Oh, J., Heo, J., Huy, N., Minh, H., Choi, S. & Hoat, L. (2016). Early sexual initiation and multiple sexual partners among Vietnamese women: Analysis from the Multiple Indicator Cluster Survey, 2011. *Global Health Action*, 9(1). [doi:10.3402/gha.v9.29575](https://doi.org/10.3402/gha.v9.29575)

- Speroff, L. (2010). *Clinical Guide for Contraception*. (5th ed.) Philadelphia: Wolters Kluwer.
- Storkey, E. (2015). *Scars Across Humanity: Understanding And Overcoming Violence Against Women*.
<https://ebookcentral-proquest-com.pva.uib.no/lib/bergen-ebooks/detail.action?docID=4853224>.
- Sutherland, M. (2016). An intersectional approach for understanding the vulnerabilities of English-speaking heterosexual Caribbean youth to HIV/AIDS and sexually transmitted infections: Prevention and intervention strategies. *Health Psychology Open*, 3(2). <https://doi.org/10.1177/2055102916679349>
- Tesfaye, Y., Negash, A., Gebrehiwot, T., Tessema, W., Anand, S., Ahmed, G. & Alemu, D. (2019). Is there association between risky sexual behaviors and depression symptoms among youth? A case of Jimma University Students, Ethiopia. *Psychiatry Journal*, 2019, 12. <https://doi.org/10.1155/2019/3757656>
- The World Bank. (n.d.) Government expenditure on education: Guyana. Retrieved from https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?contextual=default&end=2009&locations=GY&most_recent_year_desc=true&start=1995&view=chart
- The World Bank. (2019) Gross domestic product: Guyana. Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=GY&most_recent_year_desc=true
- Turner, J. (2001). *Handbook of sociological theory* (Handbooks of sociology and social research). New York: Springer.
- United Nations: Development Program (UNDP). (2010). Assessment of development results: Guyana. Retrieved from <https://www.oecd.org/countries/guyana/47861372.pdf>
- United Nations: General Assembly (UN). (2015). *Transforming our world: the 2030 agenda for sustainable development* (A/RES/70/1). Retrieved from <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
- United Nations: UNAIDS (2018a). Brazil: Country factsheets. Retrieved from <https://www.unaids.org/en/regionscountries/countries/brazil>
- United Nations: UNAIDS (2018b). Chile: Country factsheets. Retrieved from <https://www.unaids.org/en/regionscountries/countries/chile>
- United Nations: UNAIDS (2018c). Costa Rica: Country factsheets. Retrieved from

- <https://www.unaids.org/en/regionscountries/countries/costarica>
- United Nations: UNAIDS (2018d). Guyana: Country factsheets. Retrieved from <https://www.unaids.org/en/regionscountries/countries/guyana>
- United Nations: UNAIDS (2018e). Mexico: Country factsheets. Retrieved from <https://www.unaids.org/en/regionscountries/countries/mexico>
- United Nations: UNICEF. (2013). Evaluation report: Piloting health & family life education as a timetabled subject in Guyana. Retrieved from https://www.unicef.org/evaldatabase/files/Guyana_Piloting_Health_and_Family_Life_Education_as_a_Timetabled_Subject_Report.pdf
- Van Wagoner, N., Harbison, H., Drewry, J., Turnipseed, E. & Hook, E. (2011). Characteristics of women reporting multiple recent sex partners presenting to a sexually transmitted disease clinic for care. *Sexually Transmitted Diseases*, 38(3), 210-215. <https://doi.org/10.1097/OLQ.0b013e3181f6fe42>
- Warren, J., Harvey, S., Washburn, I., Sanchez, D., Schoenbach, V. & Agnew, C. (2015). Concurrent sexual partnerships among young heterosexual adults at increased HIV risk: Types and characteristics. *Sexually Transmitted Diseases*, 42(4), 180-184. <https://doi.org/10.1097/OLQ.0000000000000252>
- White, P. (2013) Epidemiology of STI and HIV: An overview of concentration and geographical and temporal dispersion. In S. Aral, K. Fenton, J. Lipshutz J. (Eds.), *The New Public Health and STD/HIV Prevention* (p. 33-63). New York: Springer.
- Whitman, C. (2004). Uniting three initiatives on behalf of Caribbean youth and educators: Health and family life education and the health promoting school in the context of PANCAP's Strategic Framework for HIV/AIDS. *Caribbean Quarterly*, 50(1), 54-82. Retrieved from www.jstor.org/stable/40654439
- Williams, D., Mohammed, S., Leavell, J. & Collins, C. (2010). Race, socioeconomic status, and health: complexities, ongoing challenges, and research opportunities. *Annals of the New York Academy of Sciences*, 1186, 69–101. <https://doi.org/10.1111/j.1749-6632.2009.05339.x>
- World Health Organization (WHO). (2005). *Guyana: Summary country profile for HIV/AIDS treatment scale-up*. Retrieved from https://www.who.int/hiv/HIVCP_GUY.pdf
- World Health Organization (WHO). (2010). *A conceptual framework for action on the social determinants of health*. Geneva: WHO.

- World Health Organization (WHO). (2016). What is health promotion. Retrieved from <https://www.who.int/news-room/q-a-detail/what-is-health-promotion>
- World Health Organization (WHO). (n.d.) About social determinants of health. Retrieved from https://www.who.int/social_determinants/sdh_definition/en/
- Wright, E. (1995). The class analysis of poverty. *International journal of health services: planning, administration, evaluation*, 25(1), 85–100.
<https://doi.org/10.2190/WYRM-630N-8M6V-7851>
- Zammito, J. (2004). *A nice derangement of epistemes: Post-positivism in the study of science from Quine to Latour*. Chicago: The University of Chicago Press.
- Zanin, L., Radice, R. & Marra, G. (2014). A comparison of approaches for estimating the effect of women's education on the probability of using modern contraceptive methods in Malawi. *The Social Science Journal*, 51(3), 361-367.
<http://doi.org/10.1016/j.soscij.2013.12.008>
- Zhao, Y., Kim, H. & Peltzer, J. (2017). Relationships among substance use, multiple sexual partners, and condomless sex: Differences between male and female U.S. high school adolescents. *The Journal of School Nursing*, 33(2), 154-166.
<https://doi.org/10.1177/1059840516635712>
- Zorea, A. (2012). *Birth control*. Santa Barbara: Greenwood. <https://doi.org/10.1177/1059840516635712>

APPENDIX

Appendix A.

Chi-square test of independence for education and control variables

Chi-square for independence results for education and control variables. Guyana Demographic and Health Survey (2009).

	Education						phi
	Primary		Secondary		Higher		
	n	%	n	%	n	%	
Age							.238***
15 – 24	194	17.3 %	1474	42.1 %	123	33 %	
25 – 39	503	44.8 %	1335	38.1 %	178	47.4 %	
40 – 49	426	37.9 %	691	19.7 %	72	19.3 %	
Relationship Status							.238***
In a relationship	974	86.7 %	2188	62.5 %	184	49.3 %	
Not in a relationship	149	13.3 %	1312	37.5 %	189	50.7 %	
Residence Type							.233***
Urban	152	13.5 %	1058	30.2 %	210	56.3 %	
Rural	971	86.5 %	2442	69.8 %	163	43.7 %	

Note. $p < .001 = ***$

- Age and Education: $\chi^2 = 283.634$
- Relationship Status and Education: $\chi^2 = 282.168$
- Residence Type and Education: $\chi^2 = 270.443$
- All analyses 0 cells (0.0%) have expected count less than 5

Appendix B.

Chi-square test of independence for wealth and control variables

Chi-square test of independence results for wealth and controlled variables. Guyana Demographic and Health Survey (2009).

	Wealth										phi
	Poorest		Poorer		Middle		Richer		Richest		
	n	%	n	%	n	%	n	%	n	%	
Age											.050
15 – 24	481	38.4 %	334	37.2 %	334	35.7 %	343	34.9 %	299	32.4 %	
25 – 39	494	39.4 %	368	40.9 %	372	39.7 %	389	39.5 %	393	42.6 %	
40 – 49	279	22.2 %	197	21.9 %	230	24.6 %	252	25.6 %	231	25 %	
Relationship Status											.140***
In a relationship	952	75.9 %	631	70.2 %	623	70.2 %	609	61.9 %	531	57.5 %	
Not in a relationship	302	24.1 %	268	29.8 %	313	33.4 %	375	38.1 %	392	42.5 %	
Residence Type											.392***
Urban	67	5.3 %	181	20.1 %	269	28.7 %	382	38.8 %	521	56.4 %	
Rural	1187	94.7 %	718	79.9 %	667	71.3 %	602	61.2 %	402	43.6 %	

Note. $p < .001 = ***$

- Age and Wealth: $\chi^2 = 12.506$,
- Relationship Status and Wealth: $\chi^2 = 98.333$
- Residence Type and Wealth: $\chi^2 = 767.341$
- All analyses 0 cells (0.0%) have expected count less than 5