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# The Effects of Sexual Education on Sexual Behaviors of Adolescents in Rural Jamaica

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

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Abstract

Adolescent pregnancy and the sexual behaviors of adolescents continue to be robust public health and social problems in Caribbean countries such as Jamaica. Numerous researchers have conducted studies on the impact of sex education on sexual behaviors and pregnancy patterns among adolescents with mixed results (i.e., a lack of knowledge) especially in rural communities. The purpose of this study was to ascertain the impact of school- or home-based sex education on sexual behavior and pregnancy patterns of adolescents aged 15–19 years in the rural community of St. Thomas, Jamaica. The parental expansion of the theory of planned behavior and cognitive behavior theory constituted the theoretical foundation for this quantitative descriptive cross-sectional study. Secondary data from the 2008 Jamaica Reproductive Health Survey (N = 8,200) were analyzed. Descriptive statistics, chi-square, and Cramer's *V* were computed to determine the relationship and strength between the independent variables (school- and home-based sex education) and the dependent variables (pregnancy and sexual behaviors of adolescents). The results indicate a weak negative inverse relationship that was not statistically significant between sex education in school and sex education at home on adolescent pregnancy. There is a weak positive relationship between sex education in school on condom use and a positive measure of association between sex education at home on condom use. This study may be significant to local community health departments seeking inventive techniques for improving and enhancing existing programs. The results of this study also contribute new data on the impact of sex education on adolescent pregnancy and the sexual behavior of adolescents.

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# Dedication

This dissertation is dedicated to adolescents across the globe, especially those residing in rural communities.

Psalm 18:29 - With my God, I can scale a wall.

Acknowledgements

First and foremost I would like to thank the Almighty God who is my strength, my help, my everything, and who has shown me that with him I can scale a wall. I would like to express my undying gratitude to my Committee Chair Dr. Jennifer Oliphant, my 2nd Committee Member Dr. Susan Cardenas, and my URR Dr. Hudak.

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# Chapter 1: Introduction to the Study

## Introduction

In Jamaica, high-risk sexual behaviors and pregnancy among adolescents continue to be a significant problem. According to a report by the 2008 Jamaica Reproductive Health Survey (JRHS), 18% of all children in the country between 2008 and 2009 were born to teenage mothers under 19 years of age (Serbanescu, Ruiz, & Suchdev, 2010). Although data from the World Bank Group (2016) showed an 18% decline in the fertility rate for teenage mothers in Jamaica from 72 per 1,000 in 2008 to 59 per 1,000 in 2015, the birth rate remains one of the highest among Caribbean nations. According to experts, lack of parentally guided sex education is the primary reason for the high adolescent pregnancy rate and has contributed to a lack of knowledge about sexuality on the island of Jamaica (Mothiba & Maputle, 2012).

Exposure to health education and its influence on the sexual and reproductive health of adolescents in Jamaica and other countries has a long, controversial history. Numerous researchers have conducted studies on the impact of sex education on sexual behaviors and pregnancy patterns among adolescents with mixed results. An example of which would be a lack of knowledge or consensus about the effect of sex education on sexual behaviors and pregnancy patterns among adolescents. Additionally, the question remains whether teaching sex education in school or at home is ideal. Although highly controversial, researchers believe that sex education has a positive effect on adolescent sexual behavior, and reduces unplanned teen pregnancy (Hefner, 2014). Sex education is

an ongoing topic of considerable sensitivity particularly in socially conservative countries like Jamaica.

It is believed that lack of parental guided sex education continues to be a leading reason for the high adolescent pregnancy rate and has profoundly contributed to a lack of knowledge about sexuality on the island of Jamaica (Mothiba & Maputle, 2012). The incident rates of pregnancy and high-risk sexual behaviors among adolescents are higher in rural areas when compared to urban communities (Doyle, Mavedzenge, Plummer, & Ross, 2012). Regional communities have distinct differences in the sexual behaviors of adolescents, although few research studies conducted in Jamaica have substantiated this conclusion (Kraft, Kulkarni, Hsia, Jamieson, & Warner, 2012). However, researchers have established that adolescent pregnancy contributes to the overall poverty level of a region. According to the World Health Organization (WHO; 2012), poverty is more prevalent in rural areas and remains a challenge for less developed international countries such as Jamaica. The findings from this study could add to the endeavor of the local community health departments seeking inventive techniques for reaching adolescents. Improving or enhancing existing programs could also lead to policy changes and could potentially contribute to positive social change.

The purpose of this study was to examine the impact sex education has on the sexual behavior and pregnancy rates of adolescents in a specific rural community in Jamaica. The overall adolescent fertility rate in Jamaica has been on the decline in recent years. However, the fertility rate in Jamaica remains the highest among Caribbean countries. The fertility rate among teens aged 15–19 years across the island in 2008 was

72 per 1,000 for those residing in rural areas and 51 per 1,000 for those residing in urban areas (Serbanescu et al., 2010). The fertility rate for adolescents residing in the rural community of St. Thomas was 102 per 1,000 the same year (Global Health Data Exchange, 2015), affirming that adolescents in this particular parish are twice as likely to become pregnant when compared to their urban Jamaican counterparts. This rate difference was the rationale for conducting this study

In this chapter, I provide the background of the study, the problem statement, and the purpose of the study. The chapter also includes the research questions and hypotheses, theoretical framework, nature of the study, definitions of terms, assumptions, scope and delimitations, limitations, and significance of the study. The chapter concludes with a summary and transition to Chapter 2.

## Background

Over the past several decades, adolescent pregnancy and the sexual behaviors of adolescents have been a significant problem on the island of Jamaica. Previous researchers have identified that children are reaching puberty and experiencing physical development earlier in Jamaica than in many other nations (Boyne et al., 2010; Tulloch & Kaufman, 2013). The earlier onset of cognitive and hormonal function leads to increased rates of pregnancy outcomes and risky sexual behaviors, researchers have found (Tulloch & Kaufman, 2013). Noted in Jamaica when compared to other Caribbean nations were the early developments of both cognitive and hormonal functions (Emmons, 2012; World Bank Group, 2016).

Jamaica's 2015 fertility rate of 59 per 1,000 remains the highest among other English-speaking Caribbean countries (Emmons, 2012). High rates are particularly evident in high-poverty areas, such as St. Thomas, Jamaica, which was the focus of this dissertation. In this particular area, nearly one in five girls becomes a mother by 18 years of age (McCaw-Binns, Bailey, Holder-Nevins, & Alexander, 2012; United Nations Children's Fund, 2013). Sex education may have the potential to reduce the fertility rate significantly among adolescents living in rural Jamaican communities (Baumgartner, Greary, Tucker, & Wedderbum, 2009).

However, the effectiveness of sex education in school remains debatable (Fonner, Armstrong, Kennedy, O'Reilly, & Sweat, 2014). Experts contend that sex education alone is insufficient for preventing high-risk sexual behaviors in adolescents (Jackson, Henderson, Frank, & Haw, 2012). Sex education in school falls short because the foundation of some curricula is that decisions made by adolescents are rational or deliberative (Suleiman & Brindis, 2014). One of the reasons that school-based sex education programs fall short is that the foundation of many of the curricula asserts that the sexual decisions made by adolescents are rational or deliberative (Suleiman & Brindis, 2014). Furthermore, parents are often reluctant to discuss sex education with their children because they feel inadequate (Dyson & Smith, 2012; Fentahun, Assefa, Alemseged, & Ambaw, 2012). With the reluctance of parents to discuss sex education with their children and school-based sex education falling short, adolescents are more likely to exhibit risky sexual behavior.

Numerous factors are associated with the early risky sexual behavior of adolescents. These factors include lack of sexual knowledge, low self-esteem, peer pressure, sexual coercion, and barriers to obtaining contraceptives, among others (Holness, 2015; Mothiba & Maputle, 2012). Wilson-Mitchell, Bennett, and Stennett (2014) conducted a study of 30 adolescent girls in Jamaica and found that a significant number of those surveyed reported that their first pregnancy was intentional to prove their womanhood and thus planned.

Finally, it is imperative to recognize that unplanned adolescent pregnancy can have long-lasting adverse health consequences (Hindin, Kalamar, Thompson, & Upadhyay, 2016; Nerlander, Callaghan, Smith, & Barfield, 2015; Okigbo, Kabiru, Mumah, Mojola, & Beguy, 2015; Olugbenga-Bello, Adebimpe, Akande, & Oke, 2014). Two long-lasting adverse health consequences according to Christofides, et al., (2014) include social and mental health issues such as depression, increased sexual risk behavior, substance abuse, and socioeconomic status. It is against this backdrop that adolescent pregnancy and the sexual behavior of adolescents are viewed as a public health issue.

## Problem Statement

Adolescent pregnancy continues to be a serious public health and social problem in Caribbean countries such as Jamaica (Crawford, McGrowder, & Crawford, 2009). Some of the social problems of adolescent pregnancy include not completing ones education, are more likely to live in poverty, being paid a lower salary or being unemployed (Crawford, et al., 2009). According to Gabriel Scally (2002), adolescent

pregnancy is a serious public health problem because action is needed across multiple divisions to help adolescent avoid unplanned pregnancy as well as to deal with the result of pregnancy whether planned or unplanned. The number of unintended pregnancies among adolescents in Jamaica is high. Jamaican adolescents accounted for one in five live deliveries in 2015 (Population Media Center, 2016). The Population Media Center (2016) also reported that 40% of adolescent girls in the country had given birth at least twice by the age of 20 years.

In the mid-2010s, Richter and Mlambo (2005) opined that lack of parentally supplied sex education and guidance is one reason for these high pregnancy rates. Other researchers have found that Jamaican parents do not feel comfortable speaking to their children about sex as they view sex education and guidance as tacit permission to experiment with sex (Teitelman, Ratcliffe, & Cederbaum, 2008). In one study, parents expressed not feeling knowledgeable enough about sex to discuss it with their children (Crawford et al., 2009). The resulting lack of knowledge about sexuality and contraceptive use among their children is a likely contributor to the elevated pregnancy rate among adolescents in Jamaica (Baumgartner et al., 2009).

Over the past decade, the Department of Education have included sex education as part of the curriculum in Jamaican schools. However, there have been and continues to be disagreements about whether the education offered is age appropriate (Emmons, 2012). According to Long (2010), the purpose of providing sex education in schools is to equip students with information that will allow them to make the right choices. Sex education is as important as, if not more important than, any other subject taught in

schools, according to Martin (2011), and needs the same amount of time and resources as other curricula, such as mathematics or English.

Researchers have noted the importance of sexual education in schools for preventing adolescent pregnancy and understanding the sexual behaviors of adolescents (Boonstra, 2014; Fergus & Zimmerman, 2005). It appears, however, that teachers and parents do not understand the importance of sexual education programs. A review of the literature provides evidence that the relationship between sex education, adolescent pregnancy, and the sexual behavior of adolescents in Jamaica remains unclear. For example, adolescents know very little about sex education or pregnancy (Crawford, 2009). Furthermore, the literature suggests that experts in the field do not know if sex education, teenage pregnancy, and the sexual behavior of adolescents in Jamaica are significantly related (Gottschalk & Ortayli, 2014). Therefore, although they assume the importance of sex education, researchers do not have a full understanding of how this form of education works to influence the sexual behaviors and pregnancy patterns of adolescents in Jamaica, especially in rural communities like St. Thomas, Jamaica.

## Purpose of the Study

The purpose of this study was to ascertain the impact of school- or home-based sex education on sexual behavior and pregnancy patterns of adolescents aged 15–19 years residing in the rural community of St. Thomas, Jamaica. Determining the association of sex education with sexual behavior and pregnancy among adolescents has the potential to increase the Department of Education and the Public Health Department understanding of this phenomenon. Given the disproportionately high adolescent fertility rate in Jamaica

(Population Media Center, 2016; Serbanescu et al., 2010), it is essential to examine give thought to the importance and gravity of the problem. Examining the impact of sex education on sexual behavior and pregnancy patterns of adolescents in Jamaica is a positive step toward improving sex education approaches for parents/guardians and school systems.

For this quantitative study, I used a cross-sectional design approach to examine the relationship between the independent variables (school-based and home-based sex education), dependent variables (pregnancies and sexual behaviors of adolescents), and extraneous variables (depression, peer pressure, and alcohol use). This cross-sectional study involved the analysis of data collected at one defined period to assess the prevalence of conditions (sexual activities and pregnancy) and to examine the potential impact of the intervention (sex education) on those conditions. I analyzed survey data collected by the Statistical Institute of Jamaica from June 1, 2008, to April 30, 2008, and subsequently published in March 2010.

## Research Questions and Hypotheses

The following research questions (RQs) and hypotheses underpinned this study:

*RQ 1*: What is the association between exposure to sex education in school and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_0$1: There is no association between exposure to sex education in school and the experience of adolescent pregnancy.

$H_1$1: There is an association between exposure to sex education in school and the experience of adolescent pregnancy.

*RQ 2*: What is the association between exposure to sex education at home and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_0$2: There is no association between exposure to sex education at home and the experience of adolescent pregnancy.

$H_1$2: There is an association between exposure to sex education at home and the experience of adolescent pregnancy.

*RQ 3*: What is the association between exposure to sex education in school and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

$H_0$3: There is no association between exposure to sex education in school and high-risk sexual behavior of adolescents.

$H_1$3: There is an association between exposure to sex education in school and high-risk sexual behavior of adolescents.

*RQ 4*: Is there a significant association between exposure to sex education at home and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

$H_0$4: There is no association between exposure to sex education at home and high-risk sexual behavior of adolescents.

$H_1$4: There is an association between exposure to sex education at home and high-risk sexual behavior of adolescents.

## Theoretical Framework

The theoretical framework for this study consisted of the parental expansion of the theory of planned behavior (PETPB; Hutchinson & Wood, 2007) and cognitive behavioral theory (CBT; Heffner, 2014). Hutchinson and Wood (2007) developed the PETPB in 2007 using Ajzen's 1991 formulation of the theory of planned behavior. A tenet of the PETPB is that the family influences adolescents' behaviors significantly (Hutchinson & Wood, 2007). This belief has been found to be especially true for communication about sexuality.

The PETPB suggests that interventions can influence the beliefs and behaviors of both parents and adolescents about sex, thereby reducing adolescents' risk of pregnancy (Hutchinson & Wood, 2007). The PETPB is centered on the relationship between teenagers and their parents, communication, and teenagers' behaviors related to sex. Earlier studies have shown that parents have a stronger influence on youth than do guidance counselors (Hutchinson, Jemmott, Jemmott, Braverman, & Fong, 2003).

The CBT also correlated directly with this study. The CBT focuses on how an individual's thoughts determine her behaviors, emotions, and personality (Heffner, 2014). CBT is related directly to the manner in which adolescents can exercise judgment and reasoning to cope and solve problems on a daily basis; thus, the use of basic knowledge and cognitive functioning to make decisions or choices is a cornerstone of the CBT (Corcoran, 2016). The CBT suggests that combining knowledge and observable stimuli can cause a change in an individual's behavior (Urdang, 2002).

According to Heffner (2014), sex education is an organized form of knowledge that is learned. When taught, it can have a positive effect on the sexual behavior of an adolescent. CBT places emphasis on how the individual processes information and learning information (Henson & Gross, 2008). The CBT shows the techniques needed to change the sexual behaviors of adolescents and prevent pregnancy. I discuss the PETPB and CBT in more detail in Chapter 2.

## Nature of the Study

To ascertain the impact sex education has on pregnancy and the sexual behavior of adolescent girls in rural St. Thomas, Jamaica, I used the quantitative method. The research design used for this study was descriptive and cross-sectional. A descriptive cross-sectional analysis was appropriate for this quantitative study because a quantitative research approach allows researchers to objectively and systematically measure exposure and the outcome behaviors of adolescents (Brink, 2006). I used secondary data from the 2008 JRHS to measure the impact sex education has on adolescent pregnancy and answer the research questions. The 2008 JRHS was conducted by the Statistical Institute of Jamaica and commissioned by the National Family Planning Board. The study included a cross-sectional analysis consisting of face-to-face individual and household interviews. The data set for the 2008 JRHS is accessible through the Derek Gordon Databank at the University of the West Indies (Global Health Data Exchange, 2015).

Data collection for the 2008 JRHS took place between June 1, 2008, and April 30, 2009, and findings were published in 2010 (Statistical Institute of Jamaica (2017). Study participants included male participants aged 15–24 years and female participants aged

15–49 years (Serbanescu, Ruiz, & Suchdev, 2010). However, for this study, only data provided by adolescent girls between 15 and 19 years of age were analyzed and used to describe the characteristics of adolescent girls in the rural community of St. Thomas, Jamaica. According to the Latin American Council of Churches and United Nations Population Fund (2013), 32.4% of adolescents residing in rural communities and aged between 15 and 19 years become pregnant and exhibit risky sexual behaviors compared to those residing in urban communities (20.8%). Included in the 2008 JRHS is information on adolescent pregnancies, sexual behaviors of adolescents, exposure to sex education in school, exposure to sex education at home, and some risk factors influencing the sexual behaviors of adolescent respondents to the survey. I performed correlational analysis to measure the direction and strength of relationships between these variables of interest.

## Definitions

The following terms are used in the study, and their operational definitions are provided to give clarity:

*Adolescence*: The stage from childhood to adulthood (Johnson, Crosnoe, & Elder, 2011).

*Contraceptive*: Methods for preventing pregnancy such as condom use and birth control (Mermelstein & Plax, 2016).

*Home-based sexual education*: Literature provided by community-based organizations geared toward parental monitoring and parent–child communication,

preventing unsafe sexual behavior and increasing parental involvement in the home and school life of adolescents (Manlove, Fish, & Moore, 2015).

*Puberty*: The period when adolescence takes place (Dei Jnr, 2016).

*Rural community*: Communities with open land, small settlements, a handful of homes and buildings, and not many people (Hall, Kaufman, & Ricketts, 2006).

*School-based sexual education*: Yearlong health education classes that are intended to increase the knowledge and benefit the behavior of adolescents through literature and syllabi (Jennings, Howard, & Perotte, 2014).

*Sexual education programs*: Programs offering age-appropriate information on topics related to contraception, disease prevention, decision-making, relationships, and human development (Advocates for Youth, 2014; Linberg & Maddow-Zimet, 2012).

*Sexual risk behavior*: Behaviors impacting sexual activity resulting in health outcomes that are unintended--for example, lack of contraceptive use and multiple sexual partners (Centers for Disease Control and Prevention [CDC], 2013).

*Unintended pregnancy*: A pregnancy that is reported as unwanted or mistimed (CDC, 2016; Mchunu, Peltzer, Tutshana, & Seutlwadi, 2012).

*Unprotected sexual intercourse*: Sexual intercourse in the absence of condoms (Suleiman & Brindis, 2014).

*Urban community*: Communities surrounding a city that are very developed (Hall et al., 2006).

## Assumptions

The following are assumptions made at the start of this study. It was assumed that school-based and home-based sex education programs are the same. It was assumed that the instrument used for this study is reliable and valid based on its previous use with adolescents in research. It was assumed that archival data used for this study used quality measures, coding of data checked for errors, and data were interpretable by the researcher. It was assumed that extracting questions from the overall research relevant to this study would be appropriate in providing sufficient data that address the research questions posed in this study. It was also assumed that participation was voluntary and produced an honest and accurate response during face-to-face interviews. Finally, it was assumed that the sample was representative of the population of interest. Although the data are a decade old, the situation is similar and still applies.

## Scope of Delimitations

The delimitation for this study was adolescent girls aged 15–19 years residing in the rural community of St. Thomas, Jamaica. Excluded were all other participants who did not meet the criteria for this study. The delimitation of this study is based on the views of adolescents on sex education and whether their views have an impact on getting pregnant or on their sexual behavior.

The scope of this study was based on exposure to sex education whether it has had an impact on pregnancy or high-risk sexual behavior. The focus of this study was adolescent pregnancy and the sexual behavior of adolescents as it relates to sex education. Specifically, the outcome of interest was whether sex education taught at

home or in school has an impact on the sexual behaviors or patterns of pregnancy among adolescents in the rural community of St. Thomas. This focus was chosen due to the limited number of studies conducted in rural communities in Jamaica.

## Limitations

This study was limited to secondary data analysis of adolescent girls aged 15–19 years residing in the rural community of St. Thomas, Jamaica. Therefore, the limitation applied to the face-to-face interviews in the primary study was applied to this study. A possible limitation is that participants completing the face-to-face interviews had received sexual education in a school or home setting. Another limitation related to the data collection method, which could have caused information bias. A limitation of this study was that only girls aged 15–19 years and who resided in St. Thomas were selected.

## Significance

Talking about sexuality in Jamaica is taboo. Research has shown that the long-held taboos preventing caregivers, parents, or teachers from openly talking about sex are difficult to change (Montemurro, Bartasavich, & Wintermute, 2015). Adolescent girls in Jamaica commonly engage in sexual activities that can lead to pregnancy. In Jamaica, the fertility rate for adolescent girls aged 15–19 years was 72 births per 1,000 in 2013 (United Nations Population Fund [UNPF], 2013). According to Baumgartner et al. (2009), approximately 20,000 adolescents in developing countries give birth on a daily basis. Each of these adolescent girls endangers her physical and mental health, dropping out of school and increasing the likelihood of living a life of poverty (Baumgartner et al., 2009).

This research fills a gap by examining whether sex education taught in the home or at school has an impact on adolescent pregnancy or sexual behaviors of adolescents in Jamaica. Included is information on the impact factors such as age, the influence of popular culture, beliefs, and lifestyle choices have on pregnancies and the sexual behaviors of adolescents. Various studies have examined whether parents have spoken with their adolescent children about sexuality, and at what age discussions first began (Beckett et al., 2010).

The social change implications of this study include adding to the already existing data on the impact of sex education on adolescent sexual behavior and pregnancy. Also, because research on the impact of sex education on adolescent sexual behavior and pregnancy is limited in the rural community of St. Thomas, Jamaica, this study adds to the endeavor of local community health departments seeking inventive techniques for reaching adolescents in their communities and improving and enhancing existing programs. Furthermore, the work conducted in this dissertation promotes positive social change as a way to understand the effectiveness of home-based and school-based sex education in deterring high-risk sexual activity and pregnancy among adolescents in the rural community of St. Thomas, Jamaica. An increased understanding is helpful to public health professionals and other systems serving rural communities. Finally, insights gained from this study can be used as part of a strategy to increase parent learning and involve families in pregnancy prevention efforts.

Although numerous studies have been conducted on adolescents in the urban regions of Jamaica, few have explicitly focused on the rural Jamaican population. The

rural areas are where adolescent pregnancy is on the rise and unlikely to change significantly in a short period (Doyle et al., 2012). Therefore, investigating the use and effectiveness of prevention strategies is imperative for social service organizations, public health practitioners, parents, and educators in this often forgotten region (Maharaj, Nunes, & Renwick, 2009; Wilson-Mitchell et al., 2014).

## Summary

In conclusion, the high-risk sexual behaviors and pregnancy rates of adolescents in Jamaica continue to be public health concerns. Although the fertility rate has decreased from 72 to 59 per 1,000 over the past decade, research has shown that the fertility rate in Jamaica is still high in comparison to other Caribbean nations. Sex education is known to reduce adolescent pregnancy and reduce the sexual behaviors of teenagers. A majority of adolescents in many developing nations continue to engage in sex without protection. For the current quantitative study, a descriptive cross-sectional study was performed to investigate the views and influences that may guide adolescent sexual behaviors in a rural region of Jamaica, a nation that continues to experience some of the highest international teen pregnancy rates in the Caribbean.

Chapter 1 provided an overview of the research proposal and included insight into the background of this study, the methodology, and the theoretical concept on which this study is based. Chapter 2 presents a review of the current literature on sex education, adolescent pregnancy, and the sexual behaviors of adolescents on the island of Jamaica. The methodology used to collect and analyze the study data so that research questions could be answered is presented in Chapter 3. Chapter 4 reports results based on the

secondary data set. Last, Chapter 5 discusses the results, provides recommendations for future research, and proposes implications for social change.

# Chapter 2: Literature Review

## Introduction

Adolescent pregnancy continues to be a severe public health and social problem in Caribbean countries (Wilson-Mitchell et al., 2014). In 2015, the fertility rate among adolescents in Jamaica was one of the highest among the Caribbean nations, at 59 births per 1,000 girls between 15 and 19 years of age. By comparison, adolescent fertility rates reported on the islands of Grenada and Barbados are approximately 30 births per 1,000 and 39 births per 1,000, respectively, while developed countries such as Canada report 9 births per 1,000 and the United States reports 21 births per 1,000 adolescent girls (World Bank Group, 2016). These figures strongly suggest that the risk of unplanned pregnancy among adolescents in Jamaica is disproportionately high (Emmons, 2012; McCaw-Binns et al., 2012; World Bank Group, 2016).

In 2008, 72% of all births in Jamaica were to adolescents between the ages of 15 and 19 years (UNPF, 2013). Between 2008 and 2015, the proportion of births to adolescents declined significantly to 59% (Population Media Center, 2016). However, despite a considerable decrease from 72 per 1,000 pregnancies in 2008 to 59 per 1,000 births in 2015, the adolescent fertility rates are still considered to be alarmingly high by Public health and government officials (UNPF, 2013; Youth Information Centres, 2016).

According to Mothiba and Maputle (2012), the lack of parentally guided sex education is one reason for high pregnancy rates in Jamaica. Jamaican culture is not conducive to parents feeling comfortable educating their children about sex. Reluctance to teach children about sexuality is rooted in fear of promoting sexual activity and parents

feeling they are not knowledgeable enough to discuss the topic with their children (Crawford et al., 2009; Teitelman et al., 2008). This reluctance has contributed to a multigenerational lack of knowledge about sexuality and contraceptive use, which is the leading contributor to the elevated pregnancy rate among adolescents in Jamaica (Baumgartner et al., 2009).

The purpose of this study was to analyze the impact sex education has on pregnancy and sexual behaviors among a sample of 504 adolescents in the rural parish of St. Thomas, Jamaica. I chose a rural parish because the rate of adolescent pregnancy is higher in rural communities when compared to other types of regions (Samuda, 2004). Between 2008 and 2012, it is estimated that over 8% of all births in this parish were to adolescents under 18 years of age; the Jamaican national average was 15.5% a figure higher than the national average in St. Thomas but still considered significant (UNICEF, 2013; Youth Information Centres, 2016).

A review of public health literature (Decker, Berglas, & Brindis, 2015) illustrates the importance of sex education in schools and its impact on the sexual behaviors of adolescents. However, most of the current literature has focused primarily on the United States and other developed nations (Mueller, Gavin, & Kulkarni, 2008). The authors of the few studies conducted in Jamaica (Maharaj, Nunes, & Renwick, 2009) focused on sexual behaviors and pregnancy patterns among adolescents in urban areas and did not study adolescents in rural areas. This deficit in the research literature made it compelling to study this particular population. According to Kraft et al. (2012), there are distinct differences in the sexual behaviors among adolescents in various regional communities.

Adolescents living in communities characterized by high rates of poverty are more likely to initiate sex as adolescents, less likely to obtain or use any form of contraceptives, and more likely become pregnant and give birth. These communities are also less likely to have access to quality institutions that support the relationship between parents and their adolescent children.

Insufficient research has been conducted in rural communities regarding adolescent pregnancy and the sexual behaviors of adolescents. In a rare study conducted by Doyle et al. (2012), the researchers examined sexual behavior patterns of adolescents and prevalence of unplanned pregnancy among adolescents in the urban areas of South Africa. However, comparable research approaches are lacking for the island of Jamaica, particularly in rural areas, based on my review of the literature. I anticipated that this study would bridge the gap in existing research for this particular population.

According to the WHO (2012), poverty is more prevalent in rural areas. *Rural poverty* refers to poverty found in rural areas and often refers to the inequality between urban and rural areas. In general, the WHO goes on to report there are higher rates of rural poverty in developing countries than in developed countries, and rural areas remains a challenge for the international community. Rural poverty is often a product of poor infrastructure, social isolation, hindered development, and lack of mobility due to being cut off from technological development and emerging markets enjoyed by more urban areas (Kanbur & Venables, 2005).

Between 2012 and 2016, Jamaica saw a 0.5% decline in its poverty rate from 19.2% to 18.7%, although this poverty rate remains one of the highest in the Caribbean

(World Bank Group, 2017). According to the World Bank, between 2012 and 2016 71% of households in the rural communities of Jamaica were living in poverty (World Bank Group, 2017). Poverty also affects access to health education (World Bank Group, 2017; WHO, 2012).

In this chapter, I provide an overview of my literature search strategy and theoretical foundation and review the current literature on the impact of sex education on pregnancy and the sexual behavior of adolescent. Studies were conducted in the rural town of Jack's River, Jamaica, to assess the perception that women and adolescent girls have regarding health education programs revealed inappropriate education negatively affected the behaviors and perceptions among adults and young people about their health status (Hosseinpoor et al., 2012; Whisenant, 2014). The effects of sex education on the sexual behaviors of adolescents in Jamaica will therefore be considered by both the literature review and research study approaches. This literature review consists of discussions of the study's descriptive, cross-sectional methodology and these topics: (a) adolescents, (b) sex education, (c) school and home, (d) adolescent pregnancy, (e) sexual behaviors of adolescents, (f) factors contributing to adolescent pregnancy, and (g) factors contributing to the sexual behavior of adolescents.

## Literature Search Strategy

I used various electronic databases and search engines for this literature review. These included MEDLINE with Full Text, CINAHL Plus with Full Text, Google Scholar, ProQuest, Academic Search Premier, and ABI/INFORM. I also accessed dissertations and theses available electronically from the Walden Library. Other websites

searched for relevant data included those of WHO and the ministries of health of Jamaica and other Caribbean nations. The databases were searched to identify relevant citations published through December 2017. The keywords and phrases used to search the databases included *sex education,adolescent pregnancy*, *and sexual behavior*, *impact*, *outcome*, *Caribbean*, *and cross-sectional*, *descriptive*, *teen pregnancy*, *and sexual activity*, *school curriculum*, *and youth*, *sexual health education*, *and sex education taught at home*, *risk factors influencing the sexual behaviors of adolescents*, *and age at first sexual encounter*, *theory of planned behavior*, *parental expansion of the TPB*, and *cognitive behavior therapy.*

I selected peer-reviewed articles for this literature review and organized them using a literature matrix. Considerable research has been conducted on sex education (Silva, 2002); however, I found it challenging to find literature relevant to the impact sex education has on pregnancy and sexual behaviors among adolescents in Jamaica. I was successful in finding relevant data by conducting a broader search, which included non-Jamaican articles, and by working closely with a Walden librarian and the Walden Research Center to acquire adequate information-seeking techniques. 200 sources were found using the techniques provided by the Walden librarian, 134 of which were used for this study. Literature search was discontinued after exhausting the search criteria's used for this study. Data analysis included the development of research questions, sampling, and analysis, delineation of the findings, choosing a research design and methodology, and making recommendations for future studies. The next section includes an overview

of the theoretical framework and why it was appropriate based on the content and findings of the research literature.

## Theoretical Framework

The TPB was selected as the theoretical foundation to understand the association between sex education and adolescent pregnancy and sexual behaviors. The PETPB derived from the TPB guided this study. The PETPB and CBT derive from TPB (Beck, 1970; Hutchinson, 2002) and are described below. Figure 1 illustrates the theoretical model of the TPB.

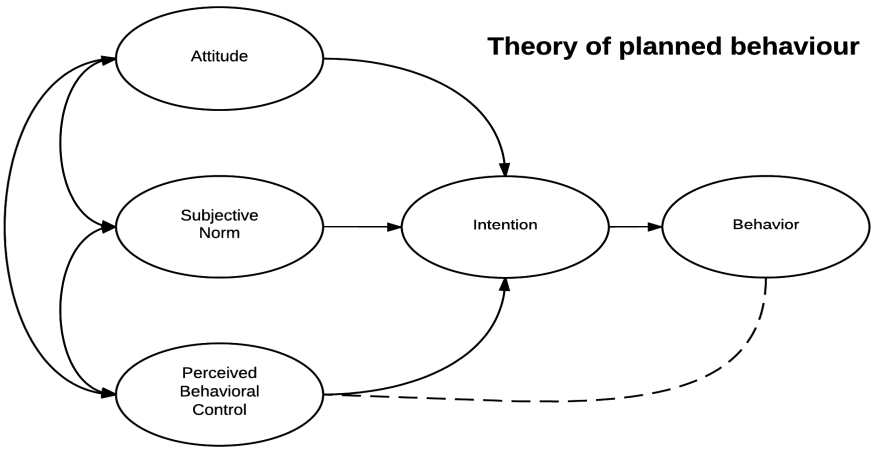


*Figure 1.* Diagram of TPB model. Figure is courtesy Robert Orzanna, https://commons.wikimedia.org/w/index.php?curid=42261999.

### Parental Expansion of the Theory of Planned Behavior

As a predictive and persuasive model, the PETPB has been the most prominent theory used among researchers to explain the behaviors of individuals (Gaioso et al., 2015; Hutchinson & Wood, 2007). The PETPB is an expansion of the theory of planned

behavior (TPB) by Ajzen (1991). PETPB stems from Ajzen's ecological expansion of the TPB that incorporates the influences parents' behaviors have on the risky behaviors of teens. The center of this framework is the behavior of adolescents and the parenting practices, which include the relationship between adolescents and their parents and whether they communicate with their children about sex (Suleiman & Brindis, 2014). The PETPB incorporates how parents can influence the sexual behaviors of adolescents (Gaioso et al., 2015). The PETPB also suggests that improving parental behavior can affect the beliefs and behaviors regarding pregnancy prevention among rural areas in Jamaica. The PETPB provided a foundation for understanding the many factors involved when making decisions about the behavioral intentions of adolescents. Numerous research studies using the PETPB have demonstrated that family influences adolescents significantly. This relationship can play a powerful role in facilitating communication about sexuality between adolescents and their family members (Hutchinson & Wood, 2007). Earlier studies conducted on parents and guidance counselors at school have shown that parents are more influential in the lives of their children, especially female adolescents, than guidance counselors are (Hutchinson et al., 2003). Understanding the influences on an individual's behavior will help to predict her intentions (Ajzen, 1991).

Three factors were proposed to determine the behavior intentions of a person. Behavioral intention is a combination of three determinants: (1) behavioral, (2) normative, and (3) control beliefs (e.g., the intentions of adolescents to engage in sexual behaviors that are risky). Normative beliefs refer to an individual's opinion about whether family members believe they will perform a particular behavior (Ajzen, 1991;

Davis, Ajzen, Saunders, & Williams, 2002). According to Ajzen (1991), subjective norms and perceived social pressure are the results of normative beliefs. Control beliefs refer to the perception of an individual based on the behavior's level of ease or difficulty (Ajzen, 1991; Davis et al., 2002). Perceived behavioral control is a result of one's control beliefs (e.g., the perceived value of the closeness of the family; Ajzen, 1991; Davis et al., 2002). Figure 2 illustrates the theoretical model of the PETPB.

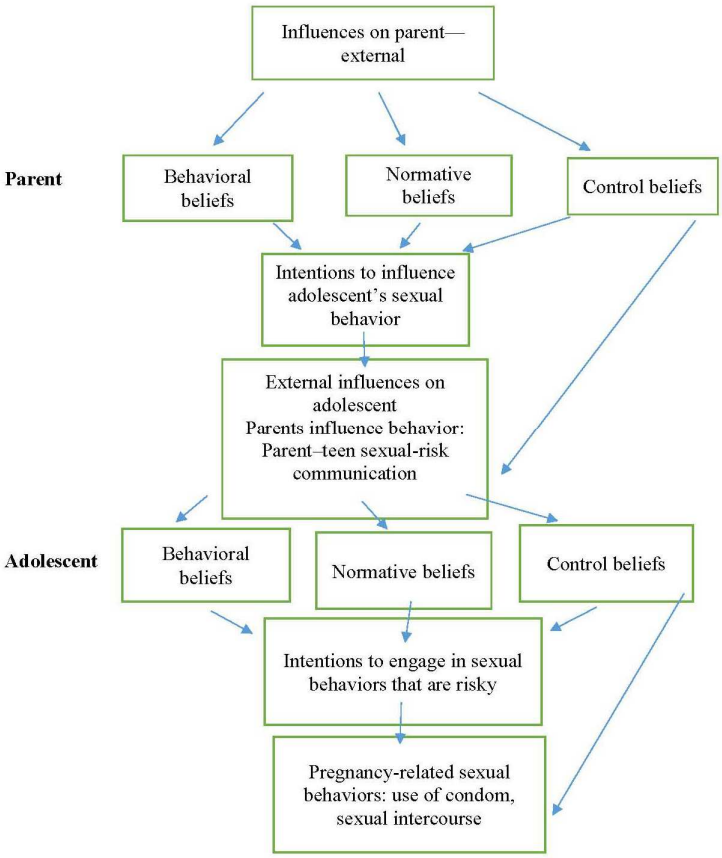


*Figure 2. Diagram of PETPB model*. Model adapted from Gaioso et al. (2015) and Hutchinson and Wood (2007).

Gaioso et al. (2015) suggested that the PETPB model's external factors affect the behavioral, normative, and control beliefs of parents. Subsequently, these external factors play a role in the intentions of parents to talk with their adolescent children about sex. These factors will then influence adolescents by changing their behavioral, normative, and control beliefs about the decision to engage in sexual behavior (Ballonoff-Suleiman & Brindis, 2014; Gaioso et al., 2015). Grossman, Frye, Charmaraman, and Erkut (2013) proposed that teaching positive attitudes to promote self-efficacy in sexual communication would support the intentions of students to delay sex. A mixed methods

study with a sample size of 706 sixth and seventh graders (Grossman et al., 2013) supports the conclusion that communication within the family has a strong impact on adolescent sexual behaviors and pregnancy.

A meta-analysis of 44 studies found a relationship between improvements in sexual outcomes (unprotected sex, pregnancies, and sexually transmitted disease) experienced by adolescents and communication with parents (Hutchinson et al., 2003). Other studies conducted by Maria, Markham, Mullen, and Bluethmann (2015) and Guilamo-Ramos et al. (2012) enforced positive findings regarding parent–child communication and sexual behaviors of adolescents.

**Cognitive Behavioral Therapy**

CBT stems from Beck's (1970) original work while exploring the concepts of depression through psychoanalysis. CBT focuses on an individual's thoughts affirmed by his or her behaviors, emotions, and personality (Heffner, 2014). CBT relates directly to the reasoning experienced by adolescents in coping with daily problems and making informed decisions about sexual behaviors and practices (Ballonoff-Suleiman & Brindis, 2014). According to CBT, individuals can have essential cognitive functions but show poor reasoning when making decisions or choices. The indication behind the CBT is that combining knowledge and processing observable stimuli can help to cause a change in an individual's behavior. According to Heffner (2014), sex education is an organized knowledge that is learned.

CBT places emphasis on the learning process of an individual how he or she processed information (Henson & Gross, 2008). CBT is used to address adolescent

pregnancy and show that adolescents can learn techniques to change their sexual behavior and prevent pregnancy. CBT also helps describe the cognitive role used to determine and predict an individual's behavioral pattern (Raddock, Martukovich, Berko, Reyes, & Werner, 2015; Thompson et al., 2015). According to this theory, individuals tend to form self-concepts that in turn affect the behavior they display on a daily basis (Mandel, 2014). The environment an individual lives in, and can be negative or positive can affect these self-concepts. CBT focuses on unique actions and helps people to change or maintain their behaviors (e.g., encouraging adolescents to change their daily habits and make better decisions regarding sexual behavior; Mandel, 2014; Raddock et al., 2015).

Sex education programs designed to reduce the sexual behaviors of teenagers and teenage pregnancy have indicated when utilizing CBT adds to the overall effectiveness of the program (Van Vugt & Lemieux, 2016). Adding the various levels of the CBT as a part of the curriculum with encourage adolescents to make choices regarding their sexual and reproductive health. As a goal-oriented approach, the purpose of CBT as applied in this study is to examine any connections between the behaviors, feelings, and thoughts of adolescents (Heffner, 2014).

Directly related to the CBT, the judgment and reasoning among adolescents when they have to cope with the problems they need to solve daily. Ballonoff-Suleiman and Brindis (2014) posited that making decisions about sexual behaviors and practices requires much thought and knowledge. Last, CBT stands on the ground that individuals have the basic knowledge of cognitive functioning but show faulty reasoning when making decisions or choices. Figure 3 illustrates the theoretical model of CBT.

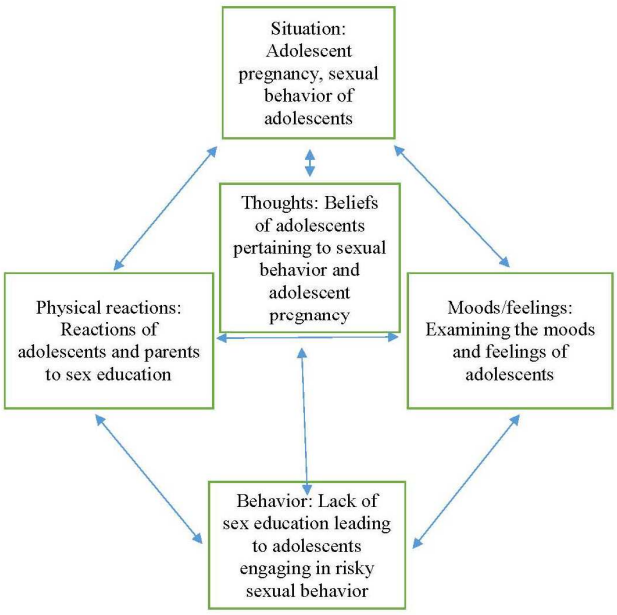


*Figure 3.* Diagram of CBT. Model adapted from Williams and Garland (2002).

## Literature Review Related to Key Variables and/or Concepts

### Descriptive Cross-Sectional Design

A descriptive cross-sectional study was the most appropriate method to analyze the pattern of sex education on pregnancy and sexual behaviors of adolescents in rural Jamaica. The design is most suited for analyzing the attitudes of adolescents toward pregnancy, and their beliefs about the consequences resulting from their sexual behaviors, patterns of sexual behavior and experiences of pregnancy among a sample of respondents.

A cross-sectional study examines the prevalence of a disease or other outcomes at one moment in time. It provides a "snapshot" of the individuals studied in a population sample. Cross-sectional studies begin by selecting a sample population and then obtaining data to classify all individuals in the sample as either having or not having the

health outcome. Also, this method allows the researcher to gain insight into existing correlations (Imaledo, Peter-Kio, & Asuquo, 2012; Osaikhuwuomwan & Osemwenkha, 2013).

Researchers to examine the correlation between sex education, adolescent pregnancy and the sexual behaviors of adolescents have utilized descriptive cross-sectional research. Imaledo et al. (2012) adopted a descriptive cross-sectional study using open and close-ended questions to study patterns of high-risk sexual behaviors of university students. Similarly, Olugbenga-Bello et al. (2014) used a descriptive cross-sectional study to understand early high-risk sexual behaviors of adolescents and exposures leading to such behaviors. According to Olugbenga-Bello et al., most adolescents lack the maturity to live with the consequences of their actions.

**Adolescents**

Adolescence is defined as a period of human development that takes place between childhood and adulthood, typically between 13 and 19 years of age. Adolescence is a period of transition in the life of a child which is characterized by biological, physical, and psychological development (Dei Jnr, 2016; McFarlane, Younger, Francis, Gordon-Strachan, & Wilks, 2014; WHO, 2016). Adolescence is the stage at which older children start to acquire the maturity required to function as an adult (McFarlane et al., 2014; Olugbenga-Bello et al., 2014; WHO, 2016), and it is the period when young adults develop the ability to understand, identify, and overcome adversity. During adolescence, risky sexual behavior increases due to hormonal and cognitive development within mind and body.

In 2013, 2.8 million Jamaicans were reportedly residing on the island, of which 134,573 were between the ages of 15 and 19 years (All In, 2015; McFarlane et al., 2014; United Nations Children's Fund, 2013; UNPF, 2013). Physically, children are reaching maturity and entering adolescence at a much earlier age (Tulloch & Kaufman, 2013). Over the years, adolescent sexuality has changed, resulting in children growing up faster and hitting puberty at an earlier age. Puberty is the stage in which children develop physically and start thinking about and experimenting with sexual activities. Young girls start developing breasts, begin their menstrual cycles, become aware of their bodies, and first experience physical attraction to the opposite sex.

Early physical development of young girls in the Caribbean is not a new phenomenon (Boyne et al., 2010). The few, limited data on the early physical development of young girls in the Caribbean were from cross-sectional and retrospective studies which suggested that girls started their menarche as early as age 13 years or younger and that dietary patterns or being overweight could be the cause of early physical development. However, it is still not clear what causes young girls to enter puberty at an earlier age.

According to Emmons (2012) and the World Bank Group (2016), Jamaica has a fertility rate of 59 per 1,000 among women between the ages of 15 and 19 years, which is the highest among other English-speaking nations in the Caribbean and is in part due to the early sexual debut of adolescents. The United Nations Children's Fund (2013) reported that from 2008 to 2012, 18% of adolescents in Jamaica had given birth by 18 years of age.

**Sex Education**

According to Heffner (2014), sex education is an organized form of knowledge that is learned. Although highly controversial, researchers believe that sex education has a positive effect on adolescent sexual behavior and that it reduces unplanned teen pregnancy. Sex education includes numerous topics, such as emotional health, sexual orientation, values, decision-making, and birth control; how to avoid sexually transmitted infections; and overall reproductive health (Fentahun et al., 2012). The best practices should inform adolescents on sex education based on the most effective practices for preventing unplanned adolescent pregnancy as well as for eliminating risky sexual behavior. Nevertheless, the rights of adolescents should be respected; therefore, only information that is both complete and honest should be provided to them at home and in school (Advocates for Youth, 2014).

Some of the frequently reported reasons adolescents engage in early sexual activities include peer pressure, absent parents, lack of knowledge, sexual abuse or rape, and teenage drinking. The Bay Area Communities for Health Education lists the leading reasons sex education may be necessary as the following:

1. Adolescents are sexually active due to early onset of puberty.
2. Young people need to learn about sexuality before they become active.
3. Children will learn about sex regardless if sex education is taught in school.
4. Sex education can contribute to healthier futures of poor and minority youth.
5. The lives of young people are affected more profoundly by sexual health education than by any other subject. (Guitart, 2016)

**School-Based Sex Education**

School-based sex education is often described as a "contentious" subject. In the past, there have been many debates on the effectiveness and appropriateness of a comprehensive sexual education program in schools (Fonner et al., 2014). Multiple research studies have been conducted on the effectiveness of school-based sex education programs, with conflicting results. While some studies posited that sex education in school might lead to an increase in sexual activity (Vivancos, Abubakar, Phillips-Howard, & Hunter, 2012), other studies have found that sex education promotes knowledge and responsible sexual behavior and that it lowers the risk of adolescent pregnancy (Boonstra, 2014).

Jackson et al. (2012) suggested, however, that while there is a need for school-based sex education programs, they are insufficient in helping to prevent risky sexual behaviors among adolescents. They found that sex education programming aimed at reducing adolescent risky sexual behaviors has had other positive outcomes, including enhancing interaction with family members and improving communication within the school environment (Jackson et al., 2012).

Goesling, Colman, Trenholm, Terzian, and Moore (2014) conducted a systematic review of numerous programs designed to reduce teen pregnancy, sexually transmitted infections (STIs), and irresponsible sexual behaviors. They found that of the 88 programs studied, 31 showed evidence of being useful in the reduction of teen pregnancy, risky sexual behaviors, and STIs. Santelli, Song, Garbers, Sharma, and Viner (2016) reported a decline in the birthrates of adolescents who attended sex education classes. Similarly, a

study conducted in Latin American and the Caribbean whose findings focused on general education and socioeconomic status showed the positive impact of sex education on adolescent pregnancy rates (Rodríguez-Vignoli & Cavenaghi, 2014).

School-based programs are best suited to educating a broader scope of the adolescent population about pregnancy and sexual activity (Fonner et al., 2014; Schalet et al., 2014). After studying 48 comprehensive programs, Tulloch and Kaufman (2013) found that there was an immediate reduction in the sexual activity of adolescents. However, Vivancos et al. (2012) reported a lack of long-term, evidence-based studies on the effects of sex education on adolescent pregnancy, sexually transmitted disease, and sexual behavior. The essential role of a school-based sex education program is to promote the sexual and reproductive health of adolescents (Schalet et al., 2014). A school-based sex education program also facilitates educating adolescents about their sexuality before engaging in sexually risky behavior during adolescence and adulthood (CDC, 2013; Schalet et al., 2014).

Some educators, researchers, and public health professionals are of the opinion that school-based sex education programs improve the sexual health outcomes for adolescents, but more work needs to be done to strengthen the overall impact of these programs (Suleiman & Brindis, 2014). One of the reasons that school-based sex education programs fall short is that the foundation of many of the curricula asserts that the sexual decisions made by adolescents are rational or deliberative (Suleiman & Brindis, 2014). Goldenberg, Telzer, Lieberman, Fuligni, and Galván (2013) reported that

risky sexual behaviors of adolescents reflect their developmental process. Hence, the need for age-appropriate sex education is critical.

**Home-Based Sex Education**

Early sexual activities among adolescents are often associated with increased sexual risk taking (Grossman et al., 2013). Efforts of communities and schools are driven by the goal of delaying the early debut of sexual activities that lead to pregnancy, sexually transmitted diseases, and other consequences of sexual risk taking (Grossman et al., 2013; Grossman, Tracy, Charmaraman, Ceder, & Erkut, 2014). Multiple research studies have supported the real impact families are facing when attempting to communicate to adolescents about the implications of risky sexual behavior (Grossman et al., 2013; Grossman et al., 2014). In an Australian qualitative study by Dyson and Smith (2012) with 31 parents, most parents in the sample reported that they perceived sex education as their responsibility, with a school-based sex education program as a supplement. Parents reported that they want their children well informed about sex, relationships, and their sexual health, yet they felt inadequate in providing sex education to their children (Dyson & Smith, 2012; Fentahun et al., 2012).

**Adolescent Pregnancy**

Adolescent pregnancy can have health and social outcomes that have lasting effects. Forty-four percent of adolescents in Jamaica between the ages of 15 and 19 years have already had their first sexual encounter (McCaw-Binns et al., 2012). In 2008, 72 births per 1,000 girls between the ages of 15 and 19 years in Jamaica were estimated, although adolescent pregnancy is on a downward trend. Current adolescent fertility rates

remain exceedingly high, at 59 births per 1,000 adolescent girls (McCaw-Binns et al., 2012; UNPF, 2013), and nearly all (80%) of adolescent pregnancies are not planned (Wado, Afework, & Hindin, 2013).

The social, economic, and health outcomes of adolescent pregnancy can have a lasting effect, such as adverse health consequences (Hindin et al., 2016; Nerlander et al., 2015). The effect of adolescent pregnancy is a significant health issue that persists into adulthood (Hindin et al., 2016). Several studies reported on the adverse physical and psychological health outcomes of both newborns and adolescent mothers (Ganchimeg et al., 2013; Hindin et al., 2016) and the impact pregnancy has on the body (Wilson-Mitchell et al., 2014). A study about the international and national dilemma of adolescent pregnancy found that 11% of all births worldwide are to teens between 15 and 19 years of age (Holness, 2015). In Jamaica, however, one in five girls (20%) have given birth at least once before her 20th birthday (Geary, Baumgartner, Wedderburn, Montoya, & Catone, 2013).

**Sexual Behavior of Adolescents**

Sexual behavior describes an individual's sexual habits, attitudes, associations, and orientations (Okigbo et al., 2015; Olugbenga-Bello et al., 2014). The sexual behavior of teens significantly increases their risk of unplanned pregnancy (Okigbo et al., 2015; Olugbenga-Bello et al., 2014). Researchers have long explored the relationship between adolescent sexual behavior and a host of demographic variables and social norms (Kraft et al., 2012). Numerous studies have shown a correlation between the sexual behavior of and unplanned pregnancy among Jamaican adolescent girls. For example, Longman-

Mills and Carpenter (2013) conducted a study in Jamaica in which they identified risky sexual behavior among adolescents, despite many education campaigns aimed at teenage girls. These sexual behaviors included having multiple sexual partners, forced sexual intercourse, and early initiation (Ishida et al., 2011).

Longman-Mills and Carpenter (2013) posited that teens are less likely to talk about their sexual experiences and that they are more likely to exhibit minimal or no condom use, have multiple partners, and participate in other sexual behaviors. In a survey of adolescents in Jamaica, researchers found that having multiple sexual partners was the most frequently reported risky sexual behavior (McFarlane et al., 2014). One-third of the sample population reported not using a condom and having two or more sexual partners. The use of condoms was nonexistence, or used inconsistently, by the various age groups, although they are aware of condoms' preventative efficacy (Goldenberg et al., 2013; Longman-Mills & Carpenter, 2013). Okigbo et al. (2015) linked the risky sexual behavior of adolescents to sexual debut at an early age. However, Goldenberg et al. (2013) found a relationship between the sexual behaviors of adolescents and emotional arousal highlighted by the lack of self-control.

In a study of 377 in-school adolescents in rural communities in southwestern Nigeria, Olugbenga-Bello et al. (2014) found that 14.1% of the respondents reported having their first sexual experience before or at age 15 years. Similarly, Ishida et al. (2011) conducted a study of adolescents that reported the mean age of first sexual encounter as 16 years. Research has also found that many sexual behaviors exhibited by

adolescents leading to the initiation of sexual intercourse happens without the adolescents being mindful of the consequences involved (Olugbenga-Bello et al., 2014).

**Factors Contributing to Adolescent Pregnancy**

Lack of sexual knowledge, barriers to getting contraceptives, nonuse of contraceptives, and low self-esteem have been associated with early risk of adolescent pregnancy across the globe (Holness, 2015; Mothiba & Maputle, 2012). Other factors include peer pressure, the breakdown of the family, sexual coercion, and mixed messages sent through popular culture (Holness, 2015; Mothiba & Maputle, 2012). Mothiba and Maputle reported that the majority (88%) of the respondents in their study were knowledgeable about the use of contraceptives and other means of preventing pregnancy but chose not to use them. Similarly, Acharya, Bhattarai, Poobalan, Teijlingen, and Chapman (2014) suggested that while teenagers had basic knowledge of the use of contraceptives, use was inconsistent. Some studies have revealed that about half of adolescents across cultures report that their first unplanned pregnancy was a consequence of a lack of information (Acharya et al., 2014; Mchunu et al. 2012).

However, in a school-based survey of 30 students, Wilson-Mitchell et al. (2014) found that a substantial proportion of first-time pregnancies among Jamaican adolescents were intentional to prove they were women. The researchers also found that a lack of parental support at a time when adolescents are more emotionally vulnerable places them at a higher risk of becoming pregnant. According to Wilson-Mitchell et al., all the respondents in their study saw their mothers as a significant source of support. However,

most did not feel a level of comfort discussing the use of contraceptives with their mothers.

**Sexual Violence and Early Sexual Debut**

In a study analyzing descriptions of the first sexual experiences of adolescents in Jamaica, Geary et al. (2013) reported that as many as one-third of the 32 girls who participated in the study reported that their first sexual encounter was involuntary. The 2008–2009 JRHS stated that 11% of girls aged 15–24 years reported experiencing sexual intercourse that was forced (Geary et al., 2013), while Wilson-Mitchell et al. (2014) reported that one in five young, girls aged 15–19 years in Jamaica reported forced sexual activities.

Holness (2015) discussed the trends of adolescent pregnancy both nationally and internationally and reported poverty as one of the influences of pregnancy among teens. Economic status (i.e., poor and low income) is reported as a strong predictor of risky sexual behavior and unplanned pregnancy among adolescents in the United States (Guttmacher Institute, 2013; Holness, 2015). Similarly, Acharya et al. (2014) found that in South Asia, teen pregnancies (52%) occurred among members of the lowest socioeconomic class.

**Factors Contributing to the Sexual Behaviors of Adolescents**

Many influences shape the sexual behavior of an adolescent within our society. Mchunu et al. (2012) reported on lack of knowledge as one of the causes for adolescents engaging in risky sexual behaviors. Wang, Stanton, Deveaux, Li, and Lunn (2015) indicated that the low levels of parental monitoring had been known to increase the

sexual behavior of adolescents. Conversely, Schuster, Mermelstein, and Wakschlag (2013) conducted a meta-analysis of studies that reported that with rules that are more restrictive and levels of low parental permissiveness, teens would have fewer sexual partners. The same goes for increased condom usage.

Some studies have found that unprotected sexual intercourse is often the result of wanting to acquire or maintain a reputation among peers (Mchunu et al., 2012). Wang et al. (2015) indicated that during early adolescence, peer influence increases in high school, resulting in higher instances of promiscuity. Schuster et al. (2013) reported that teens are more susceptible to peer pressure when battling depression.

Several studies have shown a correlation between depression and the decision to engage in sexual behavior among adolescents. For example, McFarlane et al. (2014) posited that early sexual activity is indicative of the early onset of depression. Similarly, Schuster et al. (2013) reported a higher prevalence of sexual activity among depressed teens than among non-depressed teens. Both longitudinal and cross-sectional studies have found a relationship between depression and the increased risky sexual behaviors of adolescents (Schuster et al., 2013).

Last, having multiple sexual partners (i.e., promiscuity) and monetary gain were factors reported to contribute to the sexual behavior of adolescents. According to Drakes et al. (2013) and Sutherland (2016), older men in exchange for sex offered young girls in Jamaica money. Similarly, Dunkley-Willis (2014) and Sutherland (2016) reported that Jamaican adolescents engage in sexual activity with multiple partners for monetary gain.

## Summary

In Chapter 2, I reviewed the literature on the relationship between sex education, adolescent pregnancy, and sexual behavior of adolescents. Studies have consistently supported that there is a relationship between the attitudes of adolescents toward pregnancy, risky sexual behaviors, and sex education (Breuner & Mattson, 2016). However, few researchers have examined this relationship among Jamaican youths in particular, according to my review of the literature. Understanding adolescent pregnancy and the sexual behavior of adolescents in Jamaica involves recognizing the complexities that surround the knowledge of, beliefs about, and attitudes toward contraceptive use among this cultural group. Sex education is often correlated with a decline in adolescent pregnancy (Stanger, Hall, & Hall, 2011) and reduced adolescent sexual activity (Ott & Santelli, 2007). Few studies have been conducted in Jamaica on this relationship, however. Thus, there was a need for further analysis to determine the prevalence of sexual education and its impact on adolescent pregnancy and the sexual behavior of adolescents of rural Jamaica.

Multiple studies guided by the PETPB have been used by researchers to inform parent–adolescent communication on pregnancy and their sexual behavior. Furthermore, the PETPB and CBT theoretical frameworks allow for a better understanding of the predictors of high-risk sexual behavior and adolescent pregnancy (Hutchinson, 2002). In Chapter 3, I discuss the methodologies used to determine the effectiveness of sex education taught through school curricula or at home in the rural community of St. Thomas, Jamaica.

# Chapter 3: Research Method

## Introduction

The purpose of this research was to determine the impact sex education has on the sexual behaviors and pregnancy rates among adolescents in St. Thomas, Jamaica. In Chapter 3, I discuss the methodology and design of this study. I include my rationale for the research design. The target population, sampling procedures, treatment of archival data, instrumentation, operational definitions of the variables, threats to validity, theoretical constructs, and ethical procedures are also described in this chapter.

## Research Design and Rationale

The dependent variables for this study were adolescent pregnancy and sexual behaviors of adolescents, and the independent variables were sex education taught in school and sex education taught at home. I used a quantitative, descriptive, cross-sectional design. This design is useful in studying a wide range of public health issues. In a cross-sectional study, data are collected on a study population at a single point in time to examine the relationship between diseases or other health-related status and other variables of interest (Hennekens & Buring, 1987). Cross-sectional studies provide a snapshot of the frequency of a disease or other health-related characteristics in a population at a specific time.

A cross-sectional research design is therefore particularly useful in assessing the burden of disease or health needs of a population and informing the allocation of health resources and public health strategies (Hennekens & Buring, 1987). Researchers have frequently used descriptive cross-sectional design to explore the pattern of adolescent

sexual behavior and pregnancy (Imaledo et al., 2012; Osaikhuwuomwan & Osemwenkha, 2013). Using a descriptive cross-sectional analytic approach, they are able to examine the association between sex education, sexual behavior, and pregnancy among adolescents; several researchers have even determined a descriptive cross-sectional design to be highly effective for measuring patterns in the interrelationships between sex education, adolescent sexual behaviors, and pregnancy (Osaikhuwuomwan & Osemwenkha, 2013).

Researchers have frequently used descriptive cross-sectional study designs to examine the association between sex education, teenage pregnancy, and the sexual behaviors of adolescents. For example, Imaledo et al. (2012) adopted a descriptive cross-sectional design to examine the practice of risky sexual behaviors of university students. Similarly, Olugbenga-Bello et al. (2014) employed a descriptive cross-sectional design to understand the early and increased sexual risk behaviors of adolescents in Nigeria and exposures leading to such behaviors. Researchers conducting descriptive cross-sectional studies have examined the association between disease or condition and the variables of interest over a short period for a defined population and have generally considered these types of studies to be a relatively simple and expedient design choice (Omair, 2015). A descriptive cross-sectional study provides information about a disease or condition (NEDARC, 2016), and can help provide insight into whether communicating with adolescents about sex education will deter their decision to initiate sexual intercourse. A cross-sectional study involves the use of a survey instrument for data collection, while descriptive statistics assist in the interpretation of the data (Imaledo et al., 2012; Public

Health Action Support Team, 2011). This approach was therefore used to carry out this study.

### Rationale

The purpose of this study was to examine the impact sex education has on the sexual behavior and pregnancy rates of adolescents in a specific rural community in Jamaica. The primary goal for using a descriptive cross-sectional design for this study was to assess the sample population at a specific point in time (NEDARC, 2016). A descriptive design helps researchers discover areas within their research for further studies. Lastly, a descriptive study design provides information about a condition or disease.

## Methodology

I used a quantitative research methodology for this study. Quantitative researchers typically take a more structured approach to data collection and analysis than qualitative researchers and attempt to answer questions and hypotheses by way of generating numerical data and transforming data into usable statistics (Creswell, 2013). This methodological approach allows attitudes, opinions, behaviors, and other defined variables to be quantified and the results generalized from the sample to the larger population. Measured data can be used to uncover patterns and answer the research questions (Creswell, 2013).

### Population

The 2008 JRHS was conducted in conjunction with the National Family Planning Board of Jamaica. The data were collected on women and girls aged 15–49 years across

the island. The target population for the current study was adolescent girls aged 15–19 years residing in St. Thomas, Jamaica, in 2008. At the time the 2008 JRHS was being administered, the population size in St. Thomas, Jamaica, was approximately 94,000 (Knoema, 2011–2017; Statistical Institute of Jamaica, 2017). Overall, it was estimated that 14.9% of adolescents between 15 and 19 years of age in St. Thomas, Jamaica, took part in the 2008 JRHS (Serbanescu et al., 2010).

In 2008, the fertility rate for adolescents aged between 15 and 19 years on the island was estimated at 72 per 1,000 in rural areas and 51 per 1,000 for residents of the urban Kingston Metropolitan Area (Serbanescu et al., 2010). In the same study, the fertility rate for adolescents in the parish of St. Thomas was 102 per 1,000, suggesting that the adolescent pregnancy rate in this particular parish was twice that of urban areas and about 42% higher than in other rural areas. The current study includes analysis of data for women aged 15–19 years who were residing in St. Thomas, Jamaica, during the administered period of the 2008 JRHS.

**Sampling and Sampling Procedures**

According to Crosby, DiClemente, and Salazar (2006), the generalizability of outcomes from a sample to the broader population affects the sampling strategy. Therefore, a representative sample can ensure that inferences about the population of interest are made. A randomized sampling allows generalizability of findings to the population of interest and gives credibility to the contribution of the scientific study (Frankfort-Nachmias & Nachmias, 2008).

Data for the 2008 JRHS were collected using a randomized sampling strategy. A randomized sampling strategy was also used by the Statistical Institute of Jamaica because it was determined to be stringent, thereby producing a sample representative of the target population. The sample design for the JRHS produced estimates for the region's rural and urban communities. Randomized sampling strategy allowed stakeholders to evaluate reproductive health at subnational and regional levels (Serbanescu et al., 2010).

In this study I used the data collected by the Statistical Institute of Jamaica. I accessed data through the Derek Gordon Databank, Sir Arthur Lewis Institute, Social and Economic Studies, University of West Indies, Jamaica. The data extracted from the 2008 JRHS for the current study were limited to interview data provided by adolescent women aged between 15 and 19 years and residing in the parish of St. Thomas, Jamaica. This subsample of respondents was extracted from the total sample of 8,259 female participants aged 15–49 years. Those respondents who were aged 20 years and older were excluded from the analysis.

The Statistical Institute of Jamaica developed a sampling frame that was used for the 2001 Jamaican Census. The frame included a three-stage stratified national sampling procedure. The first stage included the selection of 628 areas; the second stage consisted of a random sampling of clusters of households; and the third stage included a random sampling of women aged 15–49 years residing in all parishes in Jamaica (Serbanescu, et al., 2010). Participants were selected from noninstitutionalized dwellings. Face-to-face interviews and systematic selection of individuals took place over 6 months between June

and November 2008. Previous surveys were periodically collected in 1989, 1993, 1997, and 2002 (University of the West Indies, 2012).

The 2008 JRHS is population based and administered to women of childbearing age (Serbanescu et al., 2010). It contains Jamaica's most accurate data on fertility, pregnancies, and reproductive health behaviors. The 2008 JRHS is considered more comprehensive than earlier surveys conducted by the University of the West Indies in 1989, 1993, 1997, 2002, and 2008 (Serbanescu et al., 2010).

It should be noted that the JRHS 2008 reflects face-to-face interview data regarding the sexual history, knowledge, attitudes, reproductive and contraceptive practices, fertility, and demographics of $N = 8{,}200$ women of reproductive age. The data were collected between June 1, 2008, and April 30, 2009. However, data reporting was not until March 3, 2010, and remain the most recent available data for this population group (Statistical Institute of Jamaica, 2017).

**Current research study.** The secondary data set used for this study was collected in 2008 and is the most recent data set available on this subject in Jamaica. The focus of this study was on adolescents residing in the rural community of St. Thomas, Jamaica, because of the disproportionately high fertility rates experienced in this particular area. A total sample size of $N = 8{,}200$ participants was acquired for the 2008 JRHS. Considered significant, this sample size was enough to measure differences and phenomena in the data.

Information from the large accessible data set reviewed, and questions relevant to the current study selected. After survey administrators applied inclusion criteria (gender

and age), participants were selected from 1,267 households in the parish of St. Thomas. The selected data reflect the responses of a subgroup of 504 young girls from the parish of St. Thomas. The data for this sample group were imported into SPSS for analysis.

**Inclusions and exclusion criteria.** The inclusion criteria limit data analysis to girls between the ages of 15 and 49 years, regardless of marital status or place of residence when the survey was administered. The sampling frame considered the 2001 Census Enumeration Districts (EDs) or Census sectors. Each ED consists of two, three, or four sampling regions. The size of the sampling region in each parish varied and based on the total population. The survey utilized a stratified multistage sampling design. The number of female households sampled in St. Thomas totaled 1,267 and consisted of 40 primary sampling units (University of the West Indies, 2012).

**Sample size estimate.** According to Nayak (2010), determining a sample size that is appropriate for the design of a study is critical for researchers. With a proper sample size, results produced are more conclusive and can detect accurate relationships and differences when those relationships and differences indeed exist (Farber & Fonseca, 2014). Gained is more power to measure significant relationships and differences by increasing the sample size (Select Statistics, 2016). G*Power Version 3.1.7 was used to determine the sample size (Faul, Erdfelder, Buchner, & Lang, 2009). A medium effect size, 95% confidence interval, and a power level of .8 and alpha level of .05 suggested that a minimal sample size of 177 was needed for this study. A total of $n = 504$ girls aged between 15 and 19 years was included in the analysis, thereby far exceeding the minimal sample size of $n = 177$. The larger sample size suggests a high level of power to assure

that Type I and II errors were avoided and generalizing inferences to the population of interest.

**Procedures for Recruitment, Participation, and Data Collection**

The Statistical Institute of Jamaica and the U.S. Centers for Disease Control and Prevention (CDC) trained interviewers and supervisors hired jointly for the study to ensure that data quality standards were met (Serbanescu et al., 2010). The CDC continues to assist countries throughout the world with the development, implementation, and analysis of large national reproductive health surveys (CDC, 2016).

After obtaining verbal consent female interviewers administered the questionnaire to selected female participants (Statistical Institute of Jamaica, 2017). Interviews were conducted at the homes of selected participants. The 40-page survey took an average of 47 minutes to complete. Questions were asked on demographics, relationship status, fertility, knowledge and use of contraceptives, family life, sex education, education level, sexual behaviors, and ability to discuss sexuality and reproductive health information with parents or guardians (National Family Planning Board, 2010).

Geographically, Jamaica is divided into 14 parishes and 5,235 EDs or Census sectors, of which 2,693 are rural. Each parish subdivided further into 307 sampling regions of equal size (Kahwa et al., 2010; Serbanescu et al., 2010). Recruitment of participants went through three stages inclusive of (a) selection of Census sectors, (b) random selection of cluster households from the Census sectors, and (c) random selection of one girl between the ages 15 and 49 years from each of the 1,267 households sampled.

## Instrumentation and Operationalization of Constructs

**Instrument.** This study is based on data obtained from the existing survey form designed by the Statistical Institute of Jamaica and utilized for the 2008 JRHS. Sexual behaviors and adolescent pregnancy were examined through data collected as a part of the 2008 JRHS. The National Family Planning Board, sponsored by the U.S. Agency for International Development (USAID) and Government of Jamaica (University of the West Indies, 2012), developed the survey. Use of the instrument and data required permission from the Derek Gordon Databank, Sir Arthur Lewis Institute, Social and Economic Studies, University of the West Indies, Jamaica. Permission for use requested on January 6, 2018, and obtained on January 9, 2018.

The survey collected data from girls and women living in non-institutional dwellings. Face-to-face interviews included a representative sample size of approximately 8,200 female participants of reproductive age throughout Jamaica (University of the West Indies, 2012). A draft of the questionnaire was pretested by a team of 16 interviewers and 3 supervisors from the Statistical Institute of Jamaica before administering to the larger population. Their objectives were to test the flow and sequence of the questions before administering, that the wording and language were suitable, and that skip instructions were appropriate and to estimate the length of time it would take to complete each interview (National Family Planning Board, 2010). The training manuals and questionnaires were modified based on the results of the pretesting exercise and debriefing session. Surveys used to collect information on fertility, health behaviors, and attitudes, and pregnancies are timely and considered the best to evaluate

programs (Serbanescu et al., 2010). Periodically used in Jamaica, these surveys are a valid and reliable instrument for this study. Scientific sampling also gives credence to the validity and reliability of the survey instrument used for the 2008 JRHS based on its use of nationally representative samples.

According to Serbanescu et al. (2010), the 2008 JRHS weighted the data for the population of women recruited to participate in the survey. Weighting the data was used to adjust the results of a study to bring it closer to what is known about a population and to correct for discrepancies. The final survey was a product of three weights: Wt (sampling region), Wt (one eligible respondent), and Wt (post stratification). Multiple studies carried out in Jamaica have utilized face-to-face interviews as an instrument to study women of childbearing age. These studies include the Jamaica Contraceptive Survey of 1993 and the Reproductive Health Surveys conducted in 1997, 2002, and 2008. Each of these surveys included a randomly drawn sample of 5,000 or more persons from each parish (Statistical Institute Jamaica, 2017).

**Operationalization.** An operational definition is the application of operationalization used to define a process or test needed to determine the nature of a phenomenon. Needed are the properties of a variable, such as quantity and composition. According to Brito (2013) and Frankfort-Nachmias, Nachmias, and DeWaard (2014), operational definitions are a description researchers can follow to determine an idea based on its occurrence. Furthermore, the use of operational definitions is essential when researchers need to measure study variables to explain how and why certain events act in a particular way (Frankfort-Nachmias et al., 2014). Researchers are also able to recognize

the needed action to take based on observations of the phenomenon. The construct of interest is a direct illustration of the responses offered to questions asked in a survey.

The objective of this study was to examine the impact of exposure to home-based and school-based sex education on the sexual behaviors and pregnancy rates among adolescents. The study sought to analyze the influence of the independent variables—sex education in school versus sex education at home—on the dependent variables of high-risk sexual behavior and adolescent pregnancy and will guide the selection of specific JRHS questions related to the variables for data analysis of responses. Controlled variables were age and gender. Choosing the correct independent and dependent variables was vital for meeting this research objective.

**Independent variables.** The independent variables in this study are sex education in school and sex education at home, as defined in the "Operational Definitions of Terms" in Chapter 1.

Some of the questions used to measure these variables were as follows:

1. Number of years in school?
2. Have you ever received information on pregnancy from your parents or guardians and how it occurs?
3. Have you ever received information on methods of birth control?
4. Have you ever had a class on family planning or sex education at school?

These questions were answered with "yes," "no," "doesn't know," or a numerical value.

**Dependent variables.** The dependent variables in this study are risky sexual behaviors and adolescent pregnancy, as defined in the "Operational Definitions of Terms" in Chapter 1.

Some of the questions used to measure these variables follow:

1. Do you have a boyfriend?
2. Age menstruation started?
3. How old were you when you had your first sexual intercourse?
4. Have you or any of your partners ever used any method to prevent pregnancy?
5. What was your relationship to the (this/second/third) person with whom you had sexual intercourse?
6. How many sexual partners have you had in the past 3 months?
7. Have you ever received money or goods in exchange for sex?
8. Were you in school when this occurred?
9. Have you ever been pregnant?
10. Are you currently pregnant?
11. Is this your first pregnancy?

These questions were answered with "yes," "no," "doesn't know," "not sure," or a numerical value.

**Outcome variables.** The outcome variable of the risky sexual behavior of adolescents and pregnancy in the rural community of St. Thomas, Jamaica, was measured by age. Age depicted whether adolescents aged 15–19 years engaged in risky sexual behaviors or gave birth. The Statistical Institute of Jamaica recorded age at risky sexual

behavior and the first pregnancy of adolescents into the following categories: all female respondents, 15–19 years, and 20–24 years. Adolescents aged 15–19 years deemed harmful or positive for risky sexual behavior and first pregnancy.

**Data Analysis Plan**

In quantitative research, utilizing secondary data sets provides access to large sample sizes and relevant measures and can dramatically increase the efficiency of one's research (Cheng & Phillips, 2014; Smith et al., 2011). The rationale behind this study was to evaluate the association between exposure to sex education and sexual behaviors and pregnancy among adolescents in the rural community of St. Thomas, Jamaica, which has one of the highest adolescent fertility rates on the island. The Statistical Institute of Jamaica collected data from women residing in the rural community of St. Thomas, Jamaica, of reproductive age who completed the 2008 JRHS (CDC, 2013; Serbanescu et al., 2010). Secondary data analysis is conducted for the current study.

Data analysis of selected 2008 JRHS variables performed using SPSS Version 21. The survey consisted of 1,038 questions. However, a maximum of 200 questions was examined for this analysis. A list of responses relevant to the variables in this study was requested for use. The Derek Gordon Data Bank sorted the requested data and imported them into an SPSS database file for analysis.

The Statistical Institute of Jamaica, the CDC, and the Division of Reproductive Health performed data screening and cleaning for the 2008 JRHS to assess for error, accuracy, incomplete data, and the effects of outliers (Gorondutse & Hilman, 2014); the researchers completed it shortly after compiling the data. According to Van den Broeck,

Cunningham, Eeckels, and Herbst (2005), errors can occur in studies despite a researcher's efforts to implement error-prevention strategies and apply careful study design.

The research questions and hypotheses were as follows:

*RQ 1*: What is the association between exposure to sex education in school and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_o1$: There is no association between exposure to sex education in school and the experience of adolescent pregnancy.

$H_1 1$: There is an association between exposure to sex education in school and the experience of adolescent pregnancy.

*RQ 2*: What is the association between exposure to sex education at home and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_o2$: There is no association between exposure to sex education at home and the experience of adolescent pregnancy.

$H_1 2$: There is an association between exposure to sex education at home and the experience of adolescent pregnancy.

*RQ 3*: What is the association between exposure to sex education in school and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

$H_o3$: There is no association between exposure to sex education in school and high-risk sexual behavior of adolescents.

*$H_1 3$*: There is an association between exposure to sex education in school and high-risk sexual behavior of adolescents.

*RQ 4*: Is there a significant association between exposure to sex education at home and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

*$H_o 4$*: There is no association between exposure to sex education at home and high-risk sexual behavior of adolescents.

*$H_1 4$*: There is an association between exposure to sex education at home and high-risk sexual behavior of adolescents.

Statistical tests used to test the hypotheses in this study included (a) Binary Logistic Regression, to show an association between the independent variables (sex education in school, sex education at home) and dependent variables (sexual behavior, pregnancy); (b) chi-square tests, to prove or disprove the null or alternative hypotheses; (c) cramer's V to determine the strength of association between the independent variables (sex education in school, sex education at home) and dependent variables (sexual behavior, pregnancy); and (d) descriptive statistic to confirm sample size. Descriptive statistics were used to report the frequencies, percentages, and means of demographic characteristics of the sample population.

## Threats to Validity

### Internal Threats

Utilizing secondary data for this study eliminated the perceived threats to internal validity. Threats to validity include (a) data collection, (b) selection of participants (c) the

management of participants once they had entered into the study, and (d) confidence that there is a relationship between the independent and dependent variables.

**External Threats**

One of the central challenges of utilizing a large data set is assessing the validity of what the researcher is trying to measure. According to Smith et al. (2011), the first step in evaluating a large secondary data set for validity is to review the research questions administered to participants. Threats to external validity include the following: (a) Does the sample represent the target population? And (2) Can the findings be generalized to the population from which the sample was drawn?

External threats to validity were addressed by the sampling procedures established by the Statistical Institute of Jamaica for the 2008 JRHS. Adolescent girls were selected in three stages: proportionate to the number of those living in the household in the EDs; random selection of clustered households; and a random selection of girls aged 15–49 years in each household (University of the West Indies, 2012). Each ED included in the selection process had at least 80 households, allowing for contiguous but independent clusters. Exposure to external influences was addressed during the interview process with each interviewer supervised by not only supervisors but senior supervisors as well. Threats to external validity compromise the confidence of the researcher in stating whether the study's results apply to other groups.

**Ethical Procedures**

Ethical considerations were made according to guidelines and requirements for research on adolescents (Statistical Institute of Jamaica, 2017). Potential participants

were required to give their informed consent before proceeding with the survey. Adolescents who were of age gave consent and by guardians of those who were underage. Participants were assured that no identifying data would be asked and were informed on the handling of the data and reported only in the aggregate.

The 2008 JRHS is not readily available to the public. Data archived and stored at the Derek Gordon Databank. Approval of an application was required by the Databank to ensure the anonymity of participants. A copy of the approval letter from the Derek Gordon Databank appended (see Appendix). The data set was placed on a password-protected computer accessible only to the researcher. Each participant or her guardian was given informed consent and confidentiality forms, which required a signature before participating in the study. The Ethical Committees of the Ministry of Health and the University of the West Indies reviewed and approved the study.

This study utilized only secondary data and did not involve any other active participants. The secondary analysis adhered to all Walden University Institutional Review Board (IRB) ethical guidelines. An approval request for this study was submitted to the Walden University IRB on December 18, 2017. Approval was obtained on January 22, 2018. The IRB approval number for this study is 01-22-18-0416901.

## Summary

In summary, this study used a descriptive, cross-sectional, quantitative design in an attempt to examine the effect of home-based and school-based sex education on pregnancy and sexual behaviors of adolescent girls in St. Thomas, Jamaica. A secondary data analysis of the 2008 JRHS data set (collected by the Statistical Institute of Jamaica)

helped to answer the research questions and hypotheses posed for this study. This chapter described the sample, research questions, hypotheses, research design, data analysis, threats to validity, and ethical procedures related to the study. Chapter 4 provides results based on the statistical analysis of the data.

# Chapter 4: Results

## Introduction

The purpose of this study was to ascertain the impact of school- and home-based sex education on sexual behavior and pregnancy patterns of adolescents aged 15–19 years residing in the rural community of St. Thomas, Jamaica. As stated in Chapter 3, the 2008 JRHS was collected between June 1, 2008, and April 30, 2009, and reported on March 3, 2010. The 2008 JRHS remains the most recent available data for this population group (Statistical Institute of Jamaica, 2017). My study was a quantitative descriptive cross-sectional analysis that involved the use of secondary data from a larger data set, the 2008 JRHS. The independent variables in this study were school-based and home-based sex education, and the dependent variables were pregnancies and sexual behaviors of adolescents.

Chapter 4 includes a description of the statistical analyses conducted to address the research questions in this study and a description of analyses. Tables that aid in interpreting the data and accepting or rejecting the null or alternative hypotheses follow discussion of each research question. The four research questions and hypotheses were, as follows:

*RQ 1*: What is the association between exposure to sex education in school and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_0$1: There is no association between exposure to sex education in school and the experience of adolescent pregnancy.

$H_1$1: There is an association between exposure to sex education in school and the experience of adolescent pregnancy.

*RQ 2*: What is the association between exposure to sex education at home and adolescent pregnancy in the rural community of St. Thomas, Jamaica?

$H_0$2: There is no association between exposure to sex education at home and the experience of adolescent pregnancy.

$H_1$2: There is an association between exposure to sex education at home and the experience of adolescent pregnancy.

*RQ 3*: What is the association between exposure to sex education in school and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

$H_0$3: There is no association between exposure to sex education in school and high-risk sexual behavior of adolescents.

$H_1$3: There is an association between exposure to sex education in school and high-risk sexual behavior of adolescents.

*RQ 4*: Is there a significant association between exposure to sex education at home and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica?

$H_0$4: There is no association between exposure to sex education at home and high-risk sexual behavior of adolescents.

$H_1$4: There is an association between exposure to sex education at home and high-risk sexual behavior of adolescents.

## Data Collection

The Statistical Institute of Jamaica administered the survey and collected the data used for this study. Data processing was a collaboration between the Statistical Institute of Jamaica and the CDC. The survey provides updated information on contraceptive use and fertility rate among men, women, and adolescents in Jamaica and provides information on the attitudes, knowledge, and practices among young adults related to their sexual behavior (Serbanescu et al., 2010). Included in my study was information on pregnancy history and sexual activity. Participants in the 2008 JRHS included Jamaican girls and women aged 15–49 years and boys and men aged 15–24 years. I requested extraction of data relevant to adolescent girls aged 15–19 years for my research.

I sent an e-mail requesting access to the data set to the Derek Gordon Databank shortly after obtaining IRB approval. As noted in Chapter 4, the data for the 2008 JRHS were not available publicly. The Derek Gordon Databank supplied the data set to me via e-mail in an attached SPSS file, which I analyzed using SPSS 21. Data cleaning and analysis took place from February 26, 2018, to May 13, 2018.

I sought to determine the relationship between school-based and home-based sex education on adolescent pregnancy and the sexual behavior of adolescents in the rural community of St. Thomas, Jamaica. According to Breuner and Mattson (2016), school-based sex education can yield a positive outcome on pregnancy and the sexual behaviors of adolescents by preparing them to pursue healthy lifestyles. Breuner and Mattson went on to say that as the primary sexual educators of their children, parents could have an important role to play.

**Data Cleaning**

After obtaining and uploading the data file into SPSS 21, I evaluated the data to ensure that the requested data set included all questions. Immediately following the evaluation of the data set, an assessment of each value commenced. Values moved to the missing column in SPSS 21 included responses such as "Missing from the Field," "Don't Know," "Not Sure," and "Refused." After reviewing the data set for this study, I realized I would not need to manipulate the data set because the Derek Gordon Databank organized and supplied the data set numerically, which made individual questions easier to locate when conducting data analysis. There was no discrepancy found in the data set once uploaded and reviewed. The obtained data set listed all 14 parishes in Jamaica; however, in this study I focused only on the rural community of St. Thomas.

**Data Analysis Procedure**

Once I received the data set, I inputted it into SPSS 21, screened for missing data and errors, and explored the relationships between both independent (sex education in school, sex education at home) and dependent (adolescent pregnancy, sexual behavior adolescents) variables and the outcome variable (age). I tested to ensure statistical assumptions were completed before I analyzed each research question. To confirm the sample size, I used descriptive statistics. Evaluations of the variables included sample sizes, frequencies, and percentages; chi-square tests; and Cramer's $V$ to provide the measure of strength for categorical variables. I will use tables and figures to present statistical results in this chapter.

**Demographic Characteristics of Participants**

According to Serbanescu et al. (2010), young adults in Jamaica made up about 17% of the total population in 2008. Table 1 summarizes the descriptive and demographic characteristics of adolescent participants residing in the rural community of St. Thomas, Jamaica, at the time of the 2008 JRHS. One hundred seventy-eight ($n$ = 178) adolescent respondents between the ages of 15 and 19 years took part in the survey. When asked, "Do you have a boyfriend?" almost half (49.4%) reported not having a boyfriend or ever having had sexual intercourse.

Table 1

*Participant Demographics and Descriptive Characteristics by Number and Percentage*

| Characteristic | *N* | Percentage |
|---|---|---|
| Age (years) | | |
| 15 | 48 | 27.0 |
| 16 | 36 | 20.2 |
| 17 | 27 | 15.2 |
| 18 | 32 | 18.0 |
| 19 | 35 | 19.7 |
| Adolescent—St. Thomas | 178 | 14.5 |
| Boyfriend | | |
| Yes | 39 | 21.9 |
| No | 88 | 49.4 |
| Total | 127 | 71.3 |
| Age first intercourse (years) | | |
| Never had intercourse | 88 | 49.4 |
| 11 | 2 | 1.1 |
| 12 | 2 | 1.1 |
| 13 | 12 | 6.7 |
| 14 | 15 | 8.4 |
| 15 | 20 | 11.2 |
| 16 | 18 | 10.1 |
| 17 | 12 | 6.7 |
| 18 | 5 | 2.8 |

Figure 4 shows that during the administration of the 2008 JRHS, 60.3% of adolescents resided in rural communities while 39.7% resided in urban communities. Based on these findings, it is apparent that many adolescents participating in the 2008 JRHS were from rural areas.

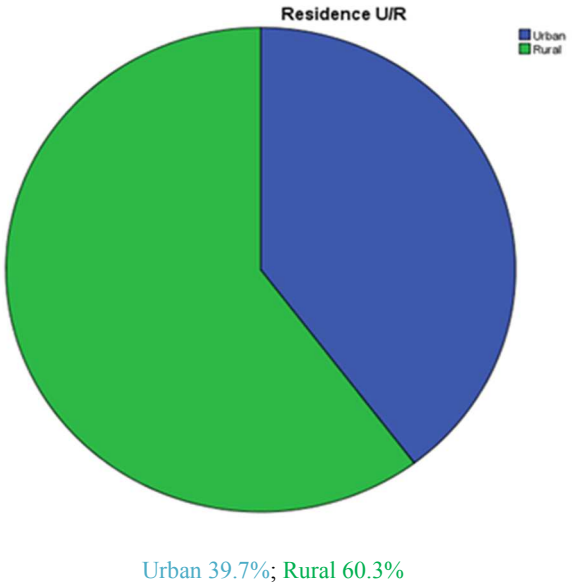


*Figure 4.* Residence rural and urban community 2008

## Results

Tables 2 and 3 are case processing summary reports conducted to check if there were any missing data or overlapping responses for cases included in this study. The case summary report shows that 50% ($n$ = 89) of adolescents responded to the question about sex education in school. The same is accurate for condom use. Likewise, the same 50.6% ($n$ = 90) of adolescents who responded to the question of sex education at home also responded to the question on condom use.

Table 2

*Case Processing Summary for Sex Education in School and at Home on Pregnancy*

| | Valid, *n* (%) | Cases, *n* (%) | Total, *n* (%) |
|---|---|---|---|
| Sex ed school pregnancy | 89 (50.0) | 89 (50.0) | 178 (100.0) |
| Sex ed home pregnancy | 90 (50.6) | 88 (49.4) | 178 (100.0) |

Table 3

*Case Processing Summary for Sex Education in School and at Home on Condom Use*

| | Valid, *n* (%) | Cases missing, *n* (%) | Total, *n* (%) |
|---|---|---|---|
| Sex ed school condom use | 89 (50.0) | 89 (50.0) | 178 (100.0) |
| Sex ed home condom use | 90 (50.6) | 88 (49.4) | 178 (100.0) |

To address the research questions in this study, I used binary logistic regression to determine if there was an association between sex education in school or at home and sexual risk behavior with an outcome of pregnancy. I also used chi-square to prove or disprove the null or alternative hypotheses. The significance level (α) for this study was .05. The null was rejected in favor of the alternative hypotheses if the *p*-value is less than or equal to the significance level. Likewise, if the *p*-value was higher than the significance level, we cannot reject the null hypotheses. Last, I used Cramer's *V* to determine the strengths of association between the independent and dependent variables.

**Research Question 1**

Research Question 1 asked, what is the association between exposure to sex education in school and adolescent pregnancy in the rural community of St. Thomas, Jamaica? The associated hypotheses were as follow:

$H_01$: There is no association between exposure to sex education in school and the experience of adolescent pregnancy.

$H_11$: There is an association between exposure to sex education in school and the experience of adolescent pregnancy.

To analyze Research Question 1, I conducted a binary logistic regression and descriptive statistics on the independent variable—sex education at school—and the dependent variable of adolescent pregnancy. Before running the analyses, I assessed the data to ensure the dependent variable was comprehensive and compatible (Gliklich, Dreyer, & Leavy, 2014). The assumptions in this case were met, because the dependent variable was by nature dichotomous with "yes" and "no" responses, thereby ensuring that the dependent variable was comprehensive and compatible.

With the assumption met, I analyzed the independent variable—sex education in school—and the dependent variable of adolescent pregnancy. The results in Table 4 show that 89 out of the 178 adolescents responded to the question when asked if they have had a course on sex education in school. Of that number, 83 indicated yes, they had had a course on sex education in school, while six indicated they had not. Eight (9.6%) of the adolescents reported they became pregnant despite having had a course on sex education in school. Likewise, of the six adolescents who reported they had not had a course on sex education in school, 1 (16.7%) reported being pregnant.

To evaluate if the assumption was met before running the analysis in Table 6, I assessed the cell count. The chi-square results in Table 5 reveal a nonsignificant association between sex education in school and adolescent pregnancy in the rural

community of St. Thomas, Jamaica, $\chi^2(1, N = 89) = 0.30$, $p = .58$, $\alpha = .05$. Therefore, I conclude that the results are not statistically significant. There is a weak negative or inverse relationship (Table 6), an indication that the more sex education is taught in school, the lower the likelihood of an adolescent becoming pregnant. However, we cannot reject the null hypothesis that indicates there is no association between exposure to sex education in school and the experience of adolescent pregnancy.

Table 4

*Frequency Table for Sex Education in School and Adolescent Pregnancy*

| Sex education at school | Adolescent pregnancy, *n* (%) | |
|---|---|---|
| | Yes | No |
| Yes (*n* = 83) | 8 (9.6) | 75 (90.4) |
| No (*n* = 6) | 1 (16.7) | 5 (83.0) |

*Note.* $N = 89$.

Table 5

*Chi-Square for Sex Education in School on Adolescent Pregnancy*

| | Value | *df* | Asymptotic sig. (2-sided) | Exact sig. (2-sided) | Exact sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson chi-square | .304[a] | 1 | .581 | | |
| Continuity correction[b] | .000 | 1 | 1.000 | | |
| Likelihood ratio | .263 | 1 | .608 | | |
| Fisher's exact test | | | | .483 | .483 |
| Linear-by-linear association | .301 | 1 | .583 | | |
| *n* of valid cases | 89 | | | | |

[a]Parish is St. Thomas. [b]One cell (25.0%) has expected count less than 5. The minimum expected count is .61.

Table 6

*Measurement of Association for Sex Education in School on Adolescent Pregnancy*

| | Value | Approximate sig. |
|---|---|---|
| Nominal by nominal | | |
| Phi | −.058 | .581 |
| Cramer's *V* | .058 | .581 |
| *n* of valid cases | 89 | |

*Note.* Parish is St. Thomas.

**Research Question 2**

Research Question 2 asked, what is the association between exposure to sex education at home and adolescent pregnancy in the rural community of St. Thomas, Jamaica? The associated hypotheses were as follow:

$H_0 2$: There is no association between exposure to sex education at home and the experience of adolescent pregnancy.

$H_1 2$: There is an association between exposure to sex education at home and the experience of adolescent pregnancy.

The results in Table 7 depict the participant responses when asked if they ever had sex education at home taught by a parent or guardian. Separate from the 89 adolescents who responded to the question about having sex education in *school*, 90 adolescents responded to the question when asked if they had ever had sex education at *home.* Of the 90 responses, 60 participants indicated yes, they had had sex education at home, and five (8.3%) out of those 60 reported being currently pregnant. Of the 30 participants who indicated they had not had sex education at home, 4 (13.3%) reported that they were currently pregnant.

To evaluate whether the assumption was met before running the analysis in Table 8, the cell count was assessed. The results in Table 7 of the chi-square analysis reveal no statistically significant association between sex education at home and adolescent pregnancy in the rural community of St. Thomas, Jamaica, $\chi^2(1, N = 90) = 0.56$, $p = .46$, $\alpha = .05$. Furthermore, Table 9 provides evidence of a weak negative inverse relationship, an indication that the more sex education is taught at home, the lower the likelihood of an

adolescent becoming pregnant. However, I conclude that there is not enough evidence to demonstrate a statistically significant association between sex education at home and adolescent pregnancy. We cannot reject the null hypothesis that indicates there is no association between exposure to sex education at home and the experience of adolescent pregnancy.

Table 7

*Frequency Table for Sex Education at Home and Adolescent Pregnancy*

| | Adolescent pregnancy, *n* (%) | |
|---|---|---|
| Sex education at home | Yes | No |
| Yes (*n* = 60) | 5 (8.3) | 55 (91.7) |
| No (*n* = 30) | 4 (13.3) | 26 (86.7) |

*Note.* *n* = 90.

Table 8

*Chi-Square for Sex Education at Home on Adolescent Pregnancy*

| | Value | *df* | Asymptotic sig. (2-sided) | Exact sig. (2-sided) | Exact sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson chi-square | .556[a] | 1 | .456 | | |
| Continuity correction[b] | .139 | 1 | .709 | | |
| Likelihood ratio | .534 | 1 | .465 | | |
| Fisher's exact test | | | | .474 | .345 |
| Linear-by-linear association | .549 | 1 | .459 | | |
| *n* of valid cases | 90 | | | | |

[a]Parish is St. Thomas. [b]One cell (25.0%) has expected count less than 5. The minimum expected count is 3.00.

Table 9

*Measurement of Association for Sex Education at Home on Adolescent Pregnancy*

| | Value | Approximate sig. |
|---|---|---|
| Nominal by nominal | | |
| Phi | −.079 | .456 |
| Cramer's *V* | .079 | .456 |
| *n* of valid cases | 90 | |

*Note.* Parish is St. Thomas.

**Research Question 3**

Research Question 3 asked, what is the association between exposure to sex education in school and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica? The associated hypotheses were as follow:

*$H_03$*: There is no association between exposure to sex education in school and high-risk sexual behavior of adolescents.

*$H_13$*: There is an association between exposure to sex education in school and high-risk sexual behavior of adolescents.

To assess the sexual behaviors of adolescents, I used the construct "condom use." The question utilized for this analysis was "Have you ever asked a partner to use a condom?" Table 10 reflects these results. Sixty-four percent of adolescents who reported having received sex education at school responded "yes" when asked if they had asked a partner to use a condom. Fifty percent of those who indicated that they did not receive sex education in school reported having asked their partner to use a condom.

To evaluate whether the assumption was met before running the analysis in Table 11, the cell count was assessed. The results in Table 11 of the chi-square analysis reveal no statistically significant association between sex education in school and the sexual behavior of adolescents (condom use) in the rural community of St. Thomas, Jamaica, $\chi^2(1, N = 89) = 0.46$, $p = .50$, $\alpha = .05$. There is a weak positive relationship (Table 12), which indicates that the less sex education is taught in school, the higher the likelihood of an adolescent asking their partner to use a condom. I therefore, conclude that there is not enough evidence to demonstrate an association between sex education in school and the risky sexual behavior of adolescents. We cannot reject the null hypothesis that indicates there is no association between exposure to sex education in school and the risky sexual behavior of an adolescent.

Table 10

*Frequency Table for Sex Education in School and the Sexual Behavior of Adolescent*

| | Condom use with partner, *n* (%) | |
|---|---|---|
| Sex education at school | Yes | No |
| Yes (*n* = 83) | 53 (63.9%) | 30 (36.1) |
| No (*n* = 6) | 3 (50.0%) | 3 (50.0%) |

*Note.* $N = 89$.

Table 11

*Chi-Square for Sex Education in School on the Sexual Behavior of Adolescent*

| | Value | *df* | Asymptotic sig. (2-sided) | Exact sig. (2-sided) | Exact sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson chi-square | .460[a] | 1 | .497 | | |
| Continuity correction[b] | .058 | 1 | .810 | | |
| Likelihood ratio | .446 | 1 | .504 | | |
| Fisher's exact test | | | | .666 | .393 |
| Linear-by-linear association | .455 | 1 | .500 | | |
| *n* of valid cases | 89 | | | | |

[a]Parish is St. Thomas. [b]Two cells (50.0%) have expected count less than 5. The minimum expected count is 2.22.

Table 12

*Measurement of Association for Sex Education in School on the Sexual Behavior of Adolescent*

| | Value | Approximate sig. |
|---|---|---|
| Nominal by nominal | | |
| Phi | .072 | .497 |
| Cramer's *V* | .072 | .497 |
| *n* of valid cases | 89 | |

*Note.* Parish is St. Thomas.

**Research Question 4**

Research Question 4 asked, what is the association between exposure to sex education at home and high-risk sexual behaviors of adolescents in the rural community of St. Thomas, Jamaica? The associated hypotheses were as follow:

*$H_04$*: There is no association between exposure to sex education at home and high-risk sexual behavior of adolescents.

*$H_14$*: There is an association between sex education at home and high-risk sexual behavior of adolescents.

As previously indicated, 90 adolescents responded to the question when asked if they had ever had sex education at home. Of those 60 who indicated "yes," they had had sex education at home, 41 (68.3%) reported having asked their partner to use a condom. In contrast, 15 (50%) of those who did not receive sex education at home reported having asked their partner to use a condom. Table 13 depicts these results.

To evaluate whether the assumption was met before running the analysis in Table 14, the cell count was assessed. The results in Table 14 of the chi-square analysis reveal a closer to statistically significant association between sex education at home and the sexual behavior of adolescents in the rural community of St. Thomas, Jamaica, $\chi^2(1, N = 90) = 2.86$, $p = .09$, $\alpha = .05$, with a positive measure of association (Table 15). A positive measure of association was found, which means that more exposure to sex education at home leads to a higher likelihood of an adolescent asking her partner to use a condom. While there appears to be some evidence to demonstrate a positive measure of association between sex education at home and the risky sexual behavior of adolescents, there is no statistically significant association; therefore we cannot reject the null hypothesis that indicates there is no association between exposure to sex education at home and the risky sexual behavior of adolescents.

Table 13

*Frequency Table for Sex Education at Home and the Sexual Behavior of Adolescents*

| Sex education at home | Condom use with partner, *n* (%) | |
|---|---|---|
| | Yes | No |
| Yes (*n* = 60) | 41 (68.3) | 19 (31.7) |
| No (*n* = 30) | 15 (50) | 15 (50) |

*Note.* *n* = 90.

Table 14

*Chi-Square for Sex Education at Home on the Sexual Behavior of Adolescent*

| | Value | *df* | Asymptotic sig. (2-sided) | Exact sig. (2-sided) | Exact sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson chi-square | 2.860[a] | 1 | .091 | | |
| Continuity correction[b] | 2.133 | 1 | .144 | | |
| Likelihood ratio | 2.825 | 1 | .093 | | |
| Fisher's exact test | | | | .110 | .073 |
| Linear-by-linear association | 2.828 | 1 | .093 | | |
| *n* of valid cases | 90 | | | | |

[a]Parish is St. Thomas. [b]Zero cells (25.0%) have expected count less than 5. The minimum expected count is 11.33.

Table 15

*Measurement of Association for Sex Education at Home on Sexual Behavior of Adolescent*

| | Value | Approximate sig. |
|---|---|---|
| Nominal by nominal | | |
| Phi | .178 | .091 |
| Cramer's *V* | .178 | .091 |
| *n* of valid cases | 90 | |

*Note.* Parish is St. Thomas.

## Summary

Chapter 4 contained a discussion of the procedure utilized for data collection, data cleaning, and analysis; demographic information on the sample population; and statistical analysis of each research question and its hypotheses. I used descriptive statistics, chi-square, and Cramer's *V* to examine all four-research questions. To test the null and alternative hypotheses, I used chi-square and Cramer's *V*. The analyses conducted on Research Questions 1, 2, 3, and 4 did not find a statistically significant association between the variables that were tested. However, the results for Research Question 4 are closer to statistical significance at .09, with a stronger measure of positive association, an indication that more exposure to sex education at home leads to a higher likelihood of the adolescent asking her partner to use a condom.

Additionally, results for Research Questions 1 and 2 show a weak negative measure of the association, while results for Research Question 3 show a weak positive relationship, an indication that the less sex education is taught in school, the higher the likelihood of an adolescent asking their partner to use a condom. A positive measure of association was found for Research Question 4, which means that more exposure to sex education at home leads to a higher likelihood of the adolescent asking her partner to use a condom. The analysis has revealed that the null hypothesis was not rejected in all four-research questions and the alternative hypothesis accepted because there is no statistically significant association among the measured independent variables (school-based and home-based sex education) and the dependent variables (pregnancy and sexual behaviors of adolescents). Chapter 5 includes an interpretation of these findings as well as a

discussion of limitations and recommendations for action. A discussion regarding social change implications is included.

# Chapter 5: Discussion, Conclusions, and Recommendations

## Introduction

The purpose of this quantitative study was to ascertain the impact of school- or home-based sex education on sexual behavior and pregnancy patterns of adolescents aged 15–19 years residing in the rural community of St. Thomas, Jamaica. Determining the association of sex education with sexual behavior and pregnancy among adolescents has the potential to increase the understanding of this phenomenon. Given the disproportionately high adolescent fertility rate in Jamaica (Population Media Center, 2016; Serbanescu et al., 2010), it is essential to give thought to the importance and gravity of the problem.

I used a quantitative descriptive cross-sectional design to understand the impact school- or home-based sex education has on sexual behavior and pregnancy patterns of adolescents aged 15–19 years residing in the rural community of St. Thomas, Jamaica. The independent variables were school-based and home-based sex education, and the dependent variables were pregnancies and sexual behaviors of adolescents. This cross-sectional study involved the analysis of data collected at one defined period to assess the prevalence of conditions (sexual activities and pregnancy) and to examine the impact of the intervention (sex education) on those conditions. A descriptive cross-sectional analysis was an appropriate technique for this quantitative study because quantitative research can be used to objectively and systematically measure exposure and the outcome behaviors of adolescents (Brink, 2006).

A review of the literature provided evidence that the relationship between sex education, adolescent pregnancy, and the sexual behavior of adolescents in Jamaica remains unclear (Crawford, McGrowder, & Crawford, 2009). Furthermore, the literature has suggested that experts in the field do not know if sex education, teenage pregnancy, and the sexual behavior of adolescents in Jamaica are significantly related (Maharaj, et al., 2009). Therefore, while there is an assumption about the importance of sex education, researchers do not have a full understanding of how this form of education works to influence the sexual behaviors and pregnancy patterns of adolescents in the rural community of St. Thomas, Jamaica. The Statistical Institute of Jamaica conducted the 2008 JRHS, which was commissioned by the National Family Planning Board (Statistical Institute of Jamaica, 2017). For the current study, I analyzed data extracted from the 2008 JRHS to ascertain the impact of school- or home-based sex education on adolescent pregnancy and the sexual behavior of adolescents. The results for my study indicate a weak negative or inverse relationship that was not statistically significant between sex education in school on adolescent pregnancy (Cramer's $V = .058$), a weak positive relationship that was not statistically significant between sex education in school and condom use (Cramer's $V = .50$), and evidence of a weak negative inverse relationship that was also not statistically significant between sex education at home on adolescent pregnancy (Cramer's $V = .46$). There was a closer to statistical significance between sex education at home on condom use (Cramer's $V = .09$).

## Interpretations of Findings

Over the years, adolescent sexuality has changed significantly, resulting in children growing up faster and commencing puberty at an earlier age (Fortenberry, 2013). Puberty is the stage in which children develop physically and start thinking about and experimenting with sexual activities (Kar, Choudhury, & Singh, 2015). Many young girls start developing breasts, begin their menstrual cycles, become aware of their bodies, and first experience physical attraction to the opposite sex (Kar, et al., 2015). Grossman et al. (2013) proposed that teaching positive attitudes to promote self-efficacy in sexual communication would support the intentions of students to delay sex.

Numerous researchers have conducted studies on the impact of sex education on sexual behaviors and pregnancy patterns among adolescents with mixed results (Ritchwood, Ford, DeCoster, Sutton, & Lochman, 2015). Additionally, the question remains whether sex education should be taught in schools or at home. Earlier studies conducted on parents and guidance counselors at school have shown that parents are more influential in the lives of their children, especially female adolescents, than guidance counselors are (Hutchinson et al., 2003). Yet, Jamaican culture is not conducive to parents feeling comfortable educating their children about sex, according to Dyson and Smith (2012). According to Mothiba and Maputle (2012), the lack of parentally guided sex education is one reason for the high pregnancy rates in Jamaica.

For the current study I used descriptive statistics, chi-square, and Cramer's $V$ to evaluate the research questions and accept or reject the hypotheses. Cramer's $V$ is a popular chi-square-based measure for measuring the strength of association among

variables (Akoglu, 2018). One hundred seventy-eight ($n$ = 178) adolescent respondents between the ages of 15 and 19 years took part in the survey. Of note is the following: Only 39 of those surveyed answered yes to having a boyfriend. Eighty-eight of the respondents indicated they had never had intercourse. Four adolescents indicated they had their first sexual intercourse at age 11 and 12 and 20 by age 15. This finding was similar to a study of 377 in-school adolescents in rural communities in southwestern Nigeria (Olugbenga-Bello et al., 2014). In that study, Olugbenga-Bello et al. (2014) found that 14.1% of the respondents reported having their first sexual experience before or at age 15. Fifty percent of adolescents in my study reported learning about sex education in school, while 50.6% reported learning about sex education at home. These respondents were independent and mutually exclusive of each other. In other words, the respondents who answered learning about sex education in school did not learn about sex education at home and vice-versa.

**School- and Home-Based Sex Education on Adolescent Pregnancy**

Based on the findings for this study, the null hypotheses in Research Questions 1, 2, 3, and 4 could not be rejected. These findings were mixed, which align with and support results from the literature, and the experience of educators, researchers, and public health professionals who contend that school-based sex education programs improve the sexual health outcomes for adolescents, but that more work needs to be done to strengthen the overall impact. The results for both Research Questions 1 and 2 reveal a nonsignificant association between sex education in school, $\chi^2$ (1, $N$ = 89) = 0.30, $p$ = .58, $\alpha$ = 0.05, and sex education at home, $\chi^2$ (1, $N$ = 90) = 0.56, $p$ = .46, $\alpha$ = 0.05, and

adolescent pregnancy in the rural community of St. Thomas, Jamaica. The results for Research Question 1, although nonsignificant in association, show a weak negative or inverse relationship, an indication that the more sex education is taught in school, the lower the likelihood of an adolescent becoming pregnant. The findings for Research Question 2, although nonsignificant in association, also show a weak negative inverse relationship, an indication that the more sex education is taught at home, the lower the likelihood of an adolescent becoming pregnant. These results are supported by the findings in previous studies that showed a positive impact of sex education programs on adolescent pregnancy (Boonstra, 2014; Fentahun et al., 2012). For example, these programs showed a reduction in the number of partners or the frequency of sex among adolescents, delaying the debut of engaging in sexual intercourse, reducing sexual risky behaviors, and increasing the use of condom and the use of contraceptives. The findings when viewed through the lens of the PETPB, however, suggest that improving parental behavior can affect the beliefs and behaviors regarding pregnancy prevention among adolescents in rural areas in Jamaica (see, also, Gaioso et al., 2015).

There was no statistically significant relationship between sex education in school and pregnancy in the sample population, and the relationship in the sample population reflects this. Eighty-three of the 89 adolescents responded *yes* when asked if they had ever had a course in school on sex education; of the 83 who responded yes to a having a course in school on sex education, eight reported becoming pregnant despite undertaking the course. One out of six adolescents who indicated not having a course in sex education in school answered *yes* to being pregnant. The following two subsamples independent of

each other, revealed a total of nine adolescents, eight of whom reported receiving sex education in school and one who answered *no* to sex education at home, were pregnant; likewise, nine adolescents, five of whom reported receiving sex education at home and four of whom answered *no* to receiving sex education at home, were pregnant.

**School- and Home-Based Sex Education on Sexual Behavior of Adolescent**

The findings of the hypotheses of the current study also yield evidence that the null hypothesis in Research Questions 3 and 4 also could not be rejected. The results for both research questions reveal a nonsignificant association between sex education in school, $\chi^2$ (1, $N$ = 89) = 0.46, $p$ = .50, and sex education at home, $\chi^2$ (1, $N$ = 90) = 2.86, $p$ = .09, $\alpha$ = .05, on the sexual behavior of adolescents in the rural community of St. Thomas, Jamaica. The findings for Research Question 3, although nonsignificant, are still important because they show a weak positive relationship between sex education in school and condom use, and indicates that the less sex education is taught in school, the higher the likelihood of an adolescent asking their partner to use a condom. However, Longman-Mills and Carpenter (2013) conducted a study in Jamaica in which they identified risky sexual behaviors among adolescents, despite many education campaigns aimed at teenage girls. The findings for Research Question 4 show a closer to statistically significant association between sex education at home and the sexual behavior of adolescents with a positive measure of association between sex education at home and condom use. The closer to statistical association here is an indication that the more exposure an adolescent has to sex education at home, the higher the likelihood of the adolescent asking their partner to use a condom. These findings are similar to those of

Grossman et al. (2013), who concluded that communication within the family has a strong impact on adolescent sexual behavior and pregnancy. Dyson and Smith (2012) conducted a study in Australia with 31 parents, where most of the parents in the sample reported that they perceived sex education as their responsibility, with a school-based sex education program as a supplement that confirmed these findings.

Eighty-three adolescents reported asking their partners to use a condom; while six responded they did not. Fifty-three of those who indicated having a course in school on sex education reported asking their partners to use a condom. Three out of six adolescents reported not having a course on sex education in school but asking their partners to use a condom. Fifteen out of the 30 adolescents who indicated that they did not ask their partners to use a condom were among those who reported taking a course on sex education at home.

Based on these results, when comparing sex education at home to sex education in school, we see 12 more adolescents asked their partners to use a condom than did those who reported sex education at home. Likewise, when comparing sex education in school to sex education at home, we see that three more adolescents became pregnant than those who reported sex education in school. These results did not support the earlier findings conducted on parents and guidance counselors at school that have shown that parents are more influential in the lives of their children, especially female adolescents, than guidance counselors are (Hutchinson et al., 2003). The findings in this study are also supported in that sex education, whether in school or at home, do not have an impact on adolescent pregnancy or the risky sexual behavior of adolescents (Jackson et al., 2012).

For example, a study conducted by Tulloch and Kaufman (2013) found an immediate reduction in the sexual activity of adolescents who learned sex education while in school and mirrored highly published results that sex education matters and does not cause adolescents to become more sexually active. Overall, these results show that there is a need for sex education programs designed to reduce the sexual behaviors of teenagers and teenage pregnancy by utilizing CBT to add to the overall effectiveness of the program (Van Vugt & Lemieux, 2016).

## Limitations of the Study

The purpose of this quantitative descriptive cross-sectional study was to use the 2008 JRHS data to assess the impact of sex education on adolescent pregnancy and the sexual behavior of adolescents in the rural community of St. Thomas, Jamaica. As previously indicated, this study was limited to secondary data analysis of adolescent girls aged 15–19 years residing in the rural community of St. Thomas, Jamaica. Therefore, the limitations applied to the face-to-face interviews in the primary study are applied to this study. A possible limitation considered is that participants completing the face-to-face interviews in the original study had received sexual education in both a school and a home setting simultaneously. This limitation has transferred to the current study. Another limitation relates to the data collection method, which can cause information bias. A limitation of the current study is that only female adolescents 15–19 years of age in St. Thomas were chosen for this study. Data analysis for this study was dependent on a study conducted in 2008 by the Statistical Institute of Jamaica, another limitation for my study.

Last is the limitation due to the small sample size in my analysis and how it might impact my results.

## Recommendations

The intention of this quantitative descriptive cross-sectional study was not to look at every avenue that could result in pregnancy among adolescents or lead to risky sexual behaviors in the rural community of St. Thomas, Jamaica. The survey instrument used in the 2008 JRHS was not customized for use during the face-to-face interview of adolescents. Missing from the 2008 JRHS were focus group discussions and a more in-depth interview that would have been more beneficial in highlighting the leading factors behind the impact of school- or home-based sex education on pregnancy and risky sexual behavior among adolescents.

According to Heffner (2014), sex education is an organized form of knowledge that is learned. Although highly controversial, it is believed that sex education has a positive effect on adolescent sexual behavior and reduces unplanned teen pregnancy. To this end, conducting both a quantitative and qualitative study that includes focus group discussions and in-depth interviews is highly recommended. Furthermore, the literature suggested that experts in the field do not know if sex education, teenage pregnancy, and the sexual behavior of adolescents in Jamaica are significantly related. Therefore, while the importance of sex education is assumed, researchers do not have a full understanding of how this form of education works to influence the sexual behaviors and pregnancy patterns of adolescents in the rural community of St. Thomas, Jamaica. Finally, although such a study would require more time, it would possibly give a better understanding of

the impact of sex education on pregnancy and the risky sexual behavior of adolescents in the rural community of St. Thomas, Jamaica. The results from this current study are in alignment with results of previous studies, thereby driving recommendations for policy makers, community leaders, and the Department of Education in Jamaica.

## Implications

Policy makers, community leaders, and the Department of Education in Jamaica need to collaborate to ensure the standardization of sex education in all schools and reinforcement at home by parents or guardians. According to Breuner and Mattson (2016), there is a need for strong support now more than ever of an expanded multilevel and integrative sex education program. More research studies need to be conducted not only in the rural community of St. Thomas, Jamaica, but in all rural communities across the island of Jamaica, to explore the impact school- or home-based sex education has on adolescent pregnancy and the risky sexual behavior of adolescents. Findings from my study could provide the Department of Education in Jamaica as well as other Caribbean countries a greater understanding of the impact school- or home-based sex education has on pregnancy or the sexual behavior of adolescents.

Researchers have noted the importance of sexual education in schools for preventing adolescent pregnancy and understanding the sexual behaviors of adolescents (Boonstra, 2014; Fergus & Zimmerman, 2005). Because research on the impact of sex education on adolescent sexual behavior and pregnancy is limited in the rural community of St. Thomas, Jamaica, this study aimed to add to the endeavor of local community health departments seeking inventive techniques for reaching adolescents in their

communities. Improving and enhancing these existing programs could lead to policy changes that could contribute to positive social change. Enhancement of available sex education programs proven to reduce adolescent pregnancy and the sexual behavior of adolescents would provide significant benefit to both rural and urban communities not only in the Caribbean but internationally as well. Boonstra (2014) have found that sex education promotes knowledge and responsible sexual behavior and lowers the risk of adolescent pregnancy.

Furthermore, the work conducted in this dissertation can promote positive social change by raising awareness of the effectiveness of home-based and school-based sex education in deterring high-risk sexual activity and pregnancy among adolescents in the rural community of St. Thomas, Jamaica. Jackson et al. (2012) suggested, however, that while there is a need for school-based sex education programs, they are insufficient in helping to prevent risky sexual behaviors in adolescents. They found that sex education programming aimed at reducing adolescent risky sexual behaviors has had other positive outcomes, including enhancing interaction with family members and improving communication within the school environment (Jackson et al., 2012).

However, "Longman-Mills and Carpenter (2013) conducted a study in Jamaica in which they identified risky sexual behaviors among adolescents, despite many education campaigns aimed at teenage girls." There are many factors, which dilute the educational efforts—social structure and other factors come into play. An increased understanding can be helpful to public health professionals and other systems serving rural communities and could contribute to positive social change. Multiple research studies have supported

the real impact families are facing when attempting to communicate to adolescents about the implications of risky sexual behavior (Grossman et al., 2013; Grossman et al., 2014). The results gained from this study could be used as part of a strategy to increase parent learning and involve families in pregnancy prevention efforts that could contribute to positive social change. Ballonoff-Suleiman and Brindis (2014) posited that making decisions about sexual behaviors and practices requires much thought and knowledge so it is important to expand on.

## Conclusion

This study adds to the literature on the impact of sex education on adolescent pregnancy and the risky sexual behavior of adolescents in rural communities. Four research questions were posed for this study. The results of this study do not demonstrate a statistically significant association between sex education in school and at home on adolescent pregnancy and condom use in the rural community of St. Thomas, Jamaica. The results, although not statistically significant, did show a closer association between sex education at home and the sexual behavior of adolescents.

Sex education is essential in adolescence, especially among those residing in rural communities. Both the PETPB and the CBT were primarily used by researchers to show that the family influences adolescents significantly (Hutchinson & Wood, 2007) and were grounded on the use of basic knowledge and cognitive functioning to make decisions or choices (Heffner, 2014). According to Heffner, sex education is an organized form of knowledge that is learned. When taught, it can have a positive effect on the sexual behavior of an adolescent.

Adolescent pregnancy and the risky sexual behavior of adolescents continue to be serious public health and social problem in the rural community of St. Thomas, Jamaica, and in rural communities within our society. Although highly controversial, the belief is that sex education has a positive effect on adolescent sexual behavior and reduces unplanned teen pregnancy. Some educators, researchers, and public health professionals believe that school-based sex education programs improve the sexual health outcomes for adolescents, but more work needs to be done to strengthen the overall impact of these programs (Suleiman & Brindis, 2014). In an Australian qualitative study by Dyson and Smith (2012) with 31 parents, most parents in the sample reported that they perceived sex education as their responsibility, with a school-based sex education program as a supplement. Parents reported that they want their children well informed about sex, relationships, and their sexual health, yet they felt inadequate in providing sex education to their children (Dyson & Smith, 2012; Fentahun et al., 2012).

The results of this study is summarized, the findings presented, and interpreted in this chapter. I also discussed the implications for social change, recommendations for further research and the limitation of the study. As previously indicated, this research adds to the Department of Education in Jamaica and the field of public health by providing a broader knowledge of the impact sex education whether at home or in school has on the sexual behaviors of an adolescent. This study also reinforces the need for the department of education in Jamaica, the public health department, and parents to find a dignified way to work together in an effort to reduce adolescent pregnancy and the sexual behavior of adolescent in the rural community of St. Thomas, Jamaica.

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Appendix: Data Set Usage Approval

THE UNIVERSITY OF THE WEST INDIES
Mona, Kingston 7
Jamaica, West Indies

Sir Arthur Lewis Institute of Social and Economic Studies
(SALISES)

January 9, 2018

Institutional Review Board (IRB)
Walden University
100 S Washington Ave #900,
Minneapolis, MN 55401,
USA

**Re: Data set usage approval**

Dear Sir/Madam,

The Derek Gordon Databank located at the Sir Arthur Lewis Institute of Social and Economic Studies, The University of the West Indies, Mona Campus, hereby confirms the release and approval of the Jamaica Reproductive Health Survey 2008 data set to Mrs. Deborah Simmonds of Walden University to carry out data analysis for her research paper.

Mrs. Simmonds however must adhere to the conditions of use outlined below:

| | |
|---|---|
| **(1) Purpose:** | To use the materials only for the purposes of non-commercial research. |
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| **(3) Acknowledgement:** | To acknowledge in any publication, whether printed, electronic or broadcast, based wholly or in part on such materials, both the original depositors and the DATABANK. To declare in any such work that those who carried out the original collection and analysis of the data bear no responsibility for their further analysis or interpretation. To acknowledge Crown Copyright where appropriate. |
| **(4) Citation:** | **Citation of the dataset(s) must include (a) author(s) of the data set; (b) the date the dataset was published or otherwise made public and (c) the data set title.** |

**Citation should also state "The data were provided by the Derek Gordon Databank, The University of the West Indies"**

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Regards,

Richard Leach