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Sexual Education, Sexual Initiation, and Contraceptive Use Among African American Young Women

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Abstract

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MSPH, Walden University, 2007

MS, North Carolina Agricultural and Technical State University, 2004

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Unintended pregnancy is associated with adverse social, economic, and health outcomes making it a public health concern. African American (AA) women aged 18–24 are at higher risk of unintended pregnancy due to earlier sexual initiation and non-use, inconsistent, or improper use of contraceptive methods (CM). The purpose of this study was to investigate the extent to which receipt of formal sexual health education (FSHE) impacts age of sexual initiation and contraceptive use and selection of more effective CMs (ECMs) among AA women aged 18–24 ($N = 242$) who have sex with men. Driven by the reasoned action approach, 2015–2017 National Survey of Family Growth data were used. Logistic regression and multinomial logistic regression were used to determine associations between these variables. Results did not show any statistically significant associations between the variables. Although the odds were not significant, the results indicated that receipt of abstinence-plus sexual health education (APSHE) and comprehensive sexual health education (CSHE) raised the age of sexual initiation, and CSHE increased odds of contraceptive use at sexual initiation. The odds of selecting a moderately (MECM) to highly (HECM) ECMs at initiation did not increase with receipt of CSHE. The receipt of APSHE nor CSHE increased the odds of selecting a MECM or HECM as the primary CM during the 12 months before the survey. These findings emphasize the importance of FSHE and highlight gaps in the use of ECMs. The provision of culturally responsive FSHE may lead to increased and consistent ECM use among AA young women reducing adverse public health outcomes associated with early sexual initiation and unintended pregnancy, positively impacting positive social change.

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Dedication

This dissertation is dedicated to my parents, John H. Hull, Sr., and Kadis Hingleton-Hull. Thank you for instilling in me the importance of education. I am living life with no regrets or unfinished business. Rest in peace, Dad. Tetelestai!

Acknowledgments

A heartfelt thank you goes to Dr. Jennifer Oliphant for stepping in and getting me to the finish line, Dr. Shelley Francis Travis, for sticking with me until the end, and Dr. Amber Johnson, my sounding board and cheerleader.

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Chapter 1: Introduction to the Study

Introduction

A nation's health is often judged by its women and children's health, with unintended pregnancy serving as a key indicator of a population's reproductive health (Finer & Zolna, 2014). Unintended pregnancy, whether unwanted or mistimed, is associated with emotional, social, and economic outcomes which in turn may lead to further disparities in morbidity and mortality (Carter, Kraft, Hock-Long, & Hatfield-Timajchy, 2013; James & Rashid, 2013; U.S. Department of Health & Human Services. 2019). Health outcomes among mothers who experience unintended pregnancy include delayed prenatal care, reduced breastfeeding, depression, delivery of infants with low birth weight and congenital disabilities, and reduced average income compared to other women (James & Rashid, 2013; USDHHS, 2019). Infants born due to unintended pregnancies are at increased risk of poor mental, physical, and behavioral health in adolescence and lower educational attainment (James & Rashid, 2013; USDHHS, 2019). These health outcomes associated with unintended pregnancy suggest that reducing its occurrence may substantially impact public health practices.

Within the United States, two groups among those at the highest risk of unintended pregnancy are women aged 18–24 and those of African American descent (USDHHS, 2019). African American women aged 18–24 are at higher risk for unintended pregnancy and sexually transmitted infections (STIs) due to non-use, inconsistent, or improper use of contraception, as well as failure to use dual contraceptive methods (Craig, Dehlendorf, Borrero, Harper, & Rocca, 2014). These are topics covered

during formal sexual health education (FSHE). The purpose of this quantitative study was to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18–24 in the United States who have sex with men.

An understanding of the impact of FSHE may help sexual health educators and practitioners provide African American young women with the required knowledge and skills to delay sexual initiation and consistently and properly use preference and intention matched contraceptive methods. African American young women may apply knowledge and skills to prevent unintended pregnancy, and by extension, may decrease adverse maternal and child-associated public health outcomes. Doing so may lead to social change by positively impacting African American young women's socioeconomic status, and by extension, their children, which may improve associated social, educational, and public health outcomes for both populations.

Covered in this is chapter is background information about gaps in public health knowledge regarding African American young women’s sexual initiation and contraceptive knowledge, selection, use, and unintended pregnancy. The problem statement, research design, and methodology, which drove this research, will also be discussed. Key terms are defined, and assumptions, limitations, and significance of the study are identified and explored. This chapter is followed by the literature review in Chapter 2 and the discussion of methodology in Chapter 3.

Background

FSHE promotes safer sexual behaviors for young adults, including delayed sexual initiation and increased and correct contraceptive usage beginning with the first sexual encounter (Lindberg & Maddow-Zimet, 2012). While teen and adolescent pregnancy and FSHE in the United States has been the subject of national campaigns, unintended pregnancy and FSHE in young adult women have received minimal attention. This lack of attention may be due to the classification of this age group as adults and the false assumption that they are equipped with knowledge regarding sexual and reproductive health.

According to the Centers for Disease Control and Prevention (2019), out of the 88% of required U.S. high school students who received FSHE as a course, 76.3% received education that abstinence as the best way to prevent human immunodeficiency virus (HIV) and other STIs. In this same cohort, 35% learned how to use a condom correctly, 52.7% received guidance on how to obtain condoms, and 54.9% learned about the importance of dual contraceptive methods in preventing pregnancy and STIs (CDC, 2019). Among high schools that offered pregnancy prevention courses, the mean number of required instruction hours was 4.2(CDC, 2019). Among high school course instructors, 12.6% received professional development on pregnancy prevention during the two years before the study, while 14.2% wanted to receive professional development on topics taught in their courses (CDC, 2019d).

This lack of comprehensive sexual health education (CSHE) translates into risky sexual health behaviors. Nationally, 39% of U.S. high school students had sexual

intercourse, with the number being higher among African American students at 45.8% (CDC, 2019). Among this cohort, 3.4% experienced sexual initiation before the age of 13 compared to 7.5% of African American students (CDC, 2019). Among this cohort, 46.2% of sexually active high school students did not use a condom during their last sexual encounter compared to 47.9% of African American students; 79.3% did not use birth control pills compared to 86.8% of African American students; 95.9% did not use an intrauterine device (IUD) or hormonal implant compared to 96.7% of African American students; 95.3% did not use a hormonal shot, patch, or birth control ring to prevent pregnancy or STIs compared to 94% of African American students; and 91.2% did not use dual contraceptive methods compared to 77.5% of African American students (CDC, 2019).

More than 400 risk and protective factors are associated with pregnancy, sexual behaviors, and contraception use in adolescents; however, their associations among young adults are undetermined ((Kornides, Kistantas, Lindley, & Wu, 2015). It is assumed that these factors and lack of contraceptive knowledge seen among high school students carry over to young adulthood, where individuals explore their sexual freedom and place themselves at risk for unintended pregnancy. Among college students who received FSHE, 44.7% received pregnancy prevention information from their university or college, and 49.5% did not use a contraceptive method the last time they had intercourse (American College Health Association, 2017). Within this same cohort, 47.2% did not use birth control pills, 71.2% did not use an IUD, hormonal implant, shot, patch, or birth control ring to prevent pregnancy, and 47.2% did not use dual

contraceptive methods (ACHA, 2017). College students predominantly used birth control pills (58.2%), male condoms (63.1%), and withdrawal (35.1%) for pregnancy prevention (ACHA, 2017). Based on data from these two surveys, contraceptive use is similar among high school and college students surveyed, demonstrating opportunities and a need for improved initial and supplemental sexual health education among college students.

Young adult pregnancies account for 55% of unintended pregnancies each year, with one in six non-Hispanic Black women aged 20–24 experiencing an unintended pregnancy (USDHHS, 2019). Trussell and Wynn (2008) suggested that the three best strategies for reducing unintended pregnancy are to increase consistent and proper contraceptive use, methods that do not require strict adherence, and dual contraceptive methods. African American women aged 18–24 are at higher risk for unintended pregnancy due to non-use of contraception, inconsistent or improper use of contraception, and failure to use dual contraceptive methods (Craig et al., 2014). Efforts to reduce unintended pregnancy should focus on increasing and improving FSHE regarding correct usage and access to modern contraceptive services and methods, especially long-acting reversible contraceptives (LARC), which do not require strict adherence (Tibaijuka et al., 2017). Despite LARC methods being more cost effective, efficient, and not requiring stricter adherence compared to more common short-acting contraceptives, fewer than 5% of young adult women (Rubin, Felsher, Korich, & Jacobs, 2016; Tibaijuka et al., 2017). LARC usage is lower among African American young women, which may be due to

medical mistrust resulting from historical reproductive and medical abuse (Jackson, Karasek, Dehlendorf, & Foster, 2016).

Problem Statement

Despite recent contributions in contraceptive research, information involving selection among African American young women has not been fully characterized. Research examining contraceptive use among African American women has been limited to either small qualitative studies or large surveys focusing on nonuse. Contraceptive selection may be inhibited or facilitated by pregnancy intentions, physical and financial access to methods, personal and vicarious experiences, and partner and social network preferences. Underuse may be due to misinformation and misperceptions regarding contraceptive efficacy, side effects, impact on future fertility, lack of social support regarding contraceptive use, pregnancy ambivalence, and underestimations of pregnancy risks (Craig et al., 2014). It also may be further exacerbated by historical reproductive abuse and medical mistrust in communities of color. African American young women report earlier sexual initiation and are more likely to experience an unwanted or mistimed pregnancy than their peers (Moilanen, Leary, Watson, & Ottley, 2018). Women who experience early sexual initiation are less likely to use contraception and are prone to an increased risk for depression and lower self-esteem (Golden, Furman, & Collibee, 2016; Lanier, Stewart, Schensul, & Guthrie, 2018). CSHE may have a protective influence on early sexual initiation (Bourke, Boduszek, Kelleher, McBride, & Morgan, 2014). Increasing access to CSHE, which highlights modern contraceptive methods, may mitigate these factors.

The purpose of this study was to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women between 18 and 24 years old in the United States who have sex with men. FSHE varies by state in terms of medical accuracy and comprehensiveness regarding abstinence and contraceptive methods. Vicarious and historical experience may also impact contraceptive use, contraceptive selection, and sexual initiation. Increasing public health providers' knowledge regarding the impact of FSHE on sexual initiation and contraceptive use and selection among African American women between 18 and 24 years old in the United States may lead to the development of interventions designed to prevent unintended pregnancies through increased consistent preference and intention matched contraceptive use and improve maternal health and reduce adverse birth outcomes, continued public health target areas among African American young women.

Purpose of the Study

The nature of this quantitative cross-sectional analysis of the 2015–2017 National Survey of Family Growth (NSFG) was to explore receipt of FSHE and the impact it had on sexual initiation and contraceptive use and selection among African American women aged 18–24 in the United States who have sex with men. This information may highlight the importance and increase the provision of FSHE, which may raise the age of sexual initiation, increase consistent use of preference and intention matched contraceptives, and reduce contraceptive failures due to improper use.

Research Questions and Hypotheses

The research questions (RQ) for this study are as follows:

RQ1: Is there an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men?

$H_0$1: There is no association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

$H_1$1: There is an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

RQ2: Is there an association between the type of FSHE received and contraceptive use at sexual initiation for sexually active African American women aged 18–24 who have sex with men?

$H_0$2: There is no association between the type of FSHE received and contraceptive use at sexual initiation among sexually active African American women aged 18–24 who have sex with men.

$H_1$2: There is an association between the type of FSHE received and contraceptive use at sexual initiation among African American women aged 18–24 who have sex with men.

RQ3: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men?

$H_0$3: There is no association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

$H_1$3: There is an association between the type of FSHE received and the effectiveness of the contraceptive method selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

RQ4: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months?

$H_0$4: There is no association between the type of FSHE received and the effectiveness of the contraceptive method primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

$H_1$4: There is an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

Theoretical Foundation

The reasoned-action approach (RAA) drove this investigation regarding the extent to which knowledge gained through FSHE impacts contraceptive selection, contraceptive use, and sexual initiation among African American women aged 18–24 in the United States who have sex with men. The RAA identifies personal, social, and control-related factors that impact behavior (Hagger, Polet, & Lintunen, 2018). In this study, the RAA lent insight into the attitudes, norms, and self-efficacy associated with contraception intention and decision-making.

Attitudes toward contraceptive behavior include beliefs about benefits or consequences of performing the behavior, often influenced by knowledge (Fishbein, 2008). Racial/ethnic disparities involving contraceptive knowledge exist, and there is an association shown between lack of contraceptive knowledge and low contraceptive use. Not having CSHE is associated with use of less effective contraceptive methods (LECM) and increased unintended pregnancy (Kim, Dagher, & Chen, 2016).

Perceived social norms toward sexuality, contraceptive use, and pregnancy are formed based on vicarious experiences. African American women are exposed to higher teen and single parenthood rates, earlier sexual initiation, and use contraception less effectively (Barber, Yarger, & Gatny, 2015). African American women who perceive negative peer norms involving contraceptive use are more likely to be inconsistent in contraceptive usage and use LECMs (Crosby et al., 2013). Carter et al. (2012) suggested that anecdotal information and personal experiences may supersede formal education in influencing African American young women's contraception decision making.

Self-efficacy involving contraceptive behaviors includes availability of resources, affordability, access, and skills needed to perform health behavior (Fishbein, 2008; Nisson & Earl, 2016). Uninsured and underinsured women are more likely not to use contraception or use LECM and be at increased risk for unintended pregnancy compared to those with private insurance (Kim et al., 2016). CSHE increases self-efficacy and the skill needed to select and use more effective contraception.

Conceptual Framework

The purpose of this study was to use the RAA to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18–24 in the United States who have sex with men. The first step when using the RAA is to describe and define the behaviors of interest (Fishbein, 2008). Sexual initiation and contraceptive use and selection, as self-reported by African American young women who have sex with men, is the behavior that is the focus of this study. For this study, barrier methods including condoms, diaphragms, sponges, and spermicides are classified as less effective, with hormonal methods including oral contraceptives, patch, ring, and injectables classified as moderately effective (Dehlendorf, Kimport, Levy, & Steinauer, 2014). IUDs, implants, and sterilization, male or female, are classified as highly effective (Dehlendorf et al., 2014).

A behavior involves an action directed at a target or performed based on context within a timeframe (Fishbein, 2008). For this study, I described and defined sexual initiation and contraceptive use and selection (actions) based on sexual initiation and the

selection of LECMs, MECMs, and HECMs (targets), during vaginal intercourse (context), within the past 12 months (timeframe; see Figure 1).

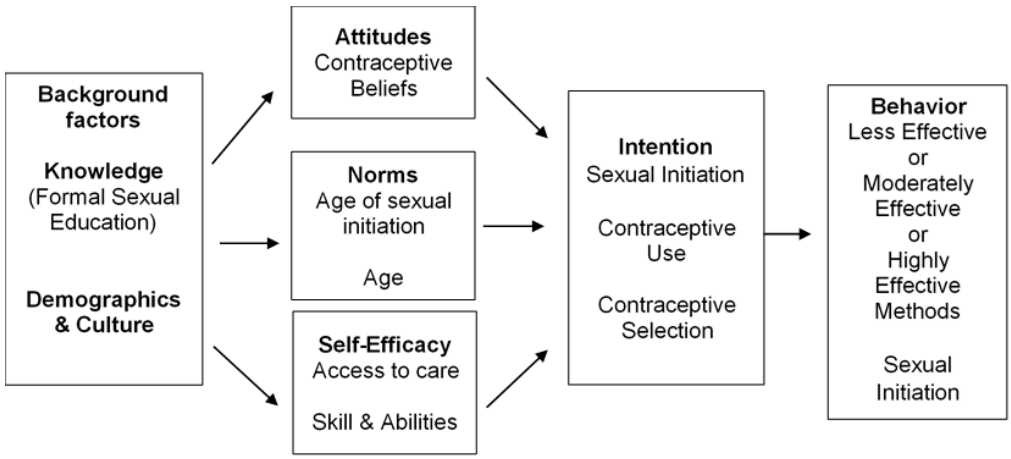

Figure 1. Conceptual framework of 2015–2017 NSFG variables. Adapted from "A reasoned action approach to health promotion" by M. Fishbein, 2008, *Medical Decision Making*, *28*(6), 834–844.

Nature of Study

The NSFG provides the most comprehensive and nationally representative assessment of reproductive health in the United States. The NSFG gathers information on family life, cohabitation, marriage and divorce, pregnancy, and infertility, use of contraception, medical care, and general and reproductive health. NSFG participants were civilian noninstitutionalized individuals who were 15 to 49 years of age in the United States. The NSFG is a continuous, computer-assisted survey used to measure reproductive health status to determine the need for and effectiveness of health education programs and provide data on American families.

The 2015–2017 data set includes responses collected from 10,094 participants, of which 5,554 were women (CDC, 2019, 2019c). I selected the NSFG as the secondary data set for this study due to its oversampling of African American women and individuals aged 15–24 (CDC, 2019b, 2019c). For this study, I analyzed data from the 2015–2017 NSFG to evaluate the extent to which FSHE (knowledge; main independent variable) influences sexual initiation (dependent variable) and the selection of LECMs, MECMs, and HECMs (dependent variables) among African American women aged 18–24 who have sex with men. I analyzed FSHE, sexual initiation, and contraceptive use and section data among African American women aged 18–24 who have sex with men from the NSFG via descriptive statistics, logistic regression, and multinomial logistic regression.

Definition of Terms

The literature uses various terms to describe African American young women and their knowledge, attitudes, and beliefs involving FSHE, sexual initiation, and contraceptive selection and use.

Abstinence-centered sexual health education (ACSHE): A form of education which involves teaching abstinence until marriage as the only morally acceptable option and the only way to prevent premarital pregnancy and STIs (Boyer, 2018).

Abstinence-plus sexual health education (APSHE): A form of education that stresses abstinence as the best way to prevent pregnancy and STIs but includes information about contraceptives, including condoms (Boyer, 2018).

Behavioral background/distal factors: Demographic, economic, personality, attitudinal, and other individual factors that play a role in shaping beliefs and behaviors (Fishbein, 2008).

Behavioral beliefs: Attitudes, including beliefs and feelings about behaviors and values attached to outcomes of behaviors (Fishbein, 2008).

Behavioral intention: Readiness to engage in a particular behavior (Fishbein, 2008).

Comprehensive sexual health education (CSHE): A form of education that involves teaching abstinence as the best method for preventing STIs and unintended pregnancy; it also covers condoms and other contraceptive methods with demonstrations (Boyer, 2018).

Emerging adulthood: A distinct period marked by exploration, development of independence, and personal decision-making. During this period, individuals make key decisions regarding romantic and sexual relations, which are heavily influenced by social norms (Olmstead, Koon, Puhlman, Pasley, & Fincham, 2013).

Highly effective contraceptive methods (HECM): IUDs and hormonal implants (Dehlendorf et al., 2014).

Less effective contraceptive methods (LECM): Condoms, diaphragms, sponges, and spermicides, including foam and suppositories (Dehlendorf et al., 2014).

Moderately effective contraceptive methods (MECM): Hormonal methods, including oral contraceptives, patches, rings, and injectables (Dehlendorf et al., 2014).

Mistimed pregnancy: What a woman experiences if conception occurs sooner than intended (Levi & Quang Dau, 2011).

Normative beliefs: Subjective and social norms resulting from behavior approval or disapproval and motivation to comply with beliefs (Fishbein, 2008).

Perceived behavior control/Self-efficacy: Perceptions regarding the ability to perform a behavior outside of individual control. This includes external factors such as social support and availability of resources, including affordability and access, as well as internal factors such as skill/availability and self-efficacy (Fishbein, 2008; Nisson & Earl, 2016).

Permanent contraceptive methods: These methods include tubal ligation and vasectomy (Tibaijuka et al., 2017).

Reasoned action approach (RAA): Encompasses the theory of reasoned action (TRA) and planned behavior (TPB) to identify personal, social, and control-related factors that impact behavior (Hagger et al., 2018).

Sexual initiation: The first sexual experience typically defined as the age of first vaginal intercourse. (Goldberg & Halpern, 2017).

Short-acting contraceptives: These include oral contraceptive pills, condoms, spermicides, and injectable hormones.

Unintended pregnancy: A pregnancy that is not planned (Levi & Quang Dau, 2011).

Unwanted pregnancy: A pregnancy experienced by a woman who has no desire to become pregnant. (Levi & Quang Dau, 2011).

Vicarious experiences: Stories of close family and friends that are valued as if they are one's own.

Volitional control: How an individual exercises control over behavior (Fishbein, 2008).

Scope and Delimitations

This research involved investigating possible associations between African American young women's exposure to FSHE, sexual initiation, and their selection of LECMs, MECMs, and HECMs. I selected the NSFG to address this area of research as it provides information on a national probability sample of civilian noninstitutionalized women between 15 and 49 years of old. It also provides information on family life, cohabitation, marriage and divorce, pregnancy, and infertility, use of contraception, medical care, and general and reproductive health. This study only included self-reported, sexually active African American women aged 18 to 24 who have sex with men and received FSHE.

Assumptions and Limitations

The purpose of this quantitative cross-sectional analysis of the 2015–2017 NSFG was to explore the receipt of FSHE and the impact it may have on sexual initiation and contraceptive use and selection among African American women aged 18–24 who have sex with men. The NSFG provides general and reproductive health information on a national probability sample of civilian, noninstitutionalized women age 15 to 49. As

such, when weighted to reflect the United States female population at the interviewing midpoint, generalizations for the U.S. population may be made (CDC, 2019b, 2019c).

A limitation of this research may be possible non-sampling errors due to the cross-sectional nature of the NSFG and primary data collection. As such, I could not correlate the extent to which knowledge impacts contraceptive selection, nor can causal inferences be drawn from these cross-sectional data. Another limitation of this study involves using self-reported data, which is subject to participant recall and interviewer biases and over- and under-reporting. The administration of the majority of the NSFG responses occurred via audio computer-assisted self-interviewing (ACASI) to reduce limitations and biases (CDC, 2019b, 2019c).

The sample size was also a limitation of this study. Although oversampling of the study population occurred to include more African American women, the sample size was still small; only 1,355 female interviews out of 5,554 were with non-Hispanic Black women. Another limitation involved the sample size for this study, which included a subsample from the NSFG containing 499 sexually active, African American women aged 18–24 who have sex with men. Data cleaning yielded a final sample size of 242 sexually active, African American women aged 18–24 who have sex with men. This small sample size highlights the need for more robust and targeted studies among African American women instead of limited qualitative and small studies focusing on nonuse or large surveys providing percentages of African American women respondents (Mosher et al., 2015).

Access to data needed to complete this study was another limitation. The NSFG includes a restricted variable, REGION, that identifies a respondent's region of residence. The NSFG website listed the REGION variable as available free of charge upon written request via encrypted email and confidentiality forms. I followed this procedure but was informed that access to the REGION variable changed from free to a fee-based model with limited access at secure onsite facilities, which made the inclusion of this variable cost-prohibitive. The REGION variable was a crucial part of my initially proposed study as FSHE requirements vary by state and region. Currently, 24 states and the District of Columbia mandate sex education, and only 13 require that instruction be medically accurate (Guttmacher Institute, 2019). Eight states require that instruction be culturally competent and not biased against any race, sex, or ethnicity, and two states prohibit promoting religion (Guttmacher Institute, 2019). Twenty-seven states require that abstinence be stressed, 10 states required that it be covered, and only 18 states and the District of Columbia require information on contraception (Guttmacher Institute, 2019). FSHE in southern states overwhelmingly requires that abstinence be stressed or covered compared to other regions. The south comprises states with historically restrictive reproductive freedom and justice issues, including eugenics, that do not require FSHE to be culturally competent or non-biased.

Significance

African American women may receive lower quality family planning care, contributing to disparities in contraceptive use (Craig et al., 2014). African American young women report earlier sexual initiation, use LECMs, and are more likely to

experience an unwanted or mistimed pregnancy compared to their peers (Golden et al., 2016; Lanier et al., 2018; Moilanen et al., 2018). Unintended pregnancy can lead to significant emotional, social, health, and financial complications, which may perpetuate cycles of disadvantages experienced by vulnerable populations, especially involving racial disparities in morbidity and mortality later in life. Bourke et al. (2014) found that CSHE may have a protective influence on early sexual initiation and unintended pregnancy. Increasing access to CSHE, which highlights modern contraceptive methods, may raise the age of sexual initiation, and reduce factors that lead to unintended pregnancy.

The results found from this study may lead to positive social change by providing sexual health educators and public health practitioners with an understanding of the impact of FSHE on sexual initiation and contraceptive use and selection among African American young women who have sex with men. Their increased understanding of the impact of FSHE may help sexual health educators, and public health practitioners provide African American young women with knowledge and skills needed to delay sexual initiation and consistently and properly use preference and intention matched contraceptive methods. African American young women may apply knowledge and skills to prevent unintended pregnancy and decrease adverse maternal and child public health outcomes. Doing so may positively impact African American young women and children's socioeconomic status, which may lead to improved associated social, educational, and public health outcomes for both populations.

Summary

Despite a national decline in pregnancy rates, unintended pregnancies in African American young women remain high and are a public health concern. Even with recent contraceptive research contributions, information involving selection among African American young women has not been fully determined. Despite LARC methods being more cost effective, efficient, and not requiring strict adherence compared to more common short-acting contraceptives, few young adult women use them (Rubin et al., 2016). Usage is low in African American young women, which may be due to medical mistrust resulting from historical reproductive and medical abuse (Jackson et al., 2016). Underuse may be due to misinformation and misperceptions regarding contraceptive efficacy, side effects, impact on future fertility, social support of contraceptive use, pregnancy ambivalence, and underestimating pregnancy risk (Craig et al., 2014).

Understanding contraceptive selection among African American young women may assist sexual health educators and public health practitioners with a better understanding of the impact of FSHE on contraceptive use and selection and sexual initiation among African American young women. Results from this study may lead to positive social change by providing African American young women with knowledge and skills needed to delay sexual initiation and consistently and correctly use preference and intention matched methods and reduce the occurrence of unplanned pregnancies in this population. This information may be used to improve the provision of culturally competent services, such as sexuality and reproductive education, family planning, and

contraceptive counseling, which may increase selection and consistent use of contraceptive methods, reduce usage failures, and improve birth-related outcomes.

Provided in Chapter 2 is a review of the literature regarding FSHE, knowledge, attitudes, and beliefs involving contraceptive use and selection and sexual initiation among African American young women. Provided in Chapter 3 are details regarding how data from the NSFG was used to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American young women who have sex with men. Presented and interpreted in Chapter 4 are the results of the statistical analysis techniques discussed in Chapter 3. In Chapter 5, the study findings are compared to existing empirical literature, and implications and proposed solutions are discussed.

Chapter 2: Literature Review

Introduction

Unintended pregnancy is associated with adverse emotional, social, economic, and health outcomes, making it a substantial public health concern. Unintended pregnancy may lead to disparities in morbidity and mortality due to delayed prenatal care, reduced breastfeeding, depression, delivery of infants with low birth weight or birth defects, as well as reduced average income compared to other women (Carter et al., 2013; James & Rashid, 2013; USDHHS 2019). Infants born due to unintended pregnancies experience increased risks of poor mental, physical, and behavioral health in adolescence and lower educational attainment compared to Caucasian infants (James & Rashid, 2013; USDHHS, 2019).

African American women aged 18–24 are at higher risk for unintended pregnancy due to non-use, inconsistent, or improper use of contraception, as well as failure to use dual contraceptive methods (Craig et al., 2014). These are topics covered during FSHE. The purpose of this study was to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18–24 in the United States who have sex with men. This information may be used to increase the provision of culturally competent sexuality and reproductive education, family planning, and contraceptive counseling, which may increase the selection and consistent use of contraceptive methods. This information may also reduce contraceptive usage failures, raise the age of sexual initiation, and improve birth related outcomes.

This chapter reviews literature involving FSHE, contraceptive knowledge, beliefs, decision-making and selection, unintended pregnancy, social and perceived norms, and sexual initiation associated with African American young. Also, I discuss the RAA, which successfully predicts and explains increased consistent contraceptive use.

Literature Search Strategy

I conducted a digital literature search through PUBMED, ProQuest Central, SAGE Journals, and ScienceDirect databases using the following search terms: *formal sexual health education, abstinence-centered, abstinence-plus, and comprehensive sexual health education, eugenics and historical reproductive justice, contraceptive knowledge, beliefs, and attitudes, sexual initiation barriers to contraceptive use and access, condoms and other contraceptives used among teens, young adults, and African American, perceived and actual contraceptive side effects, and contraceptive social norms.* I also searched for *unintended pregnancy*, *mistimed pregnancy*, *unwanted pregnancy*, *older teen pregnancies*, *young adult or college pregnancies, young mother, and birth outcomes.*

Theoretical Foundation: Reasoned Action Approach

The RAA drove this investigation regarding the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18–24 in the United States who have sex with men. The RAA identifies personal, social, and control related factors that impact behavior. The RAA integrates factors from the theory of reasoned action (TRA) and planned behavior (TPB), focusing on individual motivational factors as determinants of behavior. The TRA and TPB assume that the best predictor of behavior is intention

determined by attitudes and social norms (Hagger et al., 2018). The TPB includes an additional factor, perceived control over one's ability to perform the behavior. Both frameworks have been successful used by previous researchers to investigate behavioral beliefs such as attitudes, intentions, and normative beliefs, including vicarious experiences and subjective norms and their influence on intention (Tyson, Covey, & Rosenthal, 2014).

The TRA asserts that the most important determinant of behavior is behavioral intention. Through learning, individuals form behavioral beliefs and attitudes. Through experiences and perceived normative beliefs, intentions are influenced, and individual behaviors are formed (Fishbein, 2008). Intentions are viewed as readiness to engage in a behavior (Fishbein, 2008). Attitudes are beliefs and feelings about behaviors and the values attached to the outcomes of those behaviors. Normative beliefs are subjective and social norms, including behavior approval or disapproval and motivation to comply with these beliefs. The TRA involves considering the role that demographic, economic, personality, attitudinal, and individual factors play in shaping beliefs and behaviors (Fishbein, 2008). These factors and knowledge are considered background/distal factors that may influence behavioral or normative beliefs through underlying attitudes and norms.

The ability to which the TRA can explain behavior depends upon volitional control. The TPB expounds on TRA factors by suggesting that along with attitude toward the behavior and subjective norms, perceived behavior control/self-efficacy influences intention. The TPB is widely used when investigating sexual behaviors as it predicts

behavioral intentions influenced by attitudes, norms, and perceived behavioral control. Behavior control is a person's perception regarding his or her ability to perform a behavior that may be outside of his or her control. Control beliefs include external factors such as social support and availability of resources, including affordability and access, as well as internal factors such as skill/availability and self-efficacy.

For this research, I used the RAA, which combines TRA and TBP factors most successful in impacting behavior (see Figure 2).

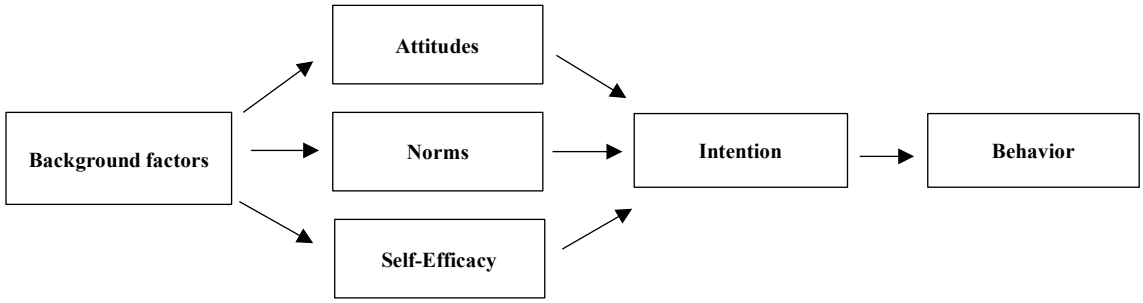

Figure 2. Model of a RAA. Reproduced from "A reasoned action approach to health promotion" by M. Fishbein, 2008, Medical Decision Making, 28(6), 834–844.

Reasoned Action Approach and Contraceptive Selection and Use

According to Hoopes, Gilmore, Cady, Akers, and Ahrens (2016), five key themes influence contraceptive choices: (a) preferences regarding contraceptive characteristics, (b) contraceptive knowledge gained from peers, family, or health professionals; (c) gaps in contraceptive knowledge, (d) preferences for effective or long-acting contraceptives, and (e) barriers and support including partner approval, social norms, and health care environment. These themes coincide with the RAA factors that focus on attitudes, social norms, perceived behavioral control, or self-efficacy. Interventions utilizing the RAA

demonstrate that changing attitudes and subjective norms impact intentions to use contraceptives, leading to behavior change (Dippel, Hanson, McMahon, Griese, & Kenyon, 2017). In this study, the RAA lent insight into the attitudes, norms, and self-efficacy associated with contraception intention and decision-making.

Attitudes toward contraceptive behavior include beliefs about benefits or consequences of performing the behavior, often influenced by knowledge. Attitudes regarding why young women do not use or discontinue use of contraceptive methods involve concerns about weight gain, acne, impact on menstruation, invasiveness, and side effects (Marshall, Kandahari, & Raine-Bennett, 2018). Attitudes that lead to contraceptive use include ease of use, fewer side effects, low cost, and easy access. Knowledge shapes contraceptive attitudes (Guzzo & Hayford, 2018). Racial and ethnic disparities involving contraceptive knowledge exist with associations shown between less knowledge and less contraceptive use. Not having CSHE is associated with use of LECMs and increased unintended pregnancy (Kim et al., 2016). Teal and Romer (2013) found that 70% had not heard of LARCs in a multiethnic cohort of young women. Bachorik et al. (2015) found that 40% of young women were familiar with contraceptive implants. Misconceptions involving LARCs remain a factor in use disparities among African American young women. Common misconceptions about LARCs include the impact on future fertility, overestimating associated risk, underestimating oral contraceptive risk, and overestimating oral contraceptive effectiveness (Sundstrom, Baker-Whitcomb, & DeMaria, 2015).

Perceived social norms toward sexuality, contraceptive use, and pregnancy are formed based on familial experiences, which vary by race. African American women are exposed to higher teen and single parenthood rates, earlier sexual initiation, and use contraceptives less effectively (Barber et al., 2015). Barber et al. (2015) suggested that exposure to these factors may cause cognitive dissonance and perpetuate these behaviors. Anderson, Steinauer, Valenete, Koblentz, and Dehlendorf (2014) found that among diverse women, negative information regarding LARCs learned from conversations with female friends and family members and television commercials impacted decision making. Oral contraceptives are reported as the most acceptable form of contraception and LARCs, including intrauterine devices, are rarely used (Pritt, Norris, & Berlan, 2017). African American women who perceive negative peer norms surrounding contraceptive use are more likely to have inconsistent contraceptive usage and use LECMs (Crosby et al., 2013). Cohen, Sheeder, Kane, and Teal (2017) suggested that knowledge regarding contraceptive methods alone is insufficient to increase use since African American women valued anecdotal information just as favorably as factual information. As such, the stronger predictor for contraceptive method choice in their study was knowing someone who used, liked, or disliked a particular method. Marshall et al. (2018) also noted the importance of experiential information from friends and family in contraceptive decision-making. They described healthcare providers as both trusted and potentially biased sources of factual only information and noted that there is often skepticism regarding providers' ability to provide unbiased reproductive recommendations. In some instances, participants reported that they made contraceptive

decisions without seeking social support, preferring to learn from personal negative contraceptive experiences instead of relying on the experiences of their social communities (Paterno, Hayat, Wenzel, & Campbell, 2017). Anecdotal information and personal experiences might supersede formal education for African American young women (Carter et al., 2012).

Self-efficacy involving contraceptive behaviors includes the availability of resources, including affordability and access, and the skill needed to perform the behavior (Fishbein, 2008; Nisson & Earl, 2016). Uninsured and underinsured women are more likely not to use contraception or to use LECMs and be at increased risk for unintended pregnancy than those with private insurance (Kim et al., 2016). Young women not covered by a parent's insurance plan might opt out of electing insurance coverage and remain uninsured (Pritt et al., 2017). Insured women might not be aware of the benefits centered around contraceptive costs (Pritt et al., 2017). The costs of LECMs might influence clinics' ability to stock them, which could affect patients' timely access to contraception (Pritt et al., 2017). Reproductive trends in contraceptive use among African American women may be impacted by a reproductive history of medical and reproductive abuse (Jackson et al., 2016). Young women, especially African Americans, may be at risk of not receiving high-quality family planning care (Dehlendorf et al., 2014). African American women report experiencing implicit and explicit bias in the form of feeling coerced to start contraceptive use earlier than desired, written prescriptions provided without request or consent, refusal to remove implanted methods when requested (Gomez & Wapman, 2017). They also report feeling as if they could not turn down provider

recommendations and being steered toward more long-acting methods without considering their reproductive preferences and priorities (Gomez & Wapman, 2017). Contraceptive dissatisfaction and lack of knowledge regarding alternatives may also contribute to nonuse or incorrect use of current contraceptive methods (Kornides et al., 2015). The RAA has been used successfully to investigate self-efficacy associated with contraceptive use and partner reaction, especially regarding contraception negotiation (Villarruel et al., 2004). CSHE increases self-efficacy and the skill needed to select and use more effective contraception.

Conceptual Framework

The purpose of this study was to use a RAA to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18–24 who have sex with men. The first step in a RAA is to describe and define the behaviors of interest. The behavior that was the focus of this study is contraceptive methods selection by African American young women. For this study, barrier methods including condoms, diaphragms, sponges, and spermicides have been classified as less effective, with hormonal methods including oral contraceptives, the patch, the vaginal ring, and injectables classified as moderately effective (Dehlendorf et al., 2014). IUDs, implants, and sterilization have been classified as highly effective (Dehlendorf et al., 2014).

In the RAA, behavior involves an action directed at a target, performed based on context, within a timeframe (Fishbein, 2008). For this study, these constructs are described and defined as contraceptive selection (action) based on the selection LECMs,

MECMs, and HECMs (target), during vaginal intercourse (context), within the past 12 months (time; see Figure 1).

Literature Review

Formal Sexual Health Education

FSHE is comprised of an evidence based curriculum delivered in a school or healthcare setting. FSHE may be based on different methods, including an abstinence-centered, abstinence-plus, or comprehensive approach. ACSHE, often referred to as sexual risk avoidance programs (SRAP), teaches abstinence until marriage as the only morally acceptable option before marriage (Boyer, 2018). Participants are taught that abstinence is the only way certain to prevent premarital pregnancy and STIs and that sex within a monogamous relationship in the context of marriage is the expected standard (Boyer, 2018). ACSHE programs also teach that sexual activity outside of marriage is likely to have harmful psychological and physical effects and impact independence (Boyer, 2018). ACSHE programs do not include demonstrations, simulations, or the distribution of contraceptive devices (Boyer, 2018). ACSHE programs typically fail to provide education and skill-building on critical topics such as healthy relationships, communication, and consent (Boyer, 2018).

APSHE stresses abstinence as the best way to prevent pregnancy and sexually transmitted infections but emphasizes safe sex practices, healthy relationships, and lifestyles by including information about contraception and condoms. CSHE teaches abstinence as the best method for preventing STIs and unintended pregnancy but also teaches participants about condoms and other contraceptive methods with demonstrations

(Boyer, 2018). It helps young people explore their values, goals, and options by teaching interpersonal and communication skills (Boyer, 2018).

Despite concerns, there is no evidence to support that receipt of CSHE is associated with an earlier sexual initiation, increased risk-taking, or poorer sexual reproductive health outcomes (Lindberg & Maddow-Zimet, 2012). CSHE, which occurs before sexual initiation, leads to delayed onset of sexual initiation, greater use of more effective contraception, especially at the first sexual encounter, and healthier sexual relationships (Jaramillo, Buhi, Elder, & Corliss, 2017; Lindberg & Maddow-Zimet, 2012). ACSHE does not have a significant impact on sexual initiation or sexual behaviors and may place young people at increased likelihood of pregnancy and STIs once they become sexually active by overlooking or downplaying the benefits of contraception (Boyer, 2018). ACSHE also fails to meet the needs of young people who are already sexually active, withholding potentially lifesaving information (Boyer, 2018). ACSHE also perpetuates discrimination and stigmatizes sex, promoting fear, guilt, and shame around sex (Boyer, 2018). It also ignores systemic biases such as racism, inequality, discrimination, and trauma, which may impact the sexual health of African American women (Boyer, 2018). Public health professionals widely reject ACSHE and SRAP (Santelli et al., 2017).

The goal of FSHE is to prepare young adults to be sexually healthy (Santelli et al., 2017). Before 2008, federally funded educational programs focused solely on ACSHE programs, prohibiting discussing contraceptive methods, except to emphasize their failure rates (Jaramillo et al., 2017; Lindberg & Maddow-Zimet, 2012). In 2010, a reduction in

funding for ACSHE occurred, and the Obama Administration increased CSHE (Jaramillo et al., 2017). The current administration reverted the content of FSHE to ACSHE without scientific evidence supporting their effectiveness. As such, the requirements for FSHE vary by state and region. Currently, 24 states and the District of Columbia mandate sex education, of which only 13 require that instruction be medically accurate (Guttmacher Institute, 2019). Eight states require that instruction be culturally competent and not biased against any race, sex, or ethnicity, and two states prohibit promoting religion (Guttmacher Institute, 2019). Twenty-seven states require that abstinence be stressed, and 10 required that it be covered, while only 18 states and the District of Columbia require information on contraception (Guttmacher Institute, 2019, see Table 1). As noted, Region 3, comprised of southern States, overwhelmingly requires that abstinence be stressed or covered compared to other regions. There are no states in Region 3, historically known for restrictive reproductive freedom and justice issues, including eugenics, that require FSHE that is culturally competent and non-biased.

Racial and ethnic disparities involving contraceptive knowledge exist with an association shown between less knowledge and less contraceptive use. FSHE, for most, is received through school based programs, which may not be comprehensive, and often in the South has moral undertones (Guzzo & Hayford, 2018). Receipt of FSHE was lower among individuals with lower socioeconomic status, who were African American, and whose mothers had lower educational attainment (Lindberg & Maddow-Zimet, 2012). Receipt of FSHE after high school is rare. Therefore, knowledge and attitudes formed about contraception during adolescence may persist throughout life (Guzzo & Hayford,

2018). This highlights the need for CSHE among African American young women who have poorer sexual reproductive health outcomes, including higher rates of unintended pregnancy and STIs (Lindberg & Maddow-Zimet, 2012). Shepherd, Sly, and Girard (2017) found that African American adolescents who received CSHE had more favorable attitudes about contraception, demonstrated an increase in consistent contraception usage, and reported less teen pregnancy and vaginal intercourse, highlighting the importance of early CSHE.

Table 1

U.S. Census Bureau Regions and Divisions with State FIPS Codes and FSHE Requirements

United States Census Bureau Regions and Divisions with State FIPS Codes	
Regional I: Northeast	
States	**Requirement Codes**
Connecticut (09)	
Maine (23)	MSE, MA, AS, CE
Massachusetts (25)	
New Hampshire (33)	
New Jersey (34)	MSE, MA, CC, AS, CE
New York (36)	
Pennsylvania (42)	
Rhode Island (44)	MSE, MA, CC, AS, CE
Vermont (50)	MSE, AC, CE
Region 2: Midwest	
States	**Requirement Codes**
Illinois (17)	MA, AS, CE
Indiana (18)	AS
Iowa (19)	MSE, MA, CC
Kansas (20)	
Michigan (26)	MA, AS
Minnesota (27)	MSE, AC
Missouri (29)	
Nebraska (31)	
North Dakota (38)	MSE
Ohio (39)	MSE, AS
South Dakota (46)	
Wisconsin (55)	AS

(*table continues*)

United States Census Bureau Regions and Divisions with State FIPS Codes

Region 3: South	
States	**Requirement Codes**
Alabama (01)	AS, CE
Arkansas (05)	AS
Delaware (10)	MSE, AS, CE
District of Columbia (11)	MSE, CE
Florida (12)	AS
Georgia (13)	MSE, AS
Kentucky (21)	MSE, AS
Louisiana (22)	AS
Maryland (24)	MSE, AC, CE
Mississippi (28)	MSE, AS
North Carolina (37)	MSE, MA, AS, CE
Oklahoma (40)	AS
South Carolina (45)	MSE, AS, CE
Tennessee (47)	MSE, AS
Texas (48)	AS
Virginia (51)	AC
West Virginia (54)	MSE, AC, CE
Region 4: West	
States	**Requirement Codes**
Alaska (02)	
Arizona (04)	AS
California (06)	MSE, MA, CC, AC, CE
Colorado (08)	MA, CC, AC, CE
Hawaii (15)	MSE, MA, AC, CE
Idaho (16)	
Montana (30)	MSE, AC
Nevada (32)	MSE
New Mexico (35)	MSE, AC, CE
Oregon (41)	MSE, MA, CC, AS, CE
Utah (49)	MSE, MA, CC, AS
Washington (53)	MA, CC, AS, CE
Wyoming (56)	

Legend:
Mandated Sex Education (MSE)
Required Medically Accuracy (MA)
Required Culturally Competent and Non-biased instruction (CC)
Abstinence Stressed (AS)
Abstinence Covered (AC)
Required Contraception Education (CE)

Contraceptive Use and Selection

Demographics. Timing and sequencing of experiences across the lifespan are important as young women make choices based on their experiences. Young women's decisions about contraception depend on their life experiences, which are influenced not only by race but by age (Kusunoki, Barber, Ela, & Bucek, 2016). Women in their late teens and twenties are in a transition period where they are deciding who they are and shaping their personalities and beliefs based on familial beliefs, education and

experiences from adolescence, and exploration in a world that is defined by less parental oversight. For this research, I focused on young adult, African American women aged 18–24.

Women aged 18–19 are late adolescents beginning the transition to adulthood. Developmental researchers emphasize the importance of this transition as experiences begin to diverge, which shape adulthood decisions. While some remain at home while attending college, working, or combining the two, most late adolescents leave home to attend college or work full-time while living independently (Arnett, 2000). Dating provides companionship, first loves, and sexual experimentation. Parental supervision lessens, and there is little normative pressure to marry. Women aged 20–24 are emerging adults with relationships based on shared values and belief systems, who modify their risk taking behaviors and make decisions based on future consequences (Arnett, 2000). Emerging adults have the greatest residential change in any group (Arnett, 2000). While most continue to live in collegiate residential facilities or independently, some cohabitate with a romantic partner (Arnett, 2000). Emerging adults reexamine familial beliefs and form personal beliefs that will shape adulthood (Arnett, 2000). Dating becomes serious, and the focus shifts to exploring the potential for marriage. While college attendance is at an all-time high, only 36% of young adults have earned their degrees (U.S. Bureau of Census, 2016). Many pursue graduate degrees while others begin their occupational path and possibly marriage and family (Arnett, 2000).

These age groups contracept differently. Contraceptive knowledge is typically lower, and unintended pregnancies are higher in 18–19 year old women (Wu, Kusunoki,

Ela, & Barber, 2016). Dehlendorf et al. (2014) found that African American women under 19 years of age were less likely than Caucasians women to use IUDs or implants, while African American women between the ages of 20–24 were slightly more likely to use IUDs and implants than Caucasians. Additional contraception differences based on age are discussed in the next section.

Contraception among African American women. Contraception is used to prevent pregnancy and the interruption of life goals it could cause (Morse & Moos, 2018). For this research, I categorized contraceptive methods based on the World Health Organization's effectiveness recommendations. Barrier methods, including condoms, diaphragms, sponges, and spermicides, are LECMs, and hormonal methods, including oral contraceptives, the patch, the vaginal ring, and Depo-Provera injections are MECMs. IUDs, implants, and sterilization are HECMs. LECMs and MECMs offer varying levels of effectiveness based on method selection and usage patterns. These methods are the most used due to lower cost, ease of access, and reversibility, with effect wearing off quickly once use has ceased or shortly after (USDHHS, 2019). LARC methods provide hormonal or non-hormonal protection for three to 10 years with one application, depending on the method, and are HECM. These methods have a higher initial cost but are more cost effective due to the length of protection provided (USDHHS, 2019). LARCs are reversible, with effects wearing off once use has ceased or shortly after (USDHHS, 2019). LARCs include hormonal implants that may be intrauterine hormonal devices or subdermal implants and non-hormonal IUDs. Permanent contraceptive

methods, including tubal ligation and tubal sterilization, are also HECM used to provide hormone-free, permanent pregnancy prevention.

Despite most young adults believing that pregnancy should be planned (86–94%), more than 70% of pregnancies among unmarried women aged 18–24 are unplanned and likely due to nonuse or inconsistent contraceptive use (Kornides et al., 2015). Half of unintended pregnancies occur among contraceptive users, with 90% of these pregnancies resulting from inconsistent or incorrect method use rather than method failure (Wong, 2012). Reasons for nonuse or inconsistent contraceptive use include the belief that one could not get pregnant (32%), lack of preparedness due to unexpected intercourse (20%), pregnancy ambivalence (18%), lack of partner desire for contraceptive use (16%), and concern over contraceptive side effects (15%; Kornides et al., 2015). Paterno et al. (2017) found that among women aged 20–24, 11.4 to 13% used no contraceptive method. This number was lower among African American participants despite 60% of African American women aged 18–24 who believed pregnancy planning is important and 80% who desired to avoid pregnancy (Paterno et al., 2017).

Barber et al. (2015) found that African American young women tolerated male partner refusal to use condoms because of the scarcity of potential partners. Sexual health education focused on condom usage as the best option; however, they are only 79–82% effective due to incorrect use (Logan et al., 2018; USDHHS, 2019). Condoms are most effective when used in combination with a dual, hormonal contraceptive method, providing protection from pregnancy and STIs (USDHHS, 2019). Oral pills have also been the focus of sexual health education as an ideal contraceptive method, which

provides young women with a false sense of protection due to the overestimation of effectiveness (Logan et al., 2018). Many are unaware that contraceptive effectiveness may be impacted by medication, such as antibiotics, and failure to take the pill at the same time daily. According to the NSFG, African American women have higher oral pill discontinuation rates than Caucasian women, which may be due to side effect concerns (Jackson et al., 2016).

Although LARC use has increased over the past five years, use is still low in young women despite being one of the most effective forms of pregnancy prevention (Logan et al., 2018). Fewer than 5% of 15–19 year olds select LARCs as their preferred contraception method (Coates, Gordan, & Simpson, 2018). LARC use varies by age; however, with women aged 25–34 using LARCs at nearly double the rate of women aged 15–24 (Logan et al., 2018). Despite this increase, young African American women's usage remains lower than in other racial/ethnic groups (Logan et al., 2018). Coates et al. (2018) found that in Alabama and Mississippi, two Region 3 states, only 3.7% to 7% of 15–19 year olds used LARCs. Usage may be due to insufficient knowledge and negative attitudes and beliefs about LARCs stemming from social norms, the knowledge gained through vicarious experiences, and knowledge of institutional racism and medical mistrust (Logan et al., 2018). As LARCs are more expensive than LECMs and MECMs methods and require insertion by a healthcare provider, the lack of insurance may be a barrier to use (Logan et al., 2018). However, LARC methods are more effective than LECMs and MECMs, provide better child spacing, are more cost effective, and their effectiveness is less dependent on user characteristics (Tibaijuka et al., 2017).

Women prefer methods that do not require procedures, which may stem from fear based on historical reproductive abuse that perpetuates perceptions of institutional racism and medical mistrust (Jackson et al., 2016; Logan et al., 2018; Tibaijuka et al., 2017). Even when women want to avoid pregnancy, their contraceptive behaviors are not necessarily consistent with their intention (Borreo et al., 2015). Potentially modifiable factors that may contribute to contraceptive use or inconsistent use among African Americans are perceived low susceptibility of pregnancy, lack of knowledge regarding contraceptive options, and misperceptions surrounding contraceptive side effects (Borreo et al. 2015; Kornides et al., 2015). Previous unprotected intercourse without pregnancy may lead to subfertility or infertility assumptions and give rise to subsequent contraceptive nonuse or inconsistent use (Borreo et al., 2015). Compared to Caucasian and Hispanic women, African American women are more likely to report concerns regarding side effects of contraceptive methods as their rationale for not using contraception (Kornides et al. 2015). Few women aged 20–24 use LARCs, such as an IUD implant and injectable hormonal contraception, which may be due to a lack of knowledge and misconceptions that these methods may be abortifacients (Kornides et al., 2015). Contraception use, specifically LARC use, might be increased by providing young women more information on effectiveness, side effects, affordability, and ease of use (Kornides et al., 2015).

African Americans rely heavily on social networks for sexual and reproductive norms and information (Hayford & Guzzo, 2013). The social context of pregnancy includes views of family members or partners, cultural values about pregnancy,

contraception, single parenthood, and life choices resulting from unintended pregnancy (Kelly, 2014). Low social support during pregnancy is associated with substance use and abuse, poor nutrition, and lack of exercise (Gray, 2015).

Sexual Initiation

Sexual initiation, considered a critical life transition event, is a significant milestone towards adulthood as young adults accept increasing responsibility for their decisions (Goldberg & Halpern, 2017; Moilanen et al., 2018). The mean age of sexual initiation among American women is approximately 17 years of age, with 15% having had their first heterosexual vaginal intercourse experience before their 15th birthday (Guttmacher Institute, 2018; Magnusson, Nield, & Lapane, 2015). African American young women report earlier sexual initiation and are more likely to experience an unwanted or mistimed pregnancy than their peers (Moilanen et al., 2018). Current national norms for the United States consider sexual initiation before age 15 as early, between 15 and 19 years of age as normative, and after 19 years of age as late (Golden et al., 2016). Women who experience early sexual initiation are less likely to use contraception and are prone to an increased risk for depression and lower self-esteem (Golden et al., 2016; Lanier et al., 2018). Magnusson et al. (2015) found that women with early sexual initiation also have a higher risk of experiencing multiple unintended pregnancies compared to women with late sexual initiation.

CSHE may have a protective influence on early sexual initiation (Bourke et al., 2014). CSHE, grounded in a sex-positive framework, teaches young adults that consensual sexual behavior can be healthy, normative, and developmentally appropriate

(Bourke et al., 2014; Golden et al., 2016). CSHE equips young adults with the tools needed to make well-informed and healthy decisions around sexual experiences to reduce risk and promote healthy development (Golden et al., 2016).

Access to Care

Reproductive trends in contraceptive use among African American women may be impacted by a reproductive history of medical and reproductive abuse (Jackson et al., 2016). The United States has a history of social and legislative policies to control the reproductive health of poor and minority women through forced sterilization (Jackson et al., 2016). With the introduction of contraceptive implants, many states incentivized or required usage among women who relied on governmental aid (Jackson et al., 2016). Combined with historical occurrences such as the Tuskegee experiment, mistrust of reproductive health practitioners and their recommendations is high. As such, African American women are more likely than Caucasian women to use LECMs due, in part, to a desire to preserve reproductive control (Jackson et al., 2016).

Young women, especially those of color, may be at risk of not receiving high-quality family planning care (Dehlendorf et al., 2014). This may contribute to healthcare disparities, disengagement from healthcare interactions, and perpetuated institutional mistrust (Gomez & Wapman, 2017). Young women described feelings of being rushed during appointments, not having questions answered and concerns addressed, and receiving no information or incomplete information regarding the method's side effects provided (Gomez & Wapman, 2017). Contraceptive dissatisfaction and lack of knowledge regarding alternatives may also contribute to nonuse or incorrect use of

current contraception methods (Kornides et al., 2015). Dissatisfaction and lack of knowledge may stem from family planning healthcare disparities. Implicit and explicit bias/pressure, experienced during family planning, may influence contraceptive decision-making, and perpetuate reproductive oppression experienced by minority women (Gomez & Wapman, 2017).

Effective patient-centered family planning care should account for medical history and be engaging, nondirective, interactive, and consider patient preferences and priorities (Gomez & Wapman, 2017). Provider initiated discussions and recommendations influenced by race, class, age, or feelings of perceived judgment have a long lasting impact on young women's confidence in the healthcare system. This doubt or lack of confidence may influence decisions to seek and receive contraceptive care (Gomez & Wapman, 2017). Clinicians are more likely to recommend LARCs to low income women of color compared to their Caucasian counterparts (Gomez & Wapman, 2017). This type of provider coercion is seen particularly with patients deemed high-risk, despite their contraceptive preferences (Morse & Moos, 2018). Provider coercion occurs despite income, with well-educated patients describing feelings of pressure to be compliant, discomfort with expressing their opinions and views, and the need to accept provider recommendations (Joseph-Williams, Edwards, & Elwyn, 2014; Sacks, 2017).

Operationalizing Reproductive Health

The NSFG provides the most comprehensive, nationally representative assessment of reproductive health in the United States. It provides information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and general and

reproductive health on a nationally representative sample of the civilian, noninstitutionalized United States population aged 15– to 49 based on voluntary, in-person computer assisted personal interviewing (CAPI). The NSGF continuously interviews the U.S. population, annually over 48 weeks (CDC, 2019b, 2019c). The 2015–2017 data set includes responses collected from 10,094 participants, of which 5,554 were women (CDC, 2019b, 2019c). I chose the NSFG as the data set for this study due to its oversampling of African American women and individuals aged 15–24 (CDC, 2019b, 2019c).

For this study, I used NSFG variables related to receipt of FSHE, type of contraceptive method selected for vaginal intercourse at sexual initiation and within the last 12 months, and age of sexual initiation among African American women aged 18–24 who have sex with men. Participants' receipt of FSHE before 18 years of age is categorized as received (yes) or not received (not). If participants self-reported FSHE was received, the responses collected helped determine if education was ACSHE, APSHE, or CSHE based on coverage of birth control methods, where to get birth control, how to use a condom, and waiting until marriage to have sexual intercourse. The stratification of these variables' results occurred by age into the standard population age groups into the age brackets of 18–19 and 20–24 years old.

Operationalizing Unintended Pregnancy

Since 1941, unintended pregnancy has been a marker of reproductive health and dichotomized as one that was either mistimed or unwanted (Guttmacher Institute, 2018). Mistimed pregnancies, which account for 27% of pregnancies, are characterized as

pregnancies that were not wanted when they occurred, but pregnancy may be desired in the future (Guttmacher Institute, 2018). Unwanted pregnancies, which account for 18% of pregnancies, are characterized as pregnancies that were not wanted when they occurred or in the future (Guttmacher Institute, 2018). An intended pregnancy is one that was wanted at the time it occurred or sooner (Guttmacher Institute, 2018). Women who were indifferent about becoming pregnant are counted as intended pregnancies, so that the unintended pregnancy rate only includes unambiguously unintended pregnancies (Guttmacher Institute, 2018). Unintended pregnancy mainly results from not using contraception or inconsistent or incorrect use of effective contraceptive methods (Guttmacher Institute, 2018). Women more likely to experience unintended births include unmarried women, African American women, and women with less education or income (Guttmacher Institute, 2018).

Epidemiology. In 2011, nearly half (45% or 2.8 million) of the United States' pregnancies were not intended, with 45 unintended pregnancies per every 1,000 women aged 15–44 (Finer & Zolna, 2016; Guttmacher Institute, 2018). This equates to nearly 5% of reproductive age women experiencing an unintended pregnancy each year (Finer & Zolna, 2016). Race disparities in unintended pregnancy exist, with 69% of African American women identifying their pregnancies as unintended compared to 42% of Caucasian women (Barber et al., 2015). At 79 per 1,000, the unintended pregnancy rate for African American women in 2011 was more than double that of non-Hispanic Caucasian women (33 per 1,000) (Finer & Zolna, 2016; Kusunoki et al., 2016). This disparity is similar to the percentage of unintended births (Finer & Zolna, 2016;

Kusunoki et al., 2016). African American women have their first child earlier (age 20.9, verse 24.1) and have more children (2.4 verse 2.2) than Caucasian women (Kusunoki et al., 2016). The highest unintended pregnancy rates in 2011 were among women in their late teens and twenties. The age group rate per thousand was 105 (18–19 years old), 101 (20–24 years old), and 69 (25–29 years old) with an overall increased rate of unplanned pregnancies in women aged 18–25 (Barber et al., 2015; USDHHS 2019).

Rates of unintended pregnancy are generally highest in the south, southwest, and densely populated states (Kost, 2015). Approximately 55% of unintended pregnancies in the United States occur in poor and cohabitating young adult women aged 18–24, who are much less likely to use contraception than older women, more likely not to seek prenatal care, and have unmet support needs and emotional and financial difficulties (Finer & Sonfield, 2013; Gray, 2015; Kornides et al., 2015). Kim et al. (2016) found that African American women were less likely to use and have correct information about hormonal methods and long-term contraceptive methods than their Caucasian counterparts.

Implications. In 2011, 42% of unintended pregnancies, excluding miscarriages, ended in abortion, and 58% ended in birth. This represents a small shift from 2008 when 40% ended in abortion, and 60% ended in birth (Finer & Zolna, 2016). The proportion of unintended pregnancies ending in birth decreased across all racial and ethnic subgroups between 2008–2011. The proportion of women experiencing an unintended pregnancy and choosing to end it in abortion was higher among African American women than among women in other racial and ethnic groups (Finer & Zolna, 2016). More than half of

all women in the United States will experience an unintended pregnancy by the time they reach age 45 (Finer & Zolna, 2016).

The estimated cost of unintended pregnancy in the United States as of 2013 was $4.6 billion annually, with 53%, or $2.5 billion each year, due to inconsistent contraceptive use (Finer & Sonfield, 2013). By helping women avoid unintended pregnancies, publicly funded family planning services saved taxpayers $13.6 billion, or $7.09 for every $1 spent (Frost, Sonfield, Zolna, & Finer, 2014).

Summary

Unintended pregnancy is associated with multiple emotional, social, economic, and health outcomes, which makes it a substantial public health concern. Unintended pregnancy may lead to disparities in morbidity and mortality due to delayed prenatal care; reduced breastfeeding; depression; delivery of infants with low birth weight and birth defects; as well as reduced average income compared to other women (Carter et al., 2013; James & Rashid, 2013, USDHHS, 2019). African American women aged 18–24 are at higher risk for unintended pregnancy due to non-use of contraception, inconsistent or improper use of contraception, and failure to use dual contraceptive methods (Craig et al., 2014). These are topics covered during CSHE.

The goal of FSHE is to prepare young adults to be sexually healthy (Santelli et al., 2017). Misconceptions surrounding long-term contraceptive methods remain a large factor in use disparities among African American young women. Racial and ethnic disparities involving contraceptive knowledge exist with an association between less knowledge and use of LECMs, less knowledge, less self-efficacy, and less knowledge

and increased unintended pregnancy. Reproductive trends in contraceptive use among African American women may be impacted by a reproductive history of medical and reproductive abuse. The United States has a history of social and legislative policies to control poor and minority women's reproductive health through forced sterilization. FSHE, for most, is received through school based programs, which may not be comprehensive and often have moral undertones.

African American women are exposed to higher teen and single parenthood rates, earlier sexual initiation, and use contraception less effectively (Barber et al., 2015). Perceived social norms involving sexuality, contraceptive selection, and pregnancy shaped by familial experiences may cause African American women to be more likely to have inconsistent contraceptive usage and use LECMs. Anecdotal information and personal experiences learned or experienced in the south may supersede formal education for African American young women. Current research involving contraception among African American women is limited to either small qualitative studies or large surveys focusing on nonuse. The focus of this study was to evaluate the impact of FSHE on sexual initiation, contraceptive use, and contraceptive selection among African American young women aged 18–24 who have sex with men. An understanding of the impact of FSHE may lead to the development of interventions designed to prevent unintended pregnancies through increased consistent, preference, and intention matched contraceptive use, as well as improved maternal health and reduced adverse birth outcomes, all of which public health concerns among young African American women.

Provided in Chapter 3 are details of how the NSFG was used to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection among African American women aged 18 24 in the United States who have sex with men. Presented and interpreted in Chapter 4 are the results of the statistical analysis techniques discussed in Chapter 3. In Chapter 5 the study findings are compared to existing empirical literature, and implications and proposed solutions are discussed.

Chapter 3: Research Method

Purpose of the Study

The purpose of this study was to complete a quantitative analysis of the 2015–2017 NSFG to explore the impact receipt of FSHE has on sexual initiation and contraception use and selection among African American young women aged 18–24 in the United States who have sex with men. Information from this study may lead to the provision of culturally competent services that increase CSHE, raise the age of sexual initiation, and increase consistent use of preference and intention matched contraceptive use among sexually active African American women aged 18–24 in the United States who have sex men. Information from this study may also decrease unintended pregnancies, impact maternal health, and reduce adverse birth outcomes public health concerns in young African American women (Kornides et al., 2015).

In this chapter, I provide information on the study design used for this research and its supporting rationale. The NSFG population, sampling procedures, procedures for recruitment, participation, data collection, and operationalization of variables are discussed. The data analysis plan is outlined, and threats to validity and ethical procedures are described.

Research Design and Rationale

I conducted this study using a quantitative cross-sectional research approach to investigate NSFG variables related to FSHE and contraception selection, use, and sexual initiation among African American young women aged 18–24 in the United States who have sex with men. Participants' receipt of FSHE before 18 years of age was the

independent variable. If participants self-reported receipt of FSHE, I analyzed responses to determine if education was ACSHE, APSHE, or CSHE based on coverage of birth control methods, where to get birth control, how to use a condom, and waiting until marriage to have sexual intercourse. Age of sexual initiation and selection of no method, LECMs, MECMs, and HECMs served as dependent variables.

The NSFG provides the most comprehensive and nationally representative assessment of reproductive health in the United States. I selected the NSFG as the data set for this study due to its oversampling of African American women and individuals aged 15–24. As part of the federal statistical system, National Center for Health Statistics (NCHS) supports disseminating the NSFG public use data and documentation files at no charge to the public. I obtained secondary data from the NSFG public domain website. I analyzed data from the NSFG through descriptive statistics, logistic regression, and multinomial logistic regression. Lindberg and Maddow-Zimet (2012) used a similar strategy to analyze the impact of sexual education on adult sexual behaviors by using multinomial logistic regression to examine associations between sexual health education and sociodemographic covariates, and sexual behaviors. Jaramillo et al. (2017) used multinomial logistic regression to ascertain associations between exposure to sexual health education topics and contraception used at last sex. Bourke et al. (2014) explored the receipt of FSHE and sexual initiation using multinomial logistic regression.

Methodology

Population

The NSFG provides information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and general and reproductive health on a nationally representative sample of the civilian, noninstitutionalized United States population aged 15-49 based on voluntary, in-person CAPI. The NSGF continuously interviews the U.S. population, in 12 week intervals, annually over 48 weeks. The 2015–2017 NSFG includes 5,554 interviews conducted with women aged 15–49 from September 2015 to September 2017 (CDC, 2019b). Of this population, 1,355 were non-Hispanic Black women (CDC, 2019b).

Sampling and Sampling Procedures

The NSFG is a multi-staged probability based, nationally representative sample of individuals aged 15–49. For this study, I used a cross-sectional approach involving secondary public use data from the 2015–2017 NSFG for African American women aged 18–24 who have sex with men. The NSFG utilizes a sample design that obtains a sample size of at least 5,000 interviews per year, and oversamples non-Hispanic Blacks, Hispanics, and teens aged 15–19 (CDC, 2019b). The goal is that interviewees be 20% non-Hispanic Black, 20% Hispanic, 55% female, and 20% teens aged 15–19, resulting in a nationally representative sample (CDC, 2019b).

The NSFG uses a stratified five stage area probability sampling method based on probability proportionate to size (PPS) selection in four domains to ensure the oversampling of non-Hispanic Blacks, Hispanics, and teens (CDC, 2019b; see Table 2).

Households in domains 2 through 4 are given higher weights to increase the likelihood of being selected. The first two participant selection stages used these weighted measures (CDC, 2019b).

Table 2

Probability Proportionate to Size Domain Definition and Characteristics Based on Household

Domain	Definition	Total Households	Estimated Proportion Black	Estimated Proportion Hispanic
1	<10% HH Black <10% HH Hispanic	65,009,685	.018	.022
2	>=10% HH Black <10% HH Hispanic	19,871,976	.426	.029
3	<10% HH Black >= HH Hispanic	20,270,438	.026	.380
4	>=10% HH Black >=10% HH Hispanic	11,564,194	.301	.299

Note. Reproduced from the *2015-2017 National Survey of Family Growth (NSFG): Sample design documentation* by the Centers for Disease Control and Prevention, 2019b.

Selection of primary sampling units (PSUs).

The NSFG divides the United States into 2,149 PSUs, of which 366 are considered metropolitan statistical areas (MSAs), and 1,783 are non-MSAs (CDC, 2019b). Each PSU is stratified according to census division, size, and PPS domain. PSUs with larger populations are assigned a higher selection probability (CDC, 2019b). To ensure that sampling rates are approximately equal for all households within a sampling domain, first stage selection probabilities are inversely related to the probabilities of selection at the second and third stages of selection (CDC, 2019b).

Two-hundred and thirteen PSUs plus two for Alaska and Hawaii are automatically included in the national probability samples (CDC, 2019b). Of these, 21

PSUs are considered self-representing (SR) due to population size, and 192 PSUs are considered non-self-representing (NSR), representing themselves as well as other NSR PSUs (CDC, 2019b). A subset of these 215 PSUs is selected for each 2 year sampling period (CDC, 2019b).

Selection of secondary sampling units (SSUs).

PSUs are segmented into SSUs comprised of one or more census blocks with at least 50 housing units (HUs) in urban locations and 75 in rural locations (CDC, 2019b). Most PSUs had 12 SSUs (CDC, 2019b). However, domains 2 through 4 had a higher selection rate to ensure that African American and Hispanic participants constitute 20% of all interviews (CDC, 2019b). Segments with fewer than 12 SSUs increased HU size to 60 to 120 based on location (CDC, 2019b).

Listing and selection of HUs within SSUs.

Lists of HUs to be interviewed were generated via the U.S. Postal Service's delivery sequence file (DSF) or from a scratch list (CDC, 2019b). The scratch list consisted of rural and post office box addresses. NSFG personnel physically checked addresses on the scratch list. Based on these lists, segment maps are developed using topologically integrated geographical encoding files and geographic information system (GIS) software. Maps included a view of each segment according to a large scale location view based on relation to major highways and streets, an intermediate view relative to major streets and block boundaries, and a detailed small scale view outlining individual blocks. Maps and DSF addresses are loaded into an electronic listing application and provided to interviewers one to two months before data collection so that addresses can

be verified and updated if needed. Interviewers also are provided with supplemental information regarding issues that could impact data collection, such as restricted access areas and potentially dangerous locations.

Selecting one of the eligible persons within each sampled household.

During the screening activity, the NSFG researchers asked an adult member of the household to list each resident's gender, age, and race or ethnicity. Information was requested regarding college students, and those residing in dormitories were listed as part of their parents' household, while those with apartments were not. If there was not a resident between the age of 15 to 49 years of age, the interview was terminated. If more than one eligible resident was found, the CASI system made the section of which individual to survey based on meeting target sample sizes for teens and females. Within household selection rates were designed so that 20% of interviews were conducted with teens aged 15–19, and 55% of all interviews were females (CDC, 2019b, 2019c).

Two-phase sampling for nonresponses.

During the first 10 weeks of phase-one sampling, unscreened addresses received a sorry I missed you card and were marked for continuous follow up. Addresses that were still unscreened during phase two of sampling receive a mailed incentive during the last two weeks of sampling to encourage participation and more intense follow up. The final public use data is based on a final weighting design developed from poststratification adjustment factors and weight trimming. Poststratification was limited to age, gender, and race and ethnicity based on population estimates from the U.S. Census Bureau and CPS analysis. Weight trimming was used to reduce the estimated variance without increasing

nonresponse bias. Based on the probability of selection, nonresponse rate, and poststratification factors, weights at the first and 99th percentiles were conservatively trimmed. Cases not trimmed had their weights increased so that the sum of weights were equal to the population control.

Procedures for Recruitment, Participation, and Data Collection

The survey population included college students living in dormitories and fraternity and sorority housing and military personnel living off base. Excluded from the survey were individuals residing in prisons, homes for juvenile delinquents, homes for the intellectually disabled, long-term psychiatric hospitals, and military bases.
All HUs selected used the stratified five stage area probability sampling method were mailed an advance household letter and NSFG question and answer brochures. These documents provided information on the survey, explained that completion of the survey was voluntary, informed potential participants that an interviewer would visit their home within a few days, and offered a $40 token of appreciation for completion. On the day of data collection, NSFG interviewers visited HUs selected using the stratified five stage area probability sampling method, which received the mailed documentation. If no one was home, a sorry I missed you card was left, and a return visit was made during a different day or time of day. If the potential participant was home, but unable to complete the survey, the interviewer answered any questions regarding the survey and offered to return at a more convenient time.

Individuals willing to participate in the survey completed a 5 minute screener to ensure they met age and matched the stratified five stage area probability sampling

method requirements. Individuals who passed the screening were provided a respondent letter, which explained the selection for the survey and received a copy of the informed consent form; all documentation was provided in English and Spanish. Participants provided an electronic signature acknowledging informed consent and received a $40 token of appreciation in advance of completing the interview. Per an NCHS ERB granted waiver of informed consent documentation, participants were not required to sign the electronic consent form. For those that elected not to sign, the interviewer signed the consent form acknowledging that the participant received informed consent information and that the respondent agreed to participate in the survey. NSFG researchers presented individuals not selected for participation based on the screening process, a $5 token of appreciation for completing the screener.

Interviews were conducted over 60–80 minutes and administered either by CAPI or ACASI. In ACASI, the respondent listens to the questions through headphones, reads them on the screen, or both, and enters the response directly into the computer. The NSFG researcher administered the majority of surveys via ACASI, as this method avoids asking the respondent to provide answers to the interviewer, increasing the complete reporting of sensitive behaviors.

As part of the federal statistical system, NCHS supports disseminating the NSFG public use data and documentation files at no charge to the public. The NSFG public use data for the 2015–2017 survey is housed on its website and includes program statements, syntax guidelines to read the ASCII data into statistical software, and informed consent

documentation. I obtained secondary data from the NSFG public domain website. Permission for NSFG data use is not required; however, the citation of data is requested.

Operationalization of Constructs

NSFG 2015–2017 variables related to FSHE, age of sexual initiation, and contraceptive use and method selected for vaginal intercourse at sexual initiation and within the 12 months before the survey were analyzed to explore the impact receipt of FSHE has on sexual initiation and contraception use and selection among African American young women aged 18–24 who have sex with men. Variables analyzed include (see Table 3).

Demographics. Participants included in the secondary data analysis were African American (RSCRRACE) and between the ages of 18–24 (RSCRAGE/AGER).

Ever had sex. Participants included in the secondary data analysis had vaginal intercourse (RHADSEX/HADSEX).

FSHE received. Participants' receipt of FSHE before 18 years of age (SEDNO) was categorized as received (yes) or not received (no). If received, responses determined if education was ACSHE, APSHE, or CSHE based on coverage of methods of birth control (SEDBC), coverage where to get birth control (SEDWHBC), coverage of how to use a condom (SEDCOND), and waiting until marriage to have sexual intercourse (SEDABST). FSHE was ACSHE if education on waiting until marriage (SEDABST) was the only variable answered as yes; APSH, if yes, were the answers to variables SEDBC and SEDABST; and CSHE, if yes, were the answers to variables SEDBC, SEDWHBC, SEDCOND, and SEDABST.

Sexual initiation. Participants' responses to, "The very first time that you had sexual intercourse with a man, how old were you?" (AGEFSTSX) was categorized as under 15, 15–17, 18–19, and 20 or over.

Table 3

2015–2017 National Survey of Family Growth Variables Analyzed

NSFG variables	Question	Responses
RSCRRACE	Respondent's race as reported in the screener	1 Other, 2 Black or African American 3 White 4 Hispanic
RSCRAGE/AGER	Respondent's age as reported in the screener	18–24
RHADSEX/HADSEX	Whether respondent has ever had sex (Vaginal Intercourse) with a man	1 Yes 2 No
AGEFSTSX	The very first time that you had sexual intercourse with a man, how old were you?"	0–24
SEDNO	Now I'm interested in knowing about formal sex education you may have had. (Before you were 18, did/have) you ever (have/had) any formal instruction at school, church, a community center, or some other place about how to say no to sex?	1 Yes 5 No
SEDABST	Before you were 18, did/have) you ever (have/had) any formal instruction at school, church, a community center, or some other place about waiting until marriage to have sex?	1 Yes 5 No
SEDBC	(Before you were 18, did/have) you ever (have/had) any formal instruction at school, church, a community center, or some other place about methods of birth control?	1 Yes 5 No
SEDWHBC	(Before you were 18, did /have) you ever (have/had) any formal instruction at school, church, a community center, or some other place about where to get birth control?	1 Yes 5 No
SEDCOND	(Before you were 18, did/have) you ever (have/had) any formal instruction at school, church, a community center, or some other place about how to use a condom?	1 Yes 5 No
Usefstsx	Whether R used a method at first sex	1 Yes 5 No
FIRSMETH1	What was the first birth control method you ever used for any reason?	1 No method 3 Birth control pills 4 Condoms 7 Withdrawal 8 Depo-Provera, injectables 9 Hormonal implant (Norplant, Implanon, or Nexplanon) 10 Calendar rhythm, standard days, or cycle beads method
LSTMTHP1	If R used a method at last intercourse with the last partner in the past 12 months, what method did you or he use?	12 Diaphragm 13 Female condom 14 Foam 15 Jelly or cream 17 Suppository 18 Sponge 19 IUD, coil, or loop 25 Contraceptive patch 26 Vaginal contraceptive ring

Contraceptive selection and use. The NSFG researchers measured contraceptive use (usefstsx) at sexual initiation. The contraceptive method used at sexual initiation (FIRSMETH) and last intercourse (FSTMTHP) is outlined in Table 4.

Table 4

2015–2017 National Survey of Family Growth Contraceptive Methods

Value	Label
3	Birth Control Pills
4	Condoms
7	Withdrawal
8	Depo-Provera, injectables
9	Hormonal implant (Norplant, Implanon, or Nexplanon)
10	Calendar rhythm, standard days, or cycle beads method
12	Diaphragm
13	Female condom
14	Foam
17	Suppository
18	Sponge
19	IUD, coil, or loop
25	Contraceptive patch
26	Vaginal contraceptive ring

For this study, barrier methods including condoms, diaphragms, sponges, and spermicides, including foam and suppositories, are classified as LECMs, with hormonal methods including oral contraceptives, and patch ring, and injectables classified as MECMs. IUDs and hormonal implants are classified as HECMs. Withdrawal and rhythm methods are classified as not having used contraceptives. Contraceptive methods categories are outlined in Table 5.

Table 5

Variables Created for Analysis

Created Variables	Based on NSFG Variables	Required Responses
ACSHE	SEDABST	1 Yes
APSHE	SEDABST and SEDBC yes response	1 Yes
CSHE	SEDABST, SEDBC, SEDCOND, and SEDWHBC yes responses	1 Yes
AgeFirstSex	agefstsx	0 = 0–13 1 = 14–17 2 = 18–19 3 = 20–24h
Contraceptive Methods used at first and last sex	0. No contraceptive used	1 No method 7 Withdrawal 10 Calendar rhythm, standard days, or cycle beads method
	1. Less effective method	4 Condoms 12 Diaphragms 14 Foam 15 Jelly or cream 17 Suppository 18 Sponge
	2 Moderately effective method	3 Birth control pills 8 Depo-Provera, injectables 3 Birth control pills 8 Depo-Provera, injectables 25 Contraceptive patch 26 Vaginal contraceptive ring
	3. Highly effective method	9 Hormonal implant (Norplant, Implanon, or Nexplanon) 19 IUDs, coil or loop

Data Analysis Software, Data Cleaning and Preparation for Public-Use

I used the IBM Statistical Package for the Social Sciences (SPSS 25) statistical software to complete the data analysis described in this section. NSFG data are prepared for public use via hard edits, which prevented values that were inconsistent with answers to related variables, and soft edits, which noted answers that were rare or improbable (CDC, 2019a, 2019c). Participants were able to correct these responses. If a participant elected to skip a question, the interview coded the response as not ascertained with values of 7, 97, 997, 9997, or 99997 (CDC, 2019a, 2019c). If a participant refused to answer a question, the interviewer coded the response as refusal with values of 8, 98, 998, 9998, or 99998 (CDC, 2019a, 2019c). The NSFG researchers checked the consistency of responses with recoded variables. Missing or inconsistent variables

received new codes using sequential regression imputation to predict a value for the missing or inconsistent data or via logical imputation by an NCHS subject matter expert who examined related variables and assigned a consistent value (CDC, 2019a, 2019c). The percentage of recoded imputed values did not exceed 2% for any variable (CDC/NCHS, 2019a, 2019c).

Research Questions and Data Analysis Plan

The RQs for this study are as follows:

RQ1: Is there an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men?

$H_0 1$: There is no association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

$H_1 1$: There is an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

To answer RQ1, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and the age category of sexual initiation (0–13, 14–17, 18–19, and 20 and over) for sexually active African American women aged 18–24 who have sex with men. ACSHE and the 0–13 age category were the referent groups. I

used odds ratios (OR) to measure the strength of the association. OR confidence intervals (CI) were set at 95%, and the critical *p*-value significance was .05.

RQ2: Is there an association between the type of FSHE received and contraceptive use at sexual initiation for sexually active African American women aged 18–24? who have sex with men

$H_0$2: There is no association between the type of FSHE received and contraceptive use at sexual initiation among sexually active African American women aged 18–24 who have sex with men.

$H_1$2: There is an association between the type of FSHE received and contraceptive use at sexual initiation among African American women aged 18–24 who have sex with men.

To answer RQ2, I used logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and contraceptive use (yes/no) at sexual initiation for African American women aged 18–24 who have sex with men. ACSHE and no contraceptive use were the referent groups. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

RQ3: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men?

H_03: There is no association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

H_13: There is an association between the type of FSHE received and the effectiveness of the contraceptive method selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

To answer RQ3, I used multinomial logistic regression to determine the association between the type of self-reported FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness of contraceptive method selected (none, less effective, moderately effective, and highly effective) at sexual initiation by sexually active African American women aged 18–24 who have sex with men. ACSHE and no contraceptive method selected were the referent groups. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

RQ4: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months?

H_04: There is no association between the type of FSHE received and the effectiveness of the contraceptive method primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

H_14: There is an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

To answer RQ4, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness categories of the contraceptive method primarily selected (none, less effective, moderately effective, and highly effective) by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

Threats to Validity

The NSFG sampling procedures addressed external threats to validity. The researchers selected non-Hispanic African American women and teens aged 15–19 at higher rates to yield an oversample of the population and weighted the samples to increase consistency in predictions. NSFG researchers used two-phase sampling methods to reduce nonresponse bias. Recall bias may have occurred due to the inability to recall first sexual experiences or the type of sex education they received. Under-reporting and a social desirability bias may have occurred due to respondents giving what they viewed as socially desirable instead of truthful answers. The administration of the majority of surveys was via ACASI to increase the complete reporting of sensitive behaviors. There

were no perceived internal threats to conducting this study, as it was a secondary data analysis.

Ethical Procedures

Internal Procedures

The process for Walden University's Institutional Review Board (IRB) approval consisted of the submission of the proposal draft to the assigned University Research Reviewer (URR). I submitted the description of data sources and partner sites to request guidance from an IRB staff member on completing the IRB process. I completed and revised applicable student forms, and approval documentation based on guidance received according to the preliminary ethics feedback service. After proposal approval, I completed applicable student forms and approval documentation and revised them as needed to submit for final IRB approval. The IRB number assigned to this research is 01-27-20-0107579.

External Procedures

An individual who passed the screening process received a respondent letter, which explained selection for the survey, along with a copy of the informed consent form; both were available in English and Spanish. These documents emphasized confidentiality and provided participants with the NSHS research ethics review board’s toll-free number and the study number. Also provided was a dedicated website to answer any questions about the study. Participants provided an electronic signature acknowledging informed consent. Per an NCHS ERB granted waiver of informed consent documentation, participants were not required to sign the electronic consent form. For

those that elected not to sign, the interviewer signed the consent form acknowledging the provision of informed consent information and that the respondent agreed to participate in the survey.

Proposed NSFG public use files were reviewed by NCHS Disclosure Review Board (DRB) before release, where several variables were suppressed or modified to prevent the disclosure of participants' identity. Several suppressed and modified variables are available for a fee from the NCHS Research Data Center (RDC). Directly identifying information, including names and addresses, are suppressed from public use files. The REGION of residence variable is suppressed but is available from the RDC for a fee. Life events such as marriages, divorces, pregnancies, cohabitations, educational degrees, military service, and selected health services are suppressed to prevent potential linkages or use with external data sources to identify respondents (CDC, 2019b, 2019c). The variable for the Hispanic subgroup (HISPGRP) has been modified and collapsed for public use, with full detail available from the RDC for a fee. The values of some variables were randomly altered through statistical perturbation to prevent the identification of respondents.

The NSFG houses public use archival data on its website from 1973–2017. As part of the federal statistical system, NCHS supports disseminating the NSFG public use data and documentation files. Since the inception of the study, variables are suppressed or modified on the public use data files to protect the survey respondents' identity and confidentiality. The REGION variable was not suppressed in surveys conducted before 2015–2017.

Summary

In this chapter, I discussed the methodology and research plan for a quantitative cross-sectional analysis of the 2015–2017 NSFG designed to investigate the extent to which knowledge gained through FSHE impacts sexual initiation and contraceptive use and selection sexually active African American women aged 18–24 in the United States who have sex with men. Descriptive statistics were used to define demographics, providing the number of self-reported sexually active African American women aged 18–24. I used multinomial logistic regression to determine the association between the self-reported type of FSHE received and self-reported age of sexual initiation among sexually active African American women aged 18–24 who have sex with men. I used binary logistic regression to determine the association between the self-reported type of FSHE received and self-reported contraceptive use at sexual initiation for African American women aged 18–24 who have sex with men. I used multinomial logistic regression to determine the association between the type of self-reported FSHE received, self-reported age of sexual initiation, and effectiveness of self-reported contraceptive method selected at sexual initiation by sexually active African American women aged 18–24. I used multinomial logistic regression to determine the association between the self-reported type of FSHE received and effectiveness of self-reported contraceptive methods selected by sexually active African American Women selected at last intercourse within the past 12 months. OR CI was 95%, and the critical *p*-value significance was .05.

Racial and ethnic disparities involving contraceptive knowledge exist with an association between less knowledge and use of LECMs, less self-efficacy, and increased

unintended pregnancy (Kim et al., 2016). Disparities also exist involving African American young women experiencing earlier sexual initiation. Key results from this study may lead to an increase in the provision of culturally competent services, such as sexuality and reproductive education, family planning, and contraceptive counseling. This may increase African American young women's selection and consistent use of contraceptive methods best fit for reproductive intentions, reduce usage failures, decrease the age of sexual initiation, and improve birth related outcomes. Key results from this study may also decrease unintended pregnancies and reduce adverse birth outcomes.

Presented and interpreted in Chapter 4 are the results of the statistical analysis techniques discussed in this chapter. The study findings are compared to existing empirical literature, and implications and proposed solutions are discussed in Chapter 5.

Chapter 4: Results

Introduction

The nature of this quantitative cross-sectional analysis of the 2015–2017 NSFG was to explore the receipt of FSHE and the impact it may have on sexual initiation, contraceptive use and selection among African American women aged 18–24 who have sex with men. The results of this study may highlight the importance and increase provisions of FSHE, which may raise the age of sexual initiation, lead to consistent use of preference and intention matched contraceptives, and reduce contraceptive failures due to improper use.

In this chapter, I explore the following RQs:

RQ1: Is there an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men?

$H_0 1$: There is no association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

$H_1 1$: There is an association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24 who have sex with men.

RQ2: Is there an association between the type of FSHE received and contraceptive use at sexual initiation for sexually active African American women aged 18–24 who have sex with men?

H_02: There is no association between the type of FSHE received and contraceptive use at sexual initiation among sexually active African American women aged 18–24 who have sex with men.

H_12: There is an association between the type of FSHE received and contraceptive use at sexual initiation among African American women aged 18–24 who have sex with men.

RQ3: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men?

H_03: There is no association between the type of FSHE received and the effectiveness of contraceptive methods selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

H_13: There is an association between the type of FSHE received and the effectiveness of the contraceptive method selected at sexual initiation by sexually active African American women aged 18–24 who have sex with men.

RQ4: Is there an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months?

H_04: There is no association between the type of FSHE received and the effectiveness of the contraceptive method primarily selected by sexually active African

American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

H_I4: There is an association between the type of FSHE received and the effectiveness of contraceptive methods primarily selected by sexually active African American women aged 18–24 who have sex with men at last intercourse within the past 12 months.

To answer RQ1, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and age of sexual initiation (0–13, 14–17, 18–19, and 20 and over) for sexually active African American women aged 18–24. ACSHE and the 0–13 age category were the referent groups. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

To answer RQ2, I used logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and contraceptive use (yes/no) at sexual initiation for African American women aged 18–24. ACSHE and no contraceptive use were the referent groups. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

To answer RQ3, I used multinomial logistic regression to determine the association between the type of self-reported FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness of contraceptive method selected (none, less effective, moderately effective, and highly effective) at sexual initiation

according to sexually active African American women aged 18–24. ACSHE and no contraceptive method selected were the referent groups. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

To answer RQ4, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness of contraceptive methods primarily selected (none, less effective, moderately effective, and highly effective) according to sexually active African American women aged 18–24 at last intercourse within the past 12 months. ORs were used to measure the strength of the association. OR CIs were set at 95%, and the critical *p*-value significance was .05.

In this chapter, I provide information on NSFG data collection and descriptive and demographic characteristics and statistics of the sample population. I also present, interpret, and summarize results for the statistical analysis techniques above with applicable tables and statistics.

Data Collection

The NSGF continuously interviews the U.S. population, in 12 week intervals, annually over 48 weeks. The 2015–2017 NSFG includes 5,554 interviews conducted with women aged 15–49 from September 2015 to September 2017. Of this population, 1,355 were non-Hispanic Black women. The NSFG uses a multi staged probability based nationally representative sample design that minimizes the design effects of women and men, obtains a sample size of at least 5,000 interviews per year, and oversamples non-

Hispanic Blacks, Hispanics, and teens aged 15–19. The goal is that interviewees are 20% non-Hispanic Black, 20% Hispanic, 55% female, and 20% teens aged 15–19, resulting in a nationally representative sample (CDC, 2019b).

The final public use data are based on a final weighted design developed from poststratification adjustment factors and weight trimming. Poststratification is limited to age, gender, and race and ethnicity-based on population estimates from the U.S. Census Bureau and CPS analysis. As such, when weighted to reflect the U.S. female population at the interviewing midpoint, generalizations may be made. For this research, I used the final public use data retrieved online.

Data Cleaning

NSFG data are prepared for public use via hard edits, which prevents inconsistent values with answers to related variables and soft edits, which noted rare or improbable answers. Participants were able to correct these responses. If a participant elected to skip a question, the interview coded responses as not ascertained with values of 7, 97, 997, 9997, or 99997 (CDC, 2019a, 2019c). If a participant refused to answer a question, the interview coded the response as refusal with values of 8, 98, 998, 9998, or 99998 (CDC, 2019a, 2019c). The team checked the consistency of responses with recoded variables. An NCHS subject-matter expert recoded missing or inconsistent variables were using sequential regression imputation to predict a value for the missing or inconsistent data or via logical imputation who examined related variables and assigned a consistent value. The percentage of recoded imputed values did not exceed 2% for any variable (CDC, 2019a, 2019c).

For this study, a subsample contained 499 sexually active African American women aged 18–29 who have sex with men. I cleaned this subsample for missing data and responses such as don't know and refused, for variables used in this study. Demographic analysis showed that the response rate for women aged 25–29 was 2%. As such, this population did not meet 5% and was not a part of the data analysis. Current research surrounding sexual health education and contraceptive use among young women focused on those aged 18–24, which aligned this study with current research.

Data cleaning yielded a final sample size of 242 sexually active African American women aged 18–24 who have sex with men. Responses from this subpopulation demonstrated that women who experienced sexual initiation over the age of 20 (3.1%) were less than 5%, so I removed this population from the data analysis.

Data Analysis Procedure and Statistical Assumptions

I used IBM SPSS 25statistical software to complete the data analysis described in this section. I used multinomial logistic regression for RQ1. Principle assumptions for multinomial logistic regression are: (a) The dependent variables should be measured at the nominal level. Age of sexual initiation, the dependent variable, was derived from continuous data and collapsed into categorical, nominal data, (b) The independent variables are nominal, with continuous variables coded as categorical. All independent variables are nominal or categorical, (c) All variables have independence of observations, and the dependent variables have mutually exclusive and exhaustive categories. All variables used in this study met these criteria, (d) There should be no multicollinearity. Bivariate analysis and the chi-square test tested multicollinearity among the nominal

independent variables, (e) There needs to be a linear relationship between any continuous independent variables and the logit transformation of the dependent variable. I did not use any continuous independent variables in the analysis of RQ1, and (f) There should be no outliers, high leverage values, or highly influential points. I did not use any continuous independent variables in the analysis of RQ1, so these criteria do not apply.

I used binary logistic regression for research RQ2 through 4. Principle assumptions for binary logistic regression are: (a) The dependent variable is measured on a dichotomous scale. For RQ 2 through 4, contraception use at sexual initiation and effectiveness categories of contraceptive methods are dichotomous, (b) There are one or more independent variables, which can be either continuous or categorical. For RQ 2 through 4, the independent variables are categorical; (c) There should be independence of observations, and the dependent variable should have mutually exclusive and exhaustive categories. For RQ 2 through 4, contraception use at sexual initiation and effectiveness categories of contraceptive methods are based on mutually exclusive and exhaustive categories; and (d) there needs to be a linear relationship between any continuous independent variables and the logit transformation of the dependent variable. For RQ2 through 4, I did not use any continuous independent variables used.

Results

Demographic Characteristics

Univariate analysis. The final population analyzed included 242 sexually active African American women aged 18–24 who have sex with men. According to Table 6, the majority were between 20–24 years of age (77.7%), received CSHE (63.2%), and had at

least a high school diploma or general education diploma (GED) (36.8%). When surveyed (86.8%), the majority had insurance coverage and viewed religion as important (57.9%). Most were born to single mothers (61.6%) who had at least a high school diploma or GED (36.8%) and were 20–24 years old at their birth (29.7%). It is important to note that most participants were born to mothers less than 24 years old (78.5%). Sexual initiation began between 14–17 years old (70.2%) for most young women who used contraception at initiation (67.5%). Most used LECMs during sexual initiation (50.6%). However, most did not use any method at the last sexual encounter (41.3%) despite stating they would be very upset if they experienced an unintended pregnancy (30.2%).

Table 6

Univariate Analysis of Characteristics of Included Study Participants

Characteristics of participants	N = 242	Percentage (%)
Current age (years)		
18–19	54	22.3
20–24	188	77.7
Formal sexual health education received		
Abstinence-centered	31	12.8
Abstinence-plus	58	24.0
Comprehensive	153	63.2
Education		
Less than high school diploma	23	9.5
High school diploma/GED	89	36.8
2 years of college/associate degree	80	33.1
Bachelor's degree	38	15.7
Graduate degree	12	5.0
Insurance coverage		
No	32	13.2
Yes	210	86.8
Importance of religion		
Not important	45	18.6
Very important	140	57.9
Somewhat important	57	23.6
Married parents at participant's birth		
No	149	61.6
Yes	93	38.4
Maternal education		
Less than high school diploma	39	16.1
High school diploma/GED	89	36.8
2 years of college/associate degree	77	31.8
Bachelor's degree	37	15.3

(*table continues*)

Maternal age at first birth		
< 18	63	27.2
18–19	50	21.6
20–24	69	29.7
25–29	38	16.4
≥ 30	12	5.2
Age of sexual initiation (years)		
0–13	22	9.1
14–17	170	70.2
18–19	50	20.7
Used contraception at sexual initiation		
No	78	32.5
Yes	132	67.5
Type of contraception used at sexual initiation		
None	6	2.5
Less effective methods	121	50.6
Moderately effective methods	104	43.5
Highly effective methods	8	3.4
Type of contraception used at last sexual encounter		
None	100	41.3
Less effective methods	62	25.6
Moderately effective methods	58	24
Reaction to an unintended pregnancy		
Would not care	28	11.8
Very upset	73	3.2
A little upset	72	29.8
A little pleased	41	16.9
Very pleased	28	11.8

Bivariate analysis. A bivariate analysis was used to determine whether a significant association existed between the independent and dependent variables and to provide additional characteristics of included study participants. The bivariate analysis in Table 7 demonstrates that FSHE (X^2 = 1.14, p =.83), mother's age at first birth (X^2 = 3.84, p =.65), mother's education (X^2 = 8.96, p =.25), participants' parental marital status (X^2 = 1.82, p =.4), and importance of religion (X^2 = 5.69, p = .2) all had a positive association with age of initiation, but the associations were not significant. The only significant, positive association was between age of sexual initiation and reaction to unintended pregnancy (X^2 = 21.08, p =.01). The bivariate analysis in Table 8 demonstrates that FSHE (X^2 = 2.71, p =.26), mother's age at first birth (X^2 = 2.33, p = .51), mother's education (X^2 = 7, p = .07), participants' parental marital status (X^2 = 1.14, p = .29), importance of religion (X^2 = 1.36, p = .51), and reaction to unintended pregnancy (X^2 = .30, p = .99), all

had a positive association with contraceptive use at initiation, but the associations were not significant.

The bivariate analysis in Table 9 demonstrates that FSHE (X^2 = 1.56, p = .46), mother's age at first birth (X^2 = 3.51, p = .32), mother's education (X^2 = 5.74, p = .13), participants' parental marital status (X^2 = 0.41, p = .52), importance of religion (X^2 = 1.78, p = .41), and reaction to unintended pregnancy (X^2 = 3.80, p = .43), all had a positive association with contraceptive effectiveness category selected at initiation, but the associations were not significant. The bivariate analysis in Table 10 demonstrates that FSHE (X^2 = 4.45, p = .64), mother's age at first birth (X^2 = 10.07, p =.33), mother's education (X^2 = 6.04, p =.74), participants' parental marital status (X^2 = 4.08, p = .29), and importance of religion (X^2 = 3.47, p = .72) all had a positive association with contraceptive effectiveness category selected at last sex, but the associations were not significant. The only significant, positive association was between contraceptive effectiveness category selected at last sex and reaction to unintended pregnancy (X^2 = 36.40, $p < .01$).

Table 7

Bivariate Analysis of Age of Sexual Initiation and Independent Variables

			Age of sexual initiation							
			0–13		14–17		18–19			
Study independent variables	*n*	%	*n*	%	*n*	%	*n*	%	X^2	*p*
Age of sexual initiation										
0–13	22	9.1	-	-	-	-	-	-	-	-
14–17	179	70.3	-	-	-	-	-	-	-	-
18–19	50	20.7	-	-	-	-	-	-	-	-
Formal sexual health education received										
Abstinence-centered	31	12.8	4	18.2	20	11.8	7	14.0		
Abstinence-plus	58	24.0	6	27.3	40	23.5	12	24.0	1.14	.83
Comprehensive	153	63.2	12	54.6	110	64.7	31	62.0		
Mother's age at first birth										
<18	63	27.2	7	33.3	45	28.0	11	22.0		
18–19	50	21.6	6	28.6	33	20.5	11	22.0		
20–24	69	29.7	3	14.3	48	29.8	18	36.0	3.84	.65
≥25	50	21.6	5	23.8	35	21.7	10	20.0		
Mother's education										
Less than high school diploma	39	16.1	8	36.4	23	13.5	8	16.0		
High school diploma/GED	89	36.8	6	27.3	65	38.2	18	36.0		
2 years of college/associate degree	77	31.8	7	32.8	55	32.4	15	30.0	8.96	.25
Bachelor's degree or higher	37	15.3	1	4.6	27	25.9	9	18.0		
Married parents at participants' birth										
No	149	61.6	16	72.7	105	61.8	28	56.0	1.82	.40
Yes	93	38.4	6	27.3	65	38.2	22	44.0		
Importance of religion										
Not important	45	18.6	5	22.7	35	20.6	5	10.0		
Very important	140	57.9	11	50.0	93	54.7	36	72.0	5.69	.20
Somewhat important	57	23.6	6	27.3	42	24.7	9	18.0		
Reaction to an unintended pregnancy										
Would not care	28	11.6	6	27.3	17	10.0	5	10.0		
Very upset	73	30.2	3	13.6	61	35.9	9	18.0		
A little upset	72	29.8	8	36.4	42	24.7	22	44.0	21.08	.01
A little pleased	41	16.9	3	13.6	33	19.4	5	10.0		
Very pleased	28	11.6	2	9.1	17	10.0	9	18.0		

Note. * $p < .05$

Table 8

Bivariate Analysis of Contraceptive Use at Sexual Initiation and Independent Variables

			Contraceptive use at sexual initiation					
			No		Yes			
Study independent variables	*n*	%	*n*	%	*n*	%	X^2	*p*
Contraceptive use at sexual initiation								
No	78	32.5	-	-	-	-	-	-
Yes	162	67.5	-	-	-	-	-	-
Formal sexual health education								
Abstinence-centered	31	12.8	12	15.4	18	11.1		
Abstinence-plus	58	24.0	22	28.2	35	21.6	2.71	.26
Comprehensive	153	63.2	44	56.4	109	67.3		
Mother's age at first birth								
<18	63	27.2	17	23.3	45	28.7		
18–19	50	21.6	20	27.4	30	19.2	2.33	.51
20–24	69	29.7	22	30.1	47	29.9		
≥25	50	21.6	14	19.2	35	22.3		
Mother's education								
Less than high school diploma	39	16.1	18	23.1	20	12.3		
High school diploma/GED	89	36.8	21	26.9	67	41.4	7.00	.07
2 years of college/associate degree	77	31.8	26	33.3	51	31.5		
Bachelor's degree or higher	37	15.3	13	16.7	24	14.8		
Married parents at participants' birth								
No	149	61.6	44	56.4	103	63.6	1.14	.29
Yes	93	38.4	34	43.6	59	36.4		
Importance of religion								
Not important	45	18.6	11	14.1	32	19.7		
Very important	140	57.9	49	62.8	91	56.2	1.36	.51
Somewhat important	57	23.6	18	23.1	39	24.1		
Reaction to an unintended pregnancy								
Would not care	28	11.6	10	12.8	18	11.1		
Very upset	73	30.2	23	29.5	50	30.9		
A little upset	72	29.8	22	28.2	49	30.2	0.30	.99
A little pleased	41	16.9	14	18.0	27	16.7		
Very pleased	28	11.6	9	11.5	18	11.1		

Note. * $p < .05$

Table 9

Bivariate Analysis of Contraceptive Effectiveness at Sexual Initiation and Independent Variables

			Contraceptive effectiveness category at sexual initiation					
			None–less effective		Moderately–highly effective			
Study independent variables	*n*	%	*n*	%	*n*	%	X^2	*p*
Contraceptive effectiveness category at sexual initiation								
None–Less Effective	127	53.1	-	-	-	-	-	-
Moderately–Highly Effective	112	46.9	-	-	-	-	-	-
Formal sexual health education								
Abstinence-centered	31	12.8	14	11.0	16	14.3		
Abstinence-plus	58	24.0	34	26.8	23	20.5	1.56	.46
Comprehensive	153	63.2	79	62.2	73	65.2		
Mother's age at first birth								
<18	63	27.2	32	27.5	30	27.5		
18–19	50	21.6	22	24.8	27	24.8	3.51	.32
20–24	69	29.7	35	31.2	34	31.2		
≥25	50	21.6	31	16.5	18	16.5		
Mother's education								
Less than high school diploma	39	16.1	14	11.0	24	21.4		
High school diploma/GED	89	36.8	51	40.2	36	32.1	5.74	.13
2 years of college/associate degree	77	31.8	40	31.5	37	33.1		
Bachelor's degree or higher	37	15.3	22	17.3	15	13.4		
Married parents at participants' birth								
No	149	61.6	80	63.0	66	58.9	0.41	.52
Yes	93	38.4	47	37.0	46	41.1		
Importance of religion								
Not important	45	18.6	24	18.9	19	17.0		
Very important	140	57.8	69	54.3	70	62.5	1.78	.41
Somewhat important	57	23.5	34	26.8	23	20.5		
Reaction to an unintended pregnancy								
Would not care	28	11.6	14	11.0	14	12.4		
Very upset	73	30.2	42	33.1	30	26.8		
A little upset	72	29.8	39	30.7	32	28.6	3.80	.43
A little pleased	41	17.0	22	17.3	19	17.0		
Very pleased	28	11.6	10	7.9	17	15.2		

Note. * $p < .05$

Table 10

Bivariate Analysis of Contraceptive Effectiveness at Last Sex and Independent Variables

			Contraceptive effectiveness category at last sex									
			None		Less effective		Moderately effective		Highly effective			
Study independent variables	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	X^2	*p*
Contraceptive effectiveness category at last sex												
None	100	41.3	-	-	-	-	-	-	-	-	-	-
Less effective	62	25.6	-	-	-	-	-	-	-	-	-	-
Moderately effective	58	24.0	-	-	-	-	-	-	-	-	-	-
Highly effective	22	9.1	-	-	-	-	-	-	-	-	-	-
Formal sexual health education												
Abstinence-centered	31	12.8	12	12.0	6	9.7	11	19.0	2	9.1		
Abstinence-plus	58	24.0	22	22.0	18	29.0	14	24.1	4	18.2	4.45	.64
Comprehensive	153	63.2	66	66.0	38	61.3	33	56.9	16	72.7		
Mother's age at first birth												
<18	63	27.2	30	47.6	18	28.5	9	14.3	6	9.5		
18-19	50	21.5	25	50.0	11	22.0	10	20.0	4	8.0	10.07	.33
20-24	69	29.8	23	33.3	19	27.5	19	27.5	8	11.6		
≥25	50	21.5	20	40.0	10	20.0	17	34.0	3	6.0		
Mother's education												
Less than high school diploma	39	16.1	14	14.0	10	16.1	10	17.3	5	22.7		
High school diploma/GED	89	36.8	43	43.0	17	27.4	21	36.2	8	36.4	6.04	.74
2 years of college/associate degree	77	31.8	30	30.0	22	35.5	18	31.0	7	31.8		
Bachelor's degree or higher	37	15.3	13	13.0	13	21.0	9	15.5	2	9.1		
Married parents at participants' birth												
No	149	61.6	69	69.0	35	56.4	32	55.2	13	59.1	4.08	.25
Yes	93	38.4	31	31.0	27	43.6	26	44.8	9	40.9		
Importance of religion												
Not important	45	18.6	18	18.0	12	19.3	13	22.4	2	9.1		
Very important	140	57.9	61	61.0	35	56.5	29	40.0	15	68.2	3.47	.72
Somewhat important	57	23.5	21	21.0	15	24.2	16	27.6	5	22.7		
Reaction to an unintended pregnancy												
Would not care	28	11.5	20	20.0	3	4.8	1	1.7	4	18.2		
Very upset	73	30.2	22	22.0	19	30.7	21	36.2	11	50.0		
A little upset	72	29.8	21	21.0	22	35.5	24	41.4	5	22.7	36.40	<.001
A little pleased	41	17.0	29	19.0	11	17.7	10	17.2	1	4.6		
Very pleased	28	11.5	18	18.0	7	11.3	2	3.5	1	4.5		

Note. * $p < .05$

Research Question 1

For RQ1, I explored the association between the type of FSHE received and the age of sexual initiation among sexually active African American women aged 18–24. To answer RQ1, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and the age categories of sexual initiation classified as 0–13, 14–17, 18–19, and 20 years and older for sexually active African American Women aged 18–24. I did not include the initiation group over 20 years of age and young women 25–29 years old in the analysis as the percentages of both categories were less than 5%. ACSHE and the 0–13 age of sexual initiation categories were the referent groups. I used the mother's age at first birth, mother's education, if the participant's parents were married at their birth, participant's religious views, and their reaction to an unintended pregnancy as covariates. ORs were used to measure the strength of the association with the CIs set at 95%, and the critical *p*-value significance was .05.

Most young women experienced sexual initiation between 14–17 years old (70.3%, see Table 6) compared to the ≤13 years old age referent group (9.1%). According to Table 11, compared to the age of initiation referent group, the odds of experiencing sexual initiation in the 14–17 years old initiation category was 34% higher (OR = 1.34, *p* = .73, 95% CI [0.26, 7.04]) if young women received APSHE and 22% (OR = 1.22 *p* = .61, 95% CI [0.57, 2.58] higher if they received CSHE, compared to those who received ACSHE. The odds of young women in this age of initiation category were 45% (OR = 1.45, *p* = .64, 95% CI [0.64, 3.29]) higher to be born to mothers between 20–24 years of

age who had an 8.78 (p = .01, 95% CI [1.96, 39.33]) higher likelihood to have a high school diploma or GED. The odds of their parents being married was 4% (OR =1.04, p = .95, 95% CI [0.29, 3.73] higher. The likelihood of young women in this age group to view religion as very important was 81% (OR = 1.81, p = .42, 95% CI [0.43, 7.71]) higher than the referent groups. They felt very upset if they experienced an unintended pregnancy was 11.05 (p = .01, 95% CI [2.05, 59.62]) times higher than the referent groups.

Of the young women served, 20.7% experienced sexual initiation between the ages of 18–19 (see Table 6). According to Table 11, compared to the age of initiation referent group, the odds of experiencing sexual initiation in the 18–19 years old initiation category was 5% (OR = 1.05, p = .98, 95% CI [0.16, 7.01]) higher if young women received APSHE and 5% (OR = .95, p = .98, 95% CI [0.41, 2.23]) lower if they received CSHE, compared to those who received ACSHE. Compared to the referent group (0–13 years of age), the odds of the young women in this age of initiation group were 2.25 (p = .8, 95% CI [0.91, 5.59]) higher to be born to mothers between 20–24 years old who had a 7.34 (p = .02, 95% CI [1.30, 41.36]) higher likelihood to have a high school diploma or GED. The odds of their parent being married were 40% (OR = 1.40, p = .63, 95% CI [0.35, 3.63]) higher. The likelihood of young women in this age group to view religion as very important was 5.07 (p = .06, 95% CI [0.92, 28.07]) higher and to feel very upset if they experienced an unintended pregnancy was 4.10 (p = .16, 95% CI [0.56, 31.03]) times higher than the referent groups.

Although the odds of being in an older category for the age of sexual initiation among sexually active African American women aged 18–24 increased with APSHE and CSHE compared to the referent group (0–13 years of age), the odds were not significant. The age of initiation was still within a normative age range. As such, I failed to reject the null hypothesis.

Table 11

Impact of Formal Sexual Health Education on Age of Sexual Initiation

		Unadjusted			Adjusted		
Age of sexual initiation, Years (0–13 - Ref.)		uOR	*p*	95% CI	aOR	*p*	95% CI
14-17	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	1.33	.68	[0.37, 5.27]	1.34	.73	[0.26, 7.04]
	Comprehensive	1.35	.33	[0.73, 2.50]	1.22	.61	[0.57, 2.58]
	Mother's age at first birth (<18 - Ref.)						
	18–19	0.82	.73	[0.26, 2.56]	0.94	.23	[0.23, 3.77]
	20–24	1.54	.22	[0.77, 3.07]	1.45	.64	[0.64, 3.29]
	≥25	1.01	.95	[0.68, 1.51]	0.75	.44	[0.44, 1.28]
	Mother's education (≤11th grade - Ref.)						
	High school diploma/GED	3.77	.03	[1.18, 12.02]	8.78	.01	[1.96, 39.33]
	2 years of college/associate degree	1.65	.08	[0.94, 2.90]	1.99	.07	[0.95, 4.18]
	Bachelor's degree or higher	2.11	.01	[1.03, 4.32]	2.53	.02	[1.13, 5.69]
	Married parents at participants' birth (No -Ref.)						
	Yes	1.65	.32	[0.61, 4.43]	1.04	.95	[0.29, 3.73]
	Importance of religion (Not important -Ref.)						
	Very important	1.21	.74	[0.39, 3.37]	1.81	.42	[0.43, 7.71]
	Somewhat important	1.00	.99	[0.53, 1.89]	0.91	.82	[0.42, 1.99]
	Reaction to an unintended pregnancy (Would not care - Ref.)						
	Very upset	7.18	.01	[1.62, 31.73]	11.05	.01	[2.05, 59.62]
	A little upset	1.60	.31	[0.75, 2.48]	1.56	.2	[0.79, 3.09]
	A little pleased	1.57	.08	[0.95, 2.60]	2.11	.02	{1.12, 3.95]
	Very pleased	1.32	.03	[0.85, 2.03]	1.65	.07	[0.96, 2.83]
18-19	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	1.14	.86	[0.24, 5.50]	1.05	.98	[0.16, 7.01]
	Comprehensive	1.21	.59	[0.60, 2.44]	0.95	.91	[0.41, 2.23]
	Mother's age at first birth (<18 - Ref.)						
	18–19	1.33	.68	[0.35, 5.14]	1.95	.42	[0.39, 9.88]
	20–24	2.09	.06	[0.97, 4.45]	2.25	.8	[0.91, 5.59]
	≥25	1.13	.6	[0.71, 1.81]	0.86	.64	[0.47, 1.69]
	Mother's education (≤11th grade)						
	High school diploma/GED	3.00	.11	[0.78, 11.54]	7.34	.02	[1.30, 41, 36]
	2 years of college/associate degree	1.46	.26	[0.75, 2.84]	1.54	.32	[0.65, 3.65]
	Bachelor's degree or higher	2.08	.06	[0.97, 4.46]	2.34	.05	[0.99, 5.56]
	Married parents at participants' birth (No -Ref.)						
	Yes	1.65	.32	[0.61, 4.43]	1.40	.63	[0.35, 3.63]

(*table continues*)

Age of sexual initiation, Years (0–13 - Ref.)	Unadjusted			Adjusted		
	uOR	*p*	95% CI	aOR	*p*	95% CI
Importance of religion (Not Important -Ref.)						
Very important	1.21	.74	[.39, 3.73]	5.07	.06	[.92, 28.07]
Somewhat important	1.00	.99	[.53, 1.89]	1.01	.99	[.39, 2.59]
Reaction to an unintended pregnancy (Don't care - Ref.)						
Very upset	3.60	.15	[.62, 21.03]	4.18	.16	[.56, 31.03]
A little upset	1.82	.1	[.89, 3.73]	2.05	.09	[.91, 4.66]
A little pleased	1.26	.47	[.68, 2.34]	1.70	.16	[.81, 3.60]
Very pleased	1.52	.09	[.94, 2.48]	1.73	.07	[.95, 3.17]

Note. uOR= Unadjusted Odds Ratio. aOR = Adjusted Odds Ratio * $p \leq .05$

Research Question 2

For RQ1, I explored the association between the type of FSHE received and contraceptive use at sexual initiation for sexually active African American women aged 18–24. To answer RQ2, I used logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and contraceptive use (yes/no) at sexual initiation for African American women aged 18–24. Young women 25–29 years of age were not included in the analysis due to being omitted in the previous research question due to the group's percentage being less than 5%. I used ACSHE and no contraceptive use at sexual initiation as the referent groups. ORs were used to measure the strength of the association with the CIs set at 95%, and the critical *p*-value significance was .05.

At sexual initiation, 67.5% of young women self-reported contraceptive use (see Table 6). According to Table 12, the odds of contraceptive use at sexual initiation increased by 14% (OR = 1.14, *p* = .80, 95% CI [0.42, 3.09]) with receipt of APSHE and 38% (OR = 1.38, *p* = .17, 95% CI [0.87, 2.19]), compared to those who received ACSHE. Young women who used contraception at sexual initiation were 45% (OR = 0.55, *p* = .19, 95% CI [0.23, 1.35]) less likely to be born to mothers 18–19 years old, the likelihood that they were born to mothers with at least a high school diploma or GED was 2.91 (*p* = .02, 95% CI [1.21, 7.01]) higher. Their parents were 32% (OR = 0.68, *p* = .23, 95% CI [0.37, 1.27]) less likely to be married. They were 22% (OR= 0.78, *p* = .33, 95% CI [0.48,1.28]) less likely to view religion as somewhat important and their reaction to an

unintended pregnancy was 23% (p = .68, 95% CI [0.46, 3.29]) higher to be very upset than the referent group.

Although the odds of contraceptive use at sexual initiation among sexually active African American women aged 18–24 increased with receipt of CSHE, the odds were not significant. As such, I rejected the null hypothesis.

Table 12

Impact of Formal Sexual Health Education on Contraceptive Use at Sexual Initiation

		Unadjusted			Adjusted		
Contraceptive use at sexual initiation (No – Ref.)		uOR	*p*	95% CI	aOR	*p*	95% CI
Yes	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	1.06	.90	[0.43, 2.63]	1.14	.80	[0.42, 3.09]
	Comprehensive	1.29	.23	[0.86, 1.93]	1.38	.17	[0.87, 2.19]
	Mother's age at first birth (<18 - Ref.)						
	18–19	0.66	.28	[0.31, 1.41]	0.55	.19	[0.23, 1.35]
	20–24	0.97	.87	[0.68, 1.39]	0.86	.46	[0.58, 1.28]
	≥25	1.03	.82	[0.79, 1.35]	0.92	.60	[0.68, 1.26]
	Mother's education (≤11th grade - Ref.)						
	High school diploma/GED	2.87	.01	[1.12, 6.42]	2.91	.02	[1.21, 7.01]
	2 years of college/associate degree	1.33	.16	[0.89, 1.98]	1.31	.25	[0.83, 2.07]
	Bachelor's degree or higher	1.18	.75	[0.87, 1.61]	1.11	.58	[0.76, 1.62]
	Married parents at participants' birth (No - Ref.)						
	Yes	0.74	.29	[0.43, 1.29]	0.68	.23	[0.37, 1.27]
	Importance of religion (Not important - Ref.)						
	Very important	0.64	.25	[0.30, 1.38]	0.49	.09	[0.21, 1.12]
	Somewhat important	0.86	.51	[0.55, 1.34]	0.78	.33	[0.48, 1.28]
	Reaction to an unintended pregnancy (Would not care - Ref.)						
	Very upset	1.21	.69	[0.48, 3.03]	1.23	.68	[0.46, 3.29]
	A little upset	1.11	.65	[0.70, 1.77]	1.07	.78	[0.66, 1.74]
	A little pleased	1.02	.89	[0.73, 1.43]	1.11	.95	[0.71, 1.43]
	Very pleased	1.03	.85	[0.78, 1.36]	1.13	.43	[0.84, 1.52]

Note. * $p \leq .05$

Research Question 3

With RQ3, I explored the association between the type of FSHE received and the effectiveness of the contraceptive method selected at sexual initiation for sexually active African American women aged 18–24. To answer RQ3, I used multinomial logistic regression to determine the association between the type of self-reported FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness of contraceptive method selected (none, less effective, moderately effective, and highly effective) at sexual initiation by sexually active African American women aged 18–24.

At sexual initiation, 50.6% (n = 121) of young women used a LECMs, with a high percentage, 43.5% (n = 104) using MECMs (see Table 6). None (2.5%, n = 6) and LECMs categories were combined, as were MECMs and HECMs (3.4%, n = 8) contraceptive method categories as the percentages of none and HECMs were less than 5%. I did not include young women 25–29 years of age in the analysis due to the percentage of the group being less than 5%. ACSHE and none–LECM categories selected were the referent groups. ORs were used to measure the strength of the association with the CIs set at 95%, and the critical p-value significance was .05.

According to Table 13, the odds of using a MECM to HECM was 48% (OR = 0.52, p = .18, 95% CI [0.20, 1.35]) less likely with receipt of APSHE and 16% (OR = 0.84, p = .4, 95% CI [0.55, 1.27]) less likely with receipt of CSHE. Young women who used MECMs to HECMs were at 65% (OR = 1.65, p = .22, 95% CL [0.75, 3.64]) higher odds of being born to a mother 18–19-years old was 58% (OR = 0.42, p = .05, 95% CI [0.18, 1.00]) less likely to have a high school diploma or GED, which was significant. It

was 39% (OR = 1.39, p = .28, 95% CI [0.76, 2.52]) more likely that the participant's parents were married at their birth and was 34% (OR = 1.34, p =.45, 95% CI [0.63, 2.86]) more likely to view religion as important. They were 5% (OR = 1.05, p = .7, 95% CI [0.80, 1.38]) to be very pleased if they experienced an unintended pregnancy.

The odds of selecting a MECM to HECM at sexual initiation among sexually active African American women aged 18–24 did not increase with receipt of CSHE. As such, I failed to reject the null hypothesis.

Table 13

Impact of Formal Sexual Health Education on Contraceptive Effectiveness Selected at Initiation

		Unadjusted			Adjusted		
	Effectiveness category (None–Less Effective - Ref.)	uOR	*p*	95% CI	aOR	*p*	95% CI
Moderately - Highly Effective	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	0.59	.25	[0.24, 1.45]	0.52	.18	[0.20, 1.35]
	Comprehensive	0.90	.6	[0.61, 1.33]	0.84	.4	[0.55, 1.27]
	Mother's age at first birth (<18 - Ref.)						
	18–19	1.45	.32	[0.70, 3.01]	1.65	.22	[0.75, 3.64]
	20–24	1.07	.68	[0.77, 1.49]	1.19	.36	[0.82, 1.71]
	≥25	0.88	.32	[0.69, 1.13]	0.93	.61	[0.69, 1.24]
	Mother's education (≤11th grade - Ref.)						
	High school diploma/GED	0.41	.03	[0.19, 0.90]	0.42	.05	[0.18, 1.00]
	2 years of college/associate degree	0.73	.13	[0.49, 1.09]	0.71	.14	[0.45, 1.11]
	Bachelor's degree or higher	0.74	.05	[0.54, 1.00]	0.74	.08	[0.52, 1.04]
	Married parents at participants' birth (No - Ref.)						
	Yes	1.19	.52	[0.70, 2.00]	1.39	.28	[0.76, 2.51]
	Importance of religion (Not important - Ref.)						
	Very important	1.28	.48	[0.64, 2.55]	1.34	.45	[0.63, 2.86]
	Somewhat important	0.92	.7	[0.62, 1.38]	0.94	.77	[0.60, 1.47]
	Reaction to an unintended pregnancy (Don't care - Ref.)						
	Very upset	0.71	.45	[0.30, 1.72]	0.68	.43	[0.26, 1.77]
	A little upset	0.91	.67	[0.58, 1.40]	0.92	.72	[0.58. 1.46]
	A little pleased	0.95	.77	[0.69, 1.31]	0.98	.89	[0.70, 1.36]
	Very pleased	1.14	.34	[0.87, 1.50]	1.05	.7	[0.80, 1.38]

Note. * $p \leq .05$

Research Question 4

For RQ4, I explored the association between the type of FSHE received and the effectiveness of the contraceptive method primarily selected by sexually active African American women aged 18–24 at intercourse within the past 12 months. To answer RQ4, I used multinomial logistic regression to determine the association between the self-reported type of FSHE received (abstinence-centered, abstinence-plus, or comprehensive) and effectiveness categories of the contraceptive method primarily selected (none, less effective, moderately effective, and highly effective) by sexually active African American women aged 18–24 at last intercourse within the past 12 months. ACSHE and no use of contraception were referent groups. ORs were used to measure the strength of the association with the CI set at 95%, and the critical *p*-value significance was .05.

None (*n* = 100, 41.3%; see Table 6) was the contraceptive effectiveness category African American women aged 18–24 primarily selected during intercourse for the last 12 months. Young women used LECMs (*n* = 62, 25.6%), MECMs (*n* = 58, 24%) and HECMs (*n* = 22, 9.1%) contraceptive effectiveness categories, respectively. According to Table 14, young women who used LECMs were 2.05 (OR = 2.05, *p* = .27, 95% CI [0.57, 7.41]) times more likely to have received receipt of APSHE and 18% OR = 1.18, *p* = .58, 95% CI [0.66, 2.11]) more likely to have received CSHE. Young women who selected LECMs over the last 12 months were 10% (OR = 1.10, *p* = .68, 95% CI [0.69, 1.76]) more likely to be born to mothers 20–24 years old who were 1% (OR = 1.01, *p* = .95, 95% CI [0.66, 1.57]) more likely to have earned a baccalaureate degree and 2.11 (*p* = .05, 95% CI [0.99, 4.49]) times more likely to be married at the participants' birth, which was

significant. The odds were 12 % (OR = 1.12, *p* = .7, 95% CI [0.64, 1.96]) more likely that they viewed religion as somewhat important and 4.96 (*p* = .03, 95% CI [1.18, 20.76]) times more likely that they would be very upset if an unintended pregnancy occurred, which was significant.

Within the previous 12 months, young women were less likely to primarily select MECMs if they received APSHE (OR = 0.66, *p* = .5, 95% CI [0.20, 2.29]) or CSHE (OR = 0.75, *p* = .2, 95% CI [0.44, 1.27]) (see Table 14). They were 64% (OR = 1.64, *p* = .06, 95% CI [0.98, 2.74]) more likely to be born to mothers aged 20–24-years of age who were 68% (OR = 0.32, *p* = . 05, 95% CI [0.10, 1.02]) less likely to have a high school diploma or GED, which was significant. The odds were 17% (OR = 1.17, *p* = .58, 95% CI [0.67, 2.04]) more likely that they viewed religion as somewhat important and 15.39 (*p* = .01, 95% CI [1.18, 130.86]) times more likely to be very upset if an unintended pregnancy occurred, which was significant.

The odds of primarily selecting a HECM for intercourse over the last 12 months increased by 18% (OR = 1.07, *p* = .7, 95% CI [0.50, 2.85]) if young women received CSHE. The odds increased, 7% (OR = 1.07, *p* = .98, 95% CI [0.15, 7.83]), with receipt of APSHE. They are 42% (OR = 1.42, *p* = .3, 95% CI [0.73, 2.78]) more likely to be born to mothers 20–24years old who were 63% (OR = 0.37, *p* = .21, 95% CI [0.08, 1.75]) less likely to have high school diploma or GED, and 76% (OR = 1.76, *p* = .3, 95% CI [0.60, 5.18]) more likely to have been married at the participants' birth. The odds were 4.03 (*p* = .1, 95% CI [0.75, 21.55]) times more likely that they viewed religion as important and

2.56 (p = .2, 95% CI [0.61, 10.69]) times more likely that they would be very upset if an unintended pregnancy occurred.

Receipt of APSHE nor CSHE increased the odds of selecting a moderately to highly effective contraceptive as the primary contraceptive method for the past 12 months among sexually active African American women aged 18–24. As such, I failed to reject the null hypothesis.

Table 14

Impact of Formal Sexual Health Education on Contraceptive Effectiveness Selected at Last Sexual Encounter

		Unadjusted			Adjusted		
Contraceptive effectiveness category at last sexual encounter (None - Ref.)		uOR	*p*	95% CI	aOR	*p*	95% CI
Less Effective	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	1.64	.41	[0.51, 5.23]	2.05	.27	[0.57, 7.41]
	Comprehensive	1.07	.79	[0.63, 1.82]	1.18	.58	[0.66, 2.11]
	Mother's age at first birth (<18 - Ref.)						
	18–19	0.64	.33	[0.26, 1.56]	0.70	.49	[0.25, 1.92]
	20–24	1.10	.66	[.73, 1.65]	1.10	.68	[0.69, 1.76]
	≥25	0.90	.5	[0.66, 1.23]	0.79	.19	[0.55, 1.13]
	Mother's education (≤11th grade - Ref.)						
	High school diploma/GED	0.55	.24	[0.21, 1.49]	0.43	.15	[0.14, 1.34]
	2 years of college/associate degree	1.01	.96	[0.62, 1.65]	0.92	.78	[0.52, 1.63]
	Bachelor's degree or higher	1.12	.56	[0.77, 1.62]	1.01	.95	[0.66, 1.57]
	Married parents at participants' birth (No - Ref.)						
	Yes	1.72	.11	[0.89, 3.31]	2.11	.05	[0.99, 4.49]
	Importance of religion (Not important - Ref.)						
	Very important	0.86	.73	[0.37, 1.99]	1.03	.96	[0.40, 2.67]
	Somewhat important	1.04	.89	[0.63, 1.69]	1.12	.7	[0.64, 1.96]
	Reaction to an unintended pregnancy (Don't care - Ref.)						
	Very upset	5.76	.01	[1.48, 22.43]	4.96	.03	[1.18, 20.76]
	A little upset	2.64	.01	[1.34, 5.20]	2.81	<.001	[1.39, 5.69]
	A little pleased	1.57	.06	[0.98, 2.52]	1.68	.04	[1.02, 2.78]
	Very pleased	1.27	.21	[0.87, 1.84]	1.20	.35	[0.81, 1.79]
Moderately Effective	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	0.69	.5	[0.24, 2.00]	0.66	.5	[0.20, 2.20]
	Comprehensive	0.74	.2	[0.47, 1.17]	0.75	.2	[0.44, 1.27]
	Mother's age at first birth (<18 - Ref.)						
	18–19	1.07	.9	[0.40, 2.87]	1.55	.46	[0.49, 4.87]
	20–24	1.48	.09	[0.95, 2.33]	1.64	.06	[0.98, 2.74]
	≥25	1.31	.08	[0.96, 1.79]	1.27	.2	[0.88, 1.85]
	Mother's Education (≤11th grade - Ref.)						
	High school diploma/GED	0.69	.44	[0.26, 1.79]	0.32	.05	[0.10, 1.02]
	2 years of college/associate degree	0.92	.73	[0.56, 1.51]	0.61	.12	[0.33, 1.13]
	Bachelor's degree or higher	0.99	.98	[0.67, 1.46]	0.71	.15	[0.44, 1.14]

(*table continues*)

		Unadjusted			Adjusted		
Contraceptive effectiveness category at last sexual encounter (None - Ref.)		uOR	*p*	95% CI	aOR	*p*	95% CI
Highly Effective	Married parents at participants' birth (No – Ref.)						
	Yes	1.81	.08	[0.93, 3.53]	1.72	.17	[0.79, 3.76]
	Importance of religion (Not Important - Ref.)						
	Very important	0.66	.33	[0.28, 1.52]	0.85	.75	[0.33, 2.23]
	Somewhat important	1.03	.91	[0.63, 1.66]	1.17	.58	[0.67, 2.04]
	Reaction to an unintended pregnancy (Don't care - Ref.)						
	Very upset	19.10	.01	[2.34, 155.19]	15.39	.01	[1.81, 13.86]
	A little upset	4.78	<.001	[1.68, 13.61]	4.85	<.001	[1.67, 14.06]
	A little pleased	2.19	.03	[1.01, 3.38]	2.23	.03	[1.07, 4.66]
	Very pleased	1.22	.53	[0.66, 2.27]	1.09	.79	[0.58, 2.06]
	Formal sexual health education (Abstinence-centered - Ref.)						
	Abstinence-plus	1.09	.93	[0.17, 6.85]	1.07	.95	[0.15, 7.83]
	Comprehensive	1.21	.65	[0.54, 2.68]	1.18	.7	[0.50, 2.85]
	Mother's age at first birth (<18 - Ref.)						
	18–19	0.73	.65	[0.19, 2.78]	0.98	.98	[0.20, 4.75]
	20–24	1.26	.43	[0.71, 2.24]	1.42	.3	[0.73, 2.78]
	≥25	0.88	.61	[0.54, 1.44]	0.95	.86	[0.54, 1.67]
	Mother's education (≤11th grade - Ref.)						
	High school diploma/GED	0.52	.31	[0.15, 1.85]	0.37	.21	[0.08, 1.75]
	2 years of college/associate degree	0.81	.53	[0.43, 1.56]	0.62	.27	[0.27, 1.41]
	Bachelor's degree or higher	0.76	.36	[0.41, 1.38]	0.63	.31	[0.31, 1.24]
	Married parents at participants' birth (No - Ref.)						
	Yes	1.54	.37	[0.60, 3.98]	1.76	.3	[0.60, 5.18]
	Importance of religion (Not important - Ref.)						
	Very important	2.21	.32	[0.46, 1.60]	4.03	.1	[0.75, 21.55]
	Somewhat important	1.46	.4	[0.61, 3.52]	1.94	.17	[0.75, 4.97]
	Reaction to an unintended pregnancy (Don't care - Ref.)						
	Very upset	2.5	.17	[0.68, 9.12]	2.56	.2	[0.61, 1.69]
	A little upset	1.09	.81	[0.53, 2.25]	1.17	.69	[0.54, 2.56]
	A little pleased	0.64	.25	[0.30, 1.37]	0.66	.31	[0.30, 1.47]
	Very pleased	0.73	.27	[0.07, 0.59]	0.63	.13	[0.34, 1.15]

Note. * $p \leq .05$

Summary

In Chapter 4, I reported results of a quantitative cross-sectional analysis of the 2015–2017 NSFG that explored the impact that receipt of the various forms of FSHE (abstinence-centered, abstinence-plus, and comprehensive) may have on the age of sexual initiation, the contraceptive use at sexual initiation, use of more effective contraceptives at sexual initiation, and use of more effective contraceptives as the predominate method during sexual encounters over the previous 12 months among African American women aged 18–24 who have sex with men. According to the data analysis, the odds of being in an older category for the age of sexual initiation among sexually active African American women aged 18–24 increased with APSHE. It increased with CSHE when compared to ACSHE, the referent group. However, the odds were not significant, and the age of initiation was still within a normative age range. The odds of contraceptive use at sexual initiation among sexually active African American women aged 18–24 increased with receipt of CSHE; however, the odds were not significant. The odds of selecting a moderately to highly effective contraceptive at sexual initiation among sexually active African American women aged 18–24 did not increase with receipt of CSHE. The receipt of APSHE nor CSHE increased the odds of selecting a moderately to highly effective contraceptive as the primarily selected contraceptive method for the past 12 months among sexually active African American women aged 18–24.

Chapter 5 includes an interpretation of the analysis results from Chapter 4 and the limitations of this study and its implications and recommendations for applying the results to improve the provision of FSHE among African American young women aged

18–24. Chapter 5 includes a comprehensive overview of this research study, a description of my plans for the future use of study data and results. It also includes possibilities for continued research on this topic.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of this quantitative cross-sectional analysis of the 2015–2017 NSFG was to ascertain the impact receipt of FSHE (knowledge; main independent variable) on sexual initiation and contraceptive selection and use (dependent variables) among African American women aged 18–24 who have sex with men. I used descriptive statistics, logistic regression, and multinomial logistic regression to evaluate the research questions and accept or reject the hypotheses. Understanding associations between these variables may lead to better provision of public health services that may lead to delayed sexual initiation, as well as increased, consistent and proper use of preference and intention matched methods, reducing occurrences of unplanned pregnancies in this population. Unintended pregnancy can lead to significant emotional, social, health, and financial complications, which in turn, may perpetuate cycles of disadvantage experienced by vulnerable populations, especially in terms of racial disparities in morbidity and mortality across the. This analysis may lead to positive social change by highlighting the importance of the provision of FSHE to African American young women aged 18–24 who have sex with men. African American young women may apply knowledge and skills learned to prevent unintended pregnancies, and by extension, may have fewer adverse maternal and child public health outcomes.

The goal of FSHE is to prepare young adults to be sexually healthy (Santelli et al., 2017). A literature review provided evidence that racial and ethnic disparities involving contraceptive knowledge exist with an association shown between less knowledge and

less contraceptive use. Knowledge and attitudes formed about contraception during adolescence may persist throughout life (Guzzo & Hayford, 2018). Receipt of FSHE was lower among individuals with lower socioeconomic status, who were African American, and whose mothers had lower educational attainment (Lindberg & Maddow-Zimet, 2012). African American young women report earlier sexual initiation and are more likely to experience unwanted or mistimed pregnancy than their peers (Moilanen et al., 2018). Contraceptive knowledge is typically lower, and unintended pregnancies are higher in 18–19-year-old women (Wu et al., 2016). Dehlendorf et al. (2014) found that African American women under the age of 19 were less likely than Caucasian women to use IUDs or implants, while African American young women between the ages of 20–24 were slightly more likely to use IUDs and implants than Caucasian women.

For the current study, I analyzed data from the 2015–2017 NSFG to determine the impact of FSHE on age of sexual initiation, use of contraceptive at sexual initiation, use of more ECM at sexual initiation, and use of more ECM as the predominate method during sexual encounters during the 12 months before the survey among African American women aged 18–24. I compared the impact based on the receipt of ACSHE (referent group) with that of APSHE and CSHE. Most young women surveyed experienced sexual initiation between 14–17 years of age (70.3%) compared to the ≤13 years of age referent group (9.1%; see Table 6). The results of my study indicate that the odds of experiencing sexual initiation in the 14–17-year-old initiation category were 34% higher (OR = 1.34, $p = .73$; see Table 11) if young women received APSHE and 22% higher (OR = 1.22 $p = .61$) if they received CSHE, compared to those who received

ACSHE. The odds of being in an older category (18–19) for the age of sexual initiation were 5% higher (OR = 1.05, p = .98) if young women received APSHE and 5% lower (OR = 0.95, p = .98) if they received CSHE, compared to those who received ACSHE. The odds of contraceptive use at sexual initiation increased by 14% (OR = 1.14, p = .8; see Table 12) with receipt of APSHE and 38% (OR = 1.38, p = .17), compared to those who received ACSHE. The odds of selecting a MECM to HECM over a none to less effective category at sexual initiation did not increase with receipt of APSHE (OR = 0.52, p = .18; see Table 13) nor with CSHE (OR = 0.84, p = .4).

The receipt of APSHE nor CSHE increased the odds of selecting a MECM to HECM as the primarily selected contraceptive method during the 12 months before the survey among sexually active African American women aged 18–24. Young women who used LECMs were 2.05 times more likely (OR = 2.05, p = .27; see Table 14) to have received receipt of APSHE and 18% more likely (OR = 1.18, p = .58) to have received CSHE. Young women were less likely to primarily select MECMs if they received APSHE (OR = 0.66, p = .5) or CSHE (OR = 0.75, p = .2). The odds of primarily selecting a HECM for intercourse over the last 12 months increased by 18% (OR = 1.07, p = .7) if young women received CSHE. The odds increased, 7% (OR = 1.07, p = .98), with receipt of APSHE.

Interpretation of the Findings

Formal Sexual Health Education

FSHE promotes safer sexual behaviors for young adults, including delayed sexual initiation and increased and correct contraceptive usage beginning at first sexual

encounter (Lindberg & Maddow-Zimet, 2012). African American women aged 18–24 are at a higher risk for unintended pregnancy due to nonuse, inconsistent, or improper use of contraception, as well as failure to use dual contraceptive methods (Craig et al., 2014). Shepherd et al. (2017) found that African American adolescents who received CSHE had more favorable attitudes about contraception, demonstrated an increase in consistent contraception usage, and reported less teen pregnancy and vaginal intercourse, highlighting the importance of early CSHE. Therefore, knowledge and attitudes formed about contraception during adolescence may persist throughout life. This suggests the need for increased CSHE among African American young women who have poorer sexual reproductive health outcomes, including higher rates of unintended pregnancy and STIs.

Based on my analysis of the 2015–2017 NSFG, I found that of the 242 African American women aged 18–24 included in this study, 63.2%; received CSHE. Twenty-four percent still received some information about contraception via APSHE, 12.8% receiving FSHE that was ACSHE. Of the young women surveyed, 61.6% were born to unwed mothers, of which 36.8% only earned a high school diploma or GED. At participant's birth, 29.7% of their mothers were 20–24 years old at their births, while 27.2% were under 18.

Formal Sexual Health Education and Sexual Initiation

Sexual initiation, considered a critical life transition event, is a significant milestone towards adulthood as young adults accept increasing responsibility for their decisions. The mean age of sexual initiation among American women is approximately

17, with 15% having had their first heterosexual vaginal intercourse experience before their 15th birthday (Guttmacher Institute, 2018; Magnusson et al., 2015). African American young women report earlier sexual initiation (Moilanen et al., 2018). Current national norms for the U.S. consider sexual initiation that occurs before 15 as early, between 15 and 19 as normative, and after 19 as late (Golden et al., 2016). The normative range for this study decreased to age 14, as African American young women report earlier sexual initiation (Moilanen et al., 2018).

Based on the findings for this study, I could not reject the null hypothesis for RQ1. This finding aligns with and supports results from the literature that found that receipt of FSHE had little impact in increasing the age of sexual initiation for African American young women aged 18–24 past a normative age. Young women were 34% more likely to experience normative sexual initiation with receipt of APSHE and 22% more likely with receipt of CHSE (see Table 11). They were, however, only 5% more likely to wait until age 18–19 to have sexual intercourse with receipt of APSHE and were 5% less likely to wait with receipt of CSHE. The findings for RQ1, although nonsignificant, are still important because they suggest that FSHE received may provide knowledge that consensual sexual behavior can be healthy, normative, and provides young adults with the tools needed to make well-informed, healthy decisions around sexual experiences (Bourke et al., 2014; Golden et al., 2016).

The findings, when viewed through the lens of the RAA, suggest that demographics and norms may have also played a role in the age of sexual initiation with young women within the normative initiation range. African American women are

exposed to higher rates of teen and single parenthood, earlier sexual initiation, and use contraception less effectively (Barber et al., 2015). Key findings from my analysis included that young women within the normative initiation range were more likely born to unwed mothers (aOR = 1.04, p = .95; see Table 11), with only a high school diploma or GED (aOR = 8.78, p = .01), and under the age of 24 (aOR = 1.45, p = .64). Young women who delayed initiation until 18–19 years old were more likely to be born to wed mothers (aOR = 1.40, p = .63), who had a high school diploma or GED (aOR = 7.34, p = .02), and under the age of 24 (aOR = 2.25, p = .8). Young women in the 18–19 year old initiation age group were more likely to view religion as very important (aOR = 5.07, p = .06) than their 14–17 year old counterparts (aOR = 1.81, p = .42).

Formal Sexual Health Education and Contraceptive Selection and Use

Despite most young adults believing that pregnancy should be planned (86-94%), more than 70% of pregnancies among unmarried women aged 18–24 are unplanned and likely due to nonuse or inconsistent contraceptive use (Kornides et al., 2015). Paterno et al. found in their 2017 study that among women aged 20–24, 11.4% to 13% used no contraceptive method. This number was higher among African American participants, despite 60% of African American women aged 18-24 who believed pregnancy planning is important, and 80% desired to avoid pregnancy (Paterno et al., 2017). The findings of this current study align with their study and emphasize the need for more research around contraceptive usage among African American women aged 18–19, as, in my analysis, 32.5% did not use contraception at sexual initiation (see Table 6). Among the 67.5% of young women who self-reported contraceptive use at sexual initiation, 50.6% used a

LECMs, and 43.5% (n = 104) using MECMs. None (2.5%) and LECM categories were combined, as were MECMs and HECMs (3.4%) categories as the percentages of none and HECMs were less than 5%. Within the last 12 months, the effectiveness category selected shows that more young women (41%) opted not to use contraception. Among those that used contraceptives, LECMs (25.6%) and MECMs (24%) were predominately used. The use of HECMs (9.1%) methods was scarce. The findings from my study align with current literature as LARC use remains low in young women despite being one of the most effective forms of pregnancy prevention (Logan et al., 2018). Fewer than 5% of 15–19 year olds select LARCs as their preferred contraception method, and the usage among young African American women remains lower than in other racial/ethnic groups (Coates et al., 2018; Logan et al., 2018).

The results of RQ2, although nonsignificant, demonstrate that contraceptive use at sexual initiation increased by 14% with receipt of APSHE (OR = 1.14, p = .8) and by 38% with CSHE (OR = 1.38, p = .17) compared to those who received ACSHE (see Table 12). While FSHE increased use at sexual initiation, odds of selecting a MECM to HECM at sexual initiation were 48% less likely with receipt of APSHE as well as 16% less likely with receipt of CSHE (see Table 13). The results from RQ3 suggest there is a need for more culturally competent contraceptive education to reduce misconceptions about long-term contraceptive methods. African American women who perceive negative peer norms involving contraceptive use are more likely to have inconsistent contraceptive usage and utilize LECMs (Crosby et al., 2013). Compared to Caucasian and Hispanic women, African American women are more likely to report concerns regarding side

effects of contraceptive methods as their rationale for not using contraception (Kornides et al. 2015). Contraception use, specifically LARC use, might be increased by providing young women more information on effectiveness, side effects, affordability, and ease of use (Kornides et al., 2015).

Similar usage persists into the predominate contraceptive method used within the last 12 months. My analysis of the data found that young women who received APSHE were more likely to select LECMs (aOR = 2.05, p = .27) compared to MECMs (aOR = 0.66, p = .5), and HECMs (aOR = 1.07, p = .95) methods (see Table 14). Young women who received CSHE were more likely to equally select LECMs (aOR = 1.18, p = .58) and HECMs (aOR = 1.18, p =.7) methods compared to MECMs (aOR = 0.75, p = .2) methods. It is important to note that within the last 12 months, HECMs were used as frequently as LECMs among recipients of CSHE. These findings align with those found by Dehlendorf et al. (2014), who noted that African American women between the ages of 20–24 were slightly more likely to use IUDs and implants than Caucasian women. Logan et al. (2018) found that LARC use in young women nearly doubled at the age of 24. Although the results of RQ4 show that use of HECMs is still low, it suggests that CSHE may be an important factor to increase use in this population by addressing negative attitudes and beliefs about LARCs stemming from social norms, the knowledge gained through vicarious experiences, as well as knowledge of institutional racism and medical mistrust.

The findings, when viewed from the lens of the RAA framework, suggest that FSHE received shaped attitudes and norms by providing knowledge regarding

contraceptive intention, starting at initiation, and influences the selection of effectiveness category. In my analysis, young women predominately used LECMs, which may have been impacted by demographics and norms. Young women who used contraception at sexual initiation were less likely to be born to mothers 18–19 years old (aOR= 0.55, p = .19; see Table 12). Most mothers had at least a high school diploma or GED (aOR = 2.91, p = .02), but were less likely to be married (aOR = 0.68, p = .23). Young women who used contraception at sexual initiation were also less likely to view religion as very important (aOR= 0.49, p = .09). Young women with mothers 18–19 years old (aOR= 1.65, p = .22) and married (aOR= 1.39, p = .28) at their birth were more likely to use MECMs to HECMs at sexual initiation, which suggests a protective factor (see Table 13). They were less likely born to mothers who only had a high school diploma or GED (aOR = 0.42, p = .05). Young women who selected MECMs to HECMs at sexual initiation were more likely to view religion as very important (aOR = 1.34, p = .28).

According to my analysis of the data, when selecting a primary contraceptive method over the last 12 months, young women born to an older mother selected more effective methods with most selecting MECMs (aOR = 1.64, p = .06) or HECMs (aOR = 1.42, p = .3; see Table 14). They also were less likely born to women who earned only a high school diploma or GED (moderately effective: (aOR = 0.32, p = .05) and highly effective (aOR = 0.37, p = .21). Young women born to married parents selected LECMs (aOR = 2.11, p = .05), which suggests a family-minded norm as they also reported they would be a little pleased with an unintended pregnancy (aOR = 1.68, p = .04).

Limitations

The purpose of this quantitative cross-sectional analysis of the 2015–2017 NSFG was to explore the receipt of FSHE and the impact it may have on sexual initiation, contraceptive use, and contraceptive selection among African American women aged 18–24 who have sex with men. As a secondary analysis of data, a limitation of this research may be possible nonsampling errors due to the cross-sectional nature of the NSFG and primary data collection. As such, I am unable to correlate the extent to which knowledge impacts contraceptive selection, nor can I draw causal inferences from these cross-sectional data. Another limitation of this study is the use of self-reported data, which is subject to participant recall and interviewer biases as well as over- and under-reporting. The majority of the NSFG responses occurred via ACASI to reduce limitations and biases.

The sample size was also a limitation of this study. Although the oversampling of the study population occurred to include more African American women, the sample size was still small; only 1,355 of the 5,554 women interviews were conducted with non-Hispanic Black women. The sample size for this study was further limited because a subsample used contained 499 sexually active, African American women aged 18–24 who have sex with men. Data cleaning yielded a final sample size of 242 sexually active, African American women aged 18–24 who have sex with men. This small sample size highlights the need for more robust, targeted studies among African American women instead of limited qualitative and small studies focusing on nonuse or large surveys providing percentages of African American women respondents.

Access to the data needed to complete this study was another limitation. Requirements for FSHE vary by state; therefore, the region of residence was a key topic in my initially planned study. The NSFG includes a restricted variable, REGION, that identifies a respondent's region of residence. When I started this research study, the REGION variable for the 2015–2017 NSFG was listed on the NSFG website as available free of charge, with access grant via an encrypted email with a written request and submission of confidentiality forms. After submitting a written request for access to the REGION variable, the variable was changed to a fee-based model with limited access, which made the inclusion of this variable cost-prohibitive.

Recommendations

Practice Recommendations

The goal of FSHE is to prepare young adults to be sexually healthy (Santelli et al., 2017). Despite concerns, there is no evidence to support that receipt of CSHE is associated with an earlier sexual initiation, increased risk-taking, or poorer sexual reproductive health outcomes. CSHE, which occurs before sexual initiation, leads to delayed onset of sexual initiation; greater use of more effective contraception, especially at first sexual encounter; and healthier sexual relationships (Jaramillo et al., 2017; Lindbery & Maddow-Zimet, 2012). The key results of my data analysis demonstrate that receipt of FSHE has an impact on sexual initiation and contraceptive use and selection among African American women aged 18–24. APSHE and especially CSHE lead to delayed sexual initiation, increased contraceptive use at sexual initiation, and more effective contraceptive use long term. ACSHE, however, does not have a significant

impact on sexual initiation or sexual behaviors and may place young people at increased likelihood of pregnancy and STIs once they become sexually active by overlooking or downplaying the benefits of contraception (Boyer, 2018).

Young women, especially those of color, may be at risk of not receiving high-quality family planning care (Dehlendorf et al., 2014). This disparity may contribute to healthcare disparities, disengagement from healthcare interactions, and perpetuated institutional mistrust (Gomez & Wapman, 2017). Based on the results of this study, my recommendation is an increased provision of CSHE that is culturally aware and responsive for African American young women in educational, public health, and medical settings. Reproductive trends in contraceptive use among African American women may be impacted by a reproductive history of medical and reproductive abuse. As such, CSHE needs to be tailored to address social and cultural norms to offset vicarious experiences and misperceptions. CSHE must be tailored to address side-effects and perceived impacts on fertility specifically. CSHE may help reduce medical mistrust, misperceptions about contraceptive use, especially LARCs, and help African American young women find a contraceptive method best matched to their pregnancy intentions. By being aware of reproductive justice issues, public health sexual health educators and practitioners may be better able to address concerns raised by African American young women.

Clinicians are more likely to recommend LARCs to low-income women of color compared to their Caucasian counterparts (Gomez & Wapman, 2017). This type of provider coercion was seen particularly with patients deemed high-risk, despite their

contraceptive preferences (Morse & Moos, 2018). Provider coercion occurred despite income, with well-educated patients describing feelings of pressure to be compliant, discomfort with expressing their opinions and views, and the need to accept provider recommendations (Joseph-Williams et al., 2014; Sacks, 2017). Public health educators can fill this communication gap through the provision of CSHE that considers African American young women's long-term goals as well as pregnancy intentions. Sexual health interventions should be tailored to promote favorable attitudes and social norms towards contraception as young women with positive normative beliefs are more likely to use contraception. Such efforts might include integrating reproductive planning into all primary care encounters where questions and information regarding pregnancy intention as well as effectiveness, ease of use, affordability, and satisfaction with current contraceptive methods are explored (Kelly, 2014; Kornides et al., 2015). This would provide the opportunity for public health and clinical practitioners to work together to improve the reproductive health of African American young women. This joint partnership would allow public health educators the ability to focus on reducing the number of sexual partners, increasing the use of hormonal contraception, increase the use of dual contraceptive methods, and use of LARCs (Buhi et al., 2010; Kornides et al., 2015). Doing so would allow clinicians to focus on clinical services.

Research Recommendations

A gap in research involving reproductive and contraceptive disparities in African American young women persists. Targeted research that aggressively and primarily focuses on African American young women is needed. More extensive quantitative

studies are required to determine the impact of FSHE on reproductive and contraceptive outcomes, especially based on the region of residence. More nuanced qualitative studies are needed to explore the effect that background factors, including social norms and networks, play on reproductive and contraceptive outcomes among African American young women. My research plans include an exploration of FSHE and reproductive and contraceptive outcomes among African American young women attending historically Black colleges and universities. Addressing this gap in literature may lead to the development of interventions designed to prevent unintended pregnancies through increased consistent, preference, and intention matched contraceptive use. Well-designed interventions that focus on CSHE may improve maternal health and reduce adverse birth outcomes, all of which are public health concerns in young African American women. An additional plan may include an exploration into the implicit and explicit biases African American young women experience during family planning.

Implications

African American young women report earlier sexual initiation, use of LECMs, and are more likely to experience an unwanted or mistimed pregnancy than their peers (Golden et al., 2016; Lanier et al., 2018; Moilanen et al., 2018). CSHE may have a protective influence on early sexual initiation (Bourke et al., 2014). Unintended pregnancy may lead to disparities in delayed prenatal care, reduced breastfeeding, depression, delivery of infants with low birth weight and birth defects, as well as reduced average income compared to other women (Carter et al., 2013; James & Rashid, 2013; USDHHS, 2019). Infants born from unintended pregnancies experience increased risk of

poor mental, physical, and behavioral health in adolescence, as well as lower educational attainment themselves (James & Rashid, 2013; USDHHS, 2019). Findings from my study demonstrate that increasing African American young women's access to FSHE, which highlights modern contraceptive methods, may mitigate these factors.

Positive Social Change

The key findings of my data analysis may lead to positive social change by providing public health educators and practitioners with a better understanding of the impact of FSHE on contraceptive use, contraceptive selection, and sexual initiation among African American young women. APSHE and especially CSHE lead to delayed sexual initiation, increased contraceptive use at sexual initiation, and more effective contraceptive use long term. ACSHE, however, does not have a significant impact on these behaviors as it withholds essential information to make healthy sexual decisions. An increased understanding of this impact of FSHE will help public health educators and practitioners provide African American young women with the required knowledge and skills needed to delay sexual initiation as well as consistently and properly use preference and intention matched methods. African American young women may apply the knowledge and skills learned to prevent unintended pregnancy and may decrease adverse maternal and child associated public health outcomes. Doing so may positively impact the socioeconomic status of African American young women and resulting children, which may improve associated social, educational, and public health outcomes for both populations.

Conclusion

Through this quantitative, cross-sectional analysis of the 2015–2017 NSFG, I explored receipt of FSHE and the impact it had on sexual initiation, contraceptive use and selection among African American women aged 18–24 who have sex with men. Key findings from this study include that among sexually active African American Women aged 18–24, neither APSHE nor CSHE extended the age of sexual initiation past a normative age. Contraceptive use at sexual initiation increased with receipt of CSHE, and the odds of selecting a MECM to HECM at sexual initiation did not increase with receipt of CSHE. The receipt of APSHE, as well as CSHE, did not increase the odds of selecting a MECM to HECM as the primarily selected contraceptive method for the past 12 months among sexually active African American women. CSHE, however, did lead to young women selecting HECMs at similar odds to LECMs.

The results of this study add to the literature on the impact of FSHE on the age of sexual, contraceptive use, and contraceptive selection among African American young women aged 18–24, which is a public health concern as they impact on unplanned and mistimed pregnancy. Understanding contraceptive selection among African American young women may assist public health and clinical practitioners with a better understanding of the impact of FSHE on contraceptive use and selection and sexual initiation among African American young women. The key findings of this analysis may lead to positive social change by providing African American young women with the required knowledge and skills needed to delay sexual initiation as well as consistently and properly use preference and intention matched methods, reducing the occurrence of

unplanned pregnancy in this population. The key findings of this analysis may be used to increase the provision of culturally competent public health services, such as sexuality and reproductive education, family planning, and contraceptive counseling, which may increase the selection and consistent use of contraceptive methods best fit for reproductive intentions, reduce usage failures and improve birth-related outcomes.

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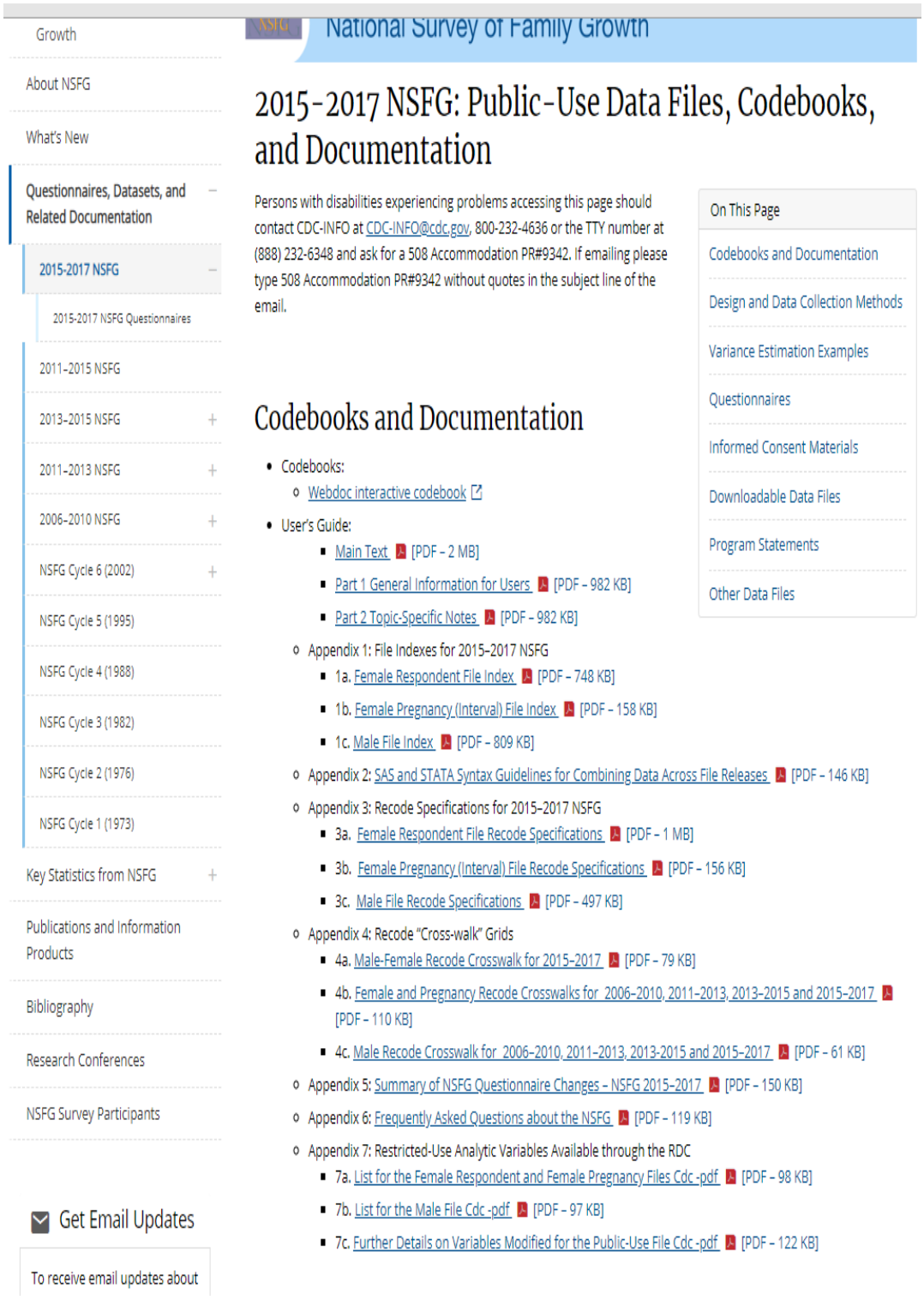
Appendix A: National Survey of Family Growth Documentation



Growth

About NSFG

What's New

Questionnaires, Datasets, and Related Documentation

2015-2017 NSFG

2015-2017 NSFG Questionnaires

2011–2015 NSFG

2013–2015 NSFG

2011–2013 NSFG

2006–2010 NSFG

NSFG Cycle 6 (2002)

NSFG Cycle 5 (1995)

NSFG Cycle 4 (1988)

NSFG Cycle 3 (1982)

NSFG Cycle 2 (1976)

NSFG Cycle 1 (1973)

Key Statistics from NSFG

Publications and Information Products

Bibliography

Research Conferences

NSFG Survey Participants

Get Email Updates

To receive email updates about

National Survey of Family Growth

2015-2017 NSFG: Public-Use Data Files, Codebooks, and Documentation

Persons with disabilities experiencing problems accessing this page should contact CDC-INFO at CDC-INFO@cdc.gov, 800-232-4636 or the TTY number at (888) 232-6348 and ask for a 508 Accommodation PR#9342. If emailing please type 508 Accommodation PR#9342 without quotes in the subject line of the email.

On This Page

- Codebooks and Documentation
- Design and Data Collection Methods
- Variance Estimation Examples
- Questionnaires
- Informed Consent Materials
- Downloadable Data Files
- Program Statements
- Other Data Files

Codebooks and Documentation

- Codebooks:
  - Webdoc interactive codebook
- User's Guide:
  - Main Text [PDF - 2 MB]
  - Part 1 General Information for Users [PDF - 982 KB]
  - Part 2 Topic-Specific Notes [PDF - 982 KB]
  - Appendix 1: File Indexes for 2015-2017 NSFG
    - 1a. Female Respondent File Index [PDF - 748 KB]
    - 1b. Female Pregnancy (Interval) File Index [PDF - 158 KB]
    - 1c. Male File Index [PDF - 809 KB]
  - Appendix 2: SAS and STATA Syntax Guidelines for Combining Data Across File Releases [PDF - 146 KB]
  - Appendix 3: Recode Specifications for 2015-2017 NSFG
    - 3a. Female Respondent File Recode Specifications [PDF - 1 MB]
    - 3b. Female Pregnancy (Interval) File Recode Specifications [PDF - 156 KB]
    - 3c. Male File Recode Specifications [PDF - 497 KB]
  - Appendix 4: Recode "Cross-walk" Grids
    - 4a. Male-Female Recode Crosswalk for 2015-2017 [PDF - 79 KB]
    - 4b. Female and Pregnancy Recode Crosswalks for 2006-2010, 2011-2013, 2013-2015 and 2015-2017 [PDF - 110 KB]
    - 4c. Male Recode Crosswalk for 2006-2010, 2011-2013, 2013-2015 and 2015-2017 [PDF - 61 KB]
  - Appendix 5: Summary of NSFG Questionnaire Changes - NSFG 2015-2017 [PDF - 150 KB]
  - Appendix 6: Frequently Asked Questions about the NSFG [PDF - 119 KB]
  - Appendix 7: Restricted-Use Analytic Variables Available through the RDC
    - 7a. List for the Female Respondent and Female Pregnancy Files Cdc -pdf [PDF - 98 KB]
    - 7b. List for the Male File Cdc -pdf [PDF - 97 KB]
    - 7c. Further Details on Variables Modified for the Public-Use File Cdc -pdf [PDF - 122 KB]

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road
Hyattsville, Maryland 20782

From the Director of the National Center for Health Statistics:

My agency, part of the U. S. Department of Health and Human Services, needs your help. We are doing an important research study called the National Survey of Family Growth. The main part of this study asks questions about family life, marriage and divorce, having and raising children, health and health care. The information is used to help improve health services and health education programs.

To prepare for this study, we are asking a scientific sample of households to take part in a short interview. We have asked the University of Michigan to do these interviews for us. In a few days, an interviewer will visit your home to complete the interview. The visit will only take about 5 minutes, and any adult who lives in the home can answer. You may be asked to complete our main interview, which is described in more detail in the enclosed brochure.

Your help is voluntary but is key to the success of the study. By Federal law*, the answers you give are confidential and we will take all possible steps to protect your privacy. Your answers will be used for statistical research only.

We look forward to speaking with you soon.
I thank you for your help with this important study.

Sincerely,

Charles J. Rothwell
Director, National Center for Health Statistics
http://www.cdc.gov/nchs

*One important law that protects your confidentiality is Section 308(d) of the Public Health Service Act (42 USC 242m(d)). The other two laws are the Confidential Information Protection and Statistical Efficiency Act of 2002 (44 USC 3501 note) and the Privacy Act of 1974 (5 USC 552a). Section 306 of the Public Health Service Act (42 USC 242k) allows us to carry out this survey.

2015

The best health decisions are based on the best health information.

"CDC's National Survey of Family Growth is critical to help ensure that policies and programs address the health needs of all Americans. The survey provides important statistical information on family growth, health, and health care that can be used to help people live stronger and healthier lives. I urge you to take part in this important survey to help us build a foundation for a healthier America."

Charles J. Rothwell
Director,
National Center for Health Statistics

Your household has been chosen to take part in the NATIONAL SURVEY OF FAMILY GROWTH. The NSFG is an important research study of men, women and families. In this brochure, we answer some of the questions people ask about the study.

Questions & Answers

The National Survey of Family Growth

WHAT IS THE NATIONAL SURVEY OF FAMILY GROWTH?

The National Survey of Family Growth gathers information on family life, marriage and divorce, pregnancy, infertility, use of birth control, sexual experience, and men's and women's health. The U.S. Department of Health and Human Services uses the survey results. This information is used to plan health services and educational programs.

The survey is authorized by a federal law, Section 306(b)1(H) of the Public Health Service Act (42 USC 242k), which asks us to collect "statistics on family formation, growth, and dissolution."

The survey provides accurate national statistics on critical issues like:

- People making choices about school, work and having a family
- Women looking for a safe and effective way to space their children
- The health care that men and women get, including family planning and reproductive health
- Risk for sexually transmitted infections
- Child care services used by working parents
- How programs for families and children are working

WHO IS DOING THE NATIONAL SURVEY OF FAMILY GROWTH?

The National Center for Health Statistics (NCHS), part of the U.S. Department of Health and Human Services, does the survey. You can find out more about NCHS at www.cdc.gov/nchs. NCHS has asked the University of Michigan to do the interviews. A professional, female interviewer from the University of Michigan's Institute for Social Research will come to your home and find out if you are eligible for the study. The interviewer who comes to your home will have a University of Michigan identification badge with her picture on it and a Letter of Authorization from the U.S. Department of Health and Human Services. She will ask you questions and type your answers into a laptop computer. You will also get to answer some questions by putting answers into the computer yourself.

HOW WAS I CHOSEN?

We do not know who lives at your house or what your name is. We take a sample of households from all across the United States. When your interviewer arrives, she will find out if there is someone in your household we need to include in our study.

WHY SHOULD I PARTICIPATE? WHY NOT INTERVIEW ACROSS THE STREET?

We cannot talk to all of the millions of men and women in this country - that would cost too much and take too long. So we scientifically select a "sample" of households. We then choose one person from some of those households to be in the survey. Choosing the sample scientifically lets us take the information we learn and use it to better understand the whole population. Once participants have been chosen they cannot be replaced.

ARE THESE INTERVIEWS JUST FOR FAMILIES, OR THOSE WITH CHILDREN?

No. If you do not have children, or live alone, your responses are just as important to the study as anyone else's. You will be asked only those questions that apply to you. For example, we need to have accurate information about topics such as:

- How many people are choosing not to have children or to have them later in life
- How long marriages and other relationships last
- How often divorced fathers see their children
- The need for infertility services

WILL MY ANSWERS BE KEPT PRIVATE?

Yes. Federal law protects the confidentiality of all the information you provide [Section 308(d) the Public Health Service Act (42 USC 242m(d)), the Privacy Act of 1974 (5 USC 552a), and the Confidential Information Protection and Statistical Efficiency Act (PL 107-347)]. Each research staff member has signed a legal confidentiality pledge. The answers you give will be combined with answers from many other people. The data will be reported as percentages, totals, and averages. By law we cannot release information that could identify you or your family to anyone else. Anyone who breaks the law can be fined up to $250,000, lose their job, and/or be sent to prison.

DO I HAVE TO ANSWER THE QUESTIONS?

Your help with this study is voluntary. Saying yes or no to being in the study will not change any benefits you get now or in the future.

Most people find the interview interesting and enjoyable. Your participation is very important because each person interviewed represents thousands of others. Some of the questions may be sensitive for some people. You may choose not to answer any question for any reason and may stop the interview at any time.

Who is The UNIVERSITY OF MICHIGAN?

The University of Michigan was one of the first public universities in the United States. Today, the University is one of the largest research universities in the world. This study is only one of many important surveys done by the University's Institute for Social Research. Other studies' topics include families, health, retirement and other important issues.

HOW LONG WILL IT TAKE?

Interviews take about 60-80 minutes for most adults. Interviews for teenagers take about 60 minutes. A few interviews take a little less or a little more time. We will do the interview at the time that works best for you. Also, for your help in being part of this study, you will receive $40 as a token of our appreciation.

WHERE DO I GET MORE INFORMATION?

For study information:

- Ask your interviewer
- Visit the survey's website at www.cdc.gov/nchs/nsfg.htm
- Call Dr. Anjani Chandra or Dr. Gladys Martinez at NCHS (toll-free): 1-866-227-8347

For information about your rights as a participant:

- Call the office set up to oversee research (toll-free): 1-800-223-8118

To schedule an interview:

- Call the University of Michigan (toll-free): 1-855-891-8891

CDC

U.S. Department of Health & Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

A Research Study for the National Center for Health Statistics, conducted by

The University of Michigan

UNIVERSITY OF MICHIGAN

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road
Hyattsville, Maryland 20782

From the Director of the National Center for Health Statistics:

We are pleased that you were chosen to take part in the National Survey of Family Growth. This important research study is being done by the National Center for Health Statistics of the United States Department of Health and Human Services.

We plan to speak to a national sample of households. The interview asks questions about family life, marriage, divorce, cohabitation, family planning, fatherhood, infertility, pregnancy and birth. It lasts about 60-80 minutes, and you will only be asked questions that apply to you. The information is used to help improve health services and health education programs.

The University of Michigan will do the interviews.

Your help in this study is voluntary but is also helpful to the success of the study. Saying yes or no to being in the study will not change any benefits you get now or in the future. The interview is interesting and enjoyable for most people. Each person interviewed represents thousands of others. Your interviewer will arrange to do the interview at a time that works best for you. For your help, you will receive $40 as a token of appreciation.

By Federal law*, the answers you give are confidential and we will take all possible steps to protect your privacy. Your answers will be used for statistical research only. We report the information in summary form. Individuals or families can not be identified. You may choose not to answer any question at any time. You may have questions about your rights as a participant in this research study. If so, please call the office of the Research Ethics Review Board at the National Center for Health Statistics, toll free, at 1-800-223-8118. Please leave a brief message with your name and phone number. Say that you are calling about Study Number **2015-12**. Your call will be returned as soon as possible.

The enclosed brochure will help to answer your questions about the study. You can also learn more at our website: www.cdc.gov/nchs/nsfg.htm. To schedule your interview, please call the University of Michigan (toll-free) at 1-855-891-8891.

I thank you for your help with this influential study.

Sincerely,

Charles J. Rothwell
Director, National Center for Health Statistics
http://www.cdc.gov/nchs

*One important law that protects your confidentiality is Section 308(d) of the Public Health Service Act (42 USC 242m(d)). The other two laws are the Confidential Information Protection and Statistical Efficiency Act of 2002 (44 USC 3501 note) and the Privacy Act of 1974 (5 USC 552a). Section 306 of the Public Health Service Act (42 USC 242k) allows us to carry out this survey.

2015

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
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Hyattsville, Maryland 20782

ADULT'S PERMISSION FOR INTERVIEW

This interview is part of the National Survey of Family Growth. This research study is being done for the U.S. National Center for Health Statistics. The University of Michigan will do the interviews. The interview asks questions about marriage, divorce, adoption, cohabitation, family planning, fatherhood, infertility, sexual experience, and pregnancy and birth. The information will be used to help improve health services and health education programs in the U.S. The interviewer will only ask questions that apply to you. The interview lasts about 60-80 minutes. Answers to the questions will be entered into a laptop computer.

You will be part of a scientific sample of people. You will represent thousands of other people across the country. Your participation is very important because it will help the study be accurate for people like yourself. For your help in this study, you will receive $40 as a token of appreciation.

By Federal law, the answers you give are confidential and we will take all possible steps to protect your privacy. Your answers will be used for statistical research only. To keep the answers confidential it is important to do the interview in a private setting. This brochure, which you may have seen earlier, answers questions people sometimes ask about the study.

Your help in this study is completely voluntary. Saying yes or no to being in the survey will not change any benefits you get now or in the future. For most people, the survey is interesting and enjoyable. Some of the questions in the interview may be sensitive for some people. You may choose not to answer any question for any reason, and you may stop the interview at any time.

You may have questions about your rights as a participant in this research study. If so, please call the office of the Research Ethics Review Board at the National Center for Health Statistics, toll free, at 1-800-223-8118. Please leave a brief message with your name and phone number. Say that you are calling about Study Number **2015-12**. Your call will be returned as soon as possible. If you have other questions about the survey, you may call Dr. Anjani Chandra or Dr. Gladys Martinez (toll-free) at NCHS: **1-866-227-8347,** or visit the NSFG webpage: www.cdc.gov/nchs/nsfg.htm.

Thank you again for being part of our survey.

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road
Hyattsville, Maryland 20782

To Whom It May Concern:

[INTERVIEWER NAME] has been authorized to work as a field interviewer on the National Survey of Family Growth (NSFG). This major study is sponsored by the National Center for Health Statistics of the U.S. Department of Health and Human Services. This survey provides information on health, marriage and divorce, having and raising children and medical care.

About 17,000 people in the U.S. will be selected at random to take part in this study.

The interviewers working on this study have been hired and trained by the University of Michigan's Institute for Social Research (ISR), located in Ann Arbor, Michigan. The National Center for Health Statistics hired the University of Michigan (Contract # 200-2010-33976) to collect the data for the survey.

If you would like more proof that [INTERVIEWER NAME] is an interviewer working for the University of Michigan on this study, please call UM's ISR offices at 1-855-891-8891 (toll-free).

If you would like to know more about the NSFG, you may visit the study's website: www.cdc.gov/nchs/nsfg.htm. You may also call Dr. Joyce Abma or Dr. Gladys Martinez, at the National Center for Health Statistics (1-866-227-8347 - toll-free), during business hours, Monday through Friday.

Thank you in advance for your help with this important research study.

Sincerely,

Charles J. Rothwell
Director, National Center for Health Statistics

2015