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Effects of Statewide Sex Education Laws on Health Behaviors

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Walden University
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Abstract

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Adam Mullis

MA, Walden University, 2018

BS, Winthrop University, 2015

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Data suggested that abstinence-only education (AOE) was not an effective form of sex education compared to abstinence plus (AP) or comprehensive sex education (CSE). However, there was a dearth of research regarding how state sex education policies affect sixth, seventh, and eighth grade student behaviors. This study involved investigating how state policies impact sexual health behaviors of this population. The theoretical framework for this study was the socioecological model (SEM), which was used to assess how policies impact sexual behaviors. Research questions involved sex education policies and their impacts on condom use as well as age and number of sexual partners. The Youth Risk Behavior Surveillance Survey was used to collect secondary data that were analyzed using Chi-Square analysis. Results suggested that policies should be implemented based on data rather than political agenda or religious affiliation. Data suggested a statistically significant difference in terms of proportion of students who had sexual intercourse before age 11 and type of state sex education policy. The following percentage of students were found to have sex before age 11. This data was found to be statistically significant (AOE = 6.3%, AP = 5.0%, CSE = 6.1%, $p = 0.003$). There were also research questions that were found to be statistically significant; involving ever having sexual intercourse and type of state sex education policy ($p = 0.020$). In terms of types of sex education policies, 6.3% of students receiving AOE, 5.0% of students receiving AP, and 6.1% of students receiving CSE reported ever having sexual intercourse. Results suggested lack of associations between state sex education policies and sexual behaviors.

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Chapter 1: Introduction to the Study

A strong amount of funding is provided by the federal government for abstinence-only education (AOE; Fox et al., 2019). Factors not related to public health often affect sex education provided to states, schools, and districts. Funding has been provided for AOE; however, data suggest it does not change adolescent birth rate outcomes (Fox et al., 2019; Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011). The current study involved building on prior research involving sex education for middle school students.

Comprehensive sex education (CSE) is a sex education approach that gives young people the skills, knowledge, and attitudes to enjoy sexuality and healthy relationships (Guttmacher, 2020). CSE involves different topics, including biological, emotional, and social aspects of sexuality (Guttmacher, 2020). In addition, CSE involves sexual rights, pleasure, relationships, abortion, contraceptives, and STI prevention (Guttmacher, 2020).

CSE demonstrates the ability to decrease teen pregnancy and delay initiation into sex. out of 1,719 adolescents, 66% who receive CSE had a lower risk for pregnancy (Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011). In addition, when comparing AOE, CSE, and Abstinence Plus (AP) health education state policy, CSE led to lower teen pregnancy rates (Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011).

Additionally, 20% of middle school students receive all topics for CSE (Fox et al., 2019). Though there was a vast amount of research on the effectiveness of CSE, research suggests more evaluations of programs were needed for implementation of best practices (see Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall &

Hall, 2011). More research was needed related to sex education and sixth, seventh, and eighth grade students.

AOE is defined as sex education that teaches abstinence from sex activity until marriage (Social Security Administration [SSA], 2019). Furthermore, it must be medically accurate, age-appropriate, based on learning theories, and culturally-appropriate. Via AOE, healthy marriages and avoiding risk behaviors are taught. If information is provided about contraception, it must be medically accurate and cannot involve demonstrating contraceptive devices (SSA, 2019). AP sex education is defined similarly to AOE; however, it includes the teaching about condom use in the context of family planning, thus assuming marriage or long term relationship (Kirby, 2001).

Half of teenagers engage in sexual activity by the time they are 18 (CDC, 2017b). Furthermore, data collected between 2014 and 2015 suggested between 4.9-10.3% of sixth, seventh, or eighth graders surveyed in nine U.S. states, including Delaware, Maine, Maryland, New Mexico, North Carolina, North Dakota, Rhode Island, and Vermont reported having oral, anal, and vaginal sex (Centers for Disease and Control [CDC], 2019). Data for current AOE curricula suggested no statistical differences in terms of non-safe behaviors such as not using a condom or early sexual initiation (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). AOE was still widely implemented across the U.S. (Hoefer & Hoefer, 2017). AOE and AP education were less effective in terms of preventing pregnancy and STIs compared to CSE (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011).

Middle school programs can have short and long-term effects on sexual risk behaviors (Markham et al., 2014; Piotrowski & Hedeker, 2016). CSE could delay initiation of sexual intercourse (Markham et al., 2014; Piotrowski & Hedeker, 2016). Behaviors such as oral, vaginal, and anal sex were reduced (Markham et al., 2014). Furthermore, it is unclear which type of program is most effective in terms of reducing sexual behaviors for middle school-age children (Jeynes, 2020; Markham et al., 2014). Programs for middle-school age children involving risk avoidance, risk reduction, and AOE have shown favorable results in terms of reducing sexual behavior such as early sexual initiation (Jeynes, 2020; Markham et al., 2014;). Yet, that AOE and AP were less effective in terms of preventing pregnancy and STDs/STIs compared to CSE (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011; Yakubu et al., 2019).

Jeynes (2020) found if a child had an influential figure, such as a parent or peer, in addition to AOE, they were more likely to show positive outcomes such as abstinence. Jeynes found positive results involving AOE among participants who were 11 years old such as reduced premarital sexual behavior. Data related to AOE suggest a relationship between AOE programs, sexual behavior, and coexisting attitudes (Jeynes, 2020).

For middle school students, 20% in the U.S. received instruction for sex education that is not meeting national standards guidelines suggested by the CDC (Rabbitte & Enriquez, 2019). Therefore, further research could help in terms of increasing understanding how middle school sex education programs affect condom use and intercourse for sixth, seventh, and eighth grade students. In addition, more research was

needed to support effective sex education in middle schools to see what affects condom use and intercourse rates based on specific state data with different policies related to sex education requirements. State policies can include CSE, AOE, or AP, and these policies dictate what information students learn and do not learn.

The current study could lead to positive social change by providing suggestions to support which type of sex education was most effective for middle school students in terms of increases in condom use. Therefore, this would lead to healthier sexual behaviors. Furthermore, if students were learning via more effective curriculum, this may lead to social change by reducing negative sexual health statistics specifically involving middle school students.

Chapter 1 includes background information, the problem statement, purpose of the study, research questions, theoretical framework, study definitions, and assumptions.

Background

Students in the U.S are engaging in sexual behaviors that could negatively impact their health and society (Lerner & Hawkins, 2016). CSE could provide students with skills and knowledge that target key behaviors in order to promote positive sexual health (CDC, 2020). The problem is that not all sex education state policies mandate best practices.

Research was conducted on effects of varying types of sexual health on sexual behaviors. AOE, CSE, and AP are the primary types of sex education available in the U.S. Although limited research is available for sixth, seventh, and eighth grade students, different types of sex education could impact their health behaviors differently. CSE

reduces teen pregnancy and STI rates (European Expert Group on Sexuality Education, 2016; Guttmacher, 2020). However, the impact of AOE and AP education was less clear due to negative results involving sexual health based on these types of sexual education, particularly when compared to CSE (see Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011; Yakubu et al., 2019).

Health policies impact student health, and different types of sex education can negatively or positively impact their sexual health behaviors (Birch et al., 2017; Burns, 2016; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). For high school students, different types of sex education can impact student behavior differently. For example, when compared to CSE, AOE was shown to be less effective when preventing teen pregnancy (Birch et al., 2017; Burns, 2016; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). The gap in literature addressed was condom use and number of sexual partners for sixth, seventh, and eighth grade students, then analyzing data to see if there were associations linked with state policies. Therefore, the study is needed to help inform the community and society how policies influence individual behaviors related to sexual health.

The current study was intended to fill the identified gap in research on state laws and policies involving sexual health programs that target sixth, seventh, or eighth graders and effects on young adolescent sexual behaviors involving number of partners, age of sexual initiation before age 11, presence or absence of sexual initiation, and condom use. The proposed research added to the body of research related to how policies involving sexual health can affect sexual behaviors, specifically for sixth, seventh, and eighth

graders. The Youth Risk Behavior Surveillance Survey (YRBSS) is national study that is given to students throughout the national for middle school age students. YRBSS asked question related to harmful behaviors including sex education. The proposed study could provide evidence why or which sex education program provides the most advantages. In addition, this proposed study could provide evidence involving middle school-aged individuals regarding condom use and number of sexual partners. When looking at sexual health in middle schools, best practices still needs to be researched. Current state policies should include sexual health curricula that is effective in terms of promoting sexual health to reduce risk behaviors (Rabbitte & Enriquez, 2019).

Problem Statement

State ideology and political viewpoints impact the type of sex education students receive in schools (Fox et al., 2019; Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011). Yet, little research involves middle school sexual health behaviors and state policy; thus, the current study built on prior research involving sex education policies in middle school and their impacts on sexual behaviors. Factors that are not related to public health often affect the type of sex education provided to states, schools, and districts. However, AOE does not change adolescent birth rate outcomes (Fox et al., 2019; Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011). Furthermore, much of the research on the topic of sex education and its relationship with policy was focused on high school students (see Kamara et al., 2020; Pavelová et al., 2021; Rabbitte & Enriquez, 2019; Scull et al., 2018; Sumida et al., 2018). Little is known about how policy impacts condom use and number of sexual partners among sixth, seventh, and eighth

grade students; therefore, this study built on prior research which was expanded to address this topic.

CSE was more effective than AOE when reducing pregnancy (Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011). only 20% of middle school students in the U.S. receive sex education that meets national standards recommendations for comprehensive sex education (Fox et al., 2019). However, gaps in data regarding condom use, number of sexual partners, and decision-making skills can be found for sixth, seventh, and eighth grade students (see Birch et al., 2017; Fox et al., 2018; Fuller et al., 2020; Hoefer & Hoefer, 2017;; Stanger-Hall & Hall, 2011). Thus, it was unclear how different types of sex education policies impact sixth, seventh, and eighth grade students, specifically in terms of number of sexual partners, age of first sexual initiation, and condom use.

Furthermore, sixth, seventh, and eighth grade students engage in sexual intercourse. In 2014 and 2015, between 4.910.3% of sixth, seventh, and eighth graders surveyed in Delaware, Maine, Maryland, New Mexico, North Carolina, North Dakota, Rhode Island, and Vermont reported having oral, anal, or vaginal sex (CDC, 2019

Middle school programs can have short and long-term effects on sexual risk behaviors (Markham et al., 2014; Piotrowski & Hedeker, 2016). CSE could delay sexual intercourse initiation (Markham et al., 2014; Piotrowski & Hedeker, 2016). Furthermore, it is unclear whether CSE or AOE is most effective in terms of reducing sexual behaviors for middle-school age children (Jeynes, 2020; Markham et al., 2014).

More research was needed to determine the type of middle school sex education that is most effective to increase condom use and reduce sexual partners rates. In addition, comparisons involving specific state sexual behavioral data with state sex education policies is needed. The research involving sex education and high school students cannot be generalized to middle school populations. Therefore, there was a need to address how specific sex education policies impact sexual behaviors of sixth, seventh, and eighth grade students.

Purpose of the Study

Variables in the study were condom use, number of sexual partners, and type of sex education (CSE, AOE, or AP). YRBSS includes different age group-specific questions about sexual health for middle school students. In addition, the YRBSS asked questions related to condom use and number of sexual partners. Different types of sex education could impact specific types of knowledge and skills.

Quantitative analysis was conducted for 2019 YRBSS data involving middle school students' sexual behaviors. Four states collected YRBSS data that I used to answer the research questions: Delaware, Maine, and New Mexico. Statewide policies on sex education for those three states were quantified and analyzed to see if there were associations involving these policies and sexual behaviors of sixth, seventh, and eighth graders who took the YRBSS. For this analysis, the independent variable was type of sex education policy, and the dependent variables were condom use, age of first intercourse experience, and number of sexual partners. Different types of sex education policies include AP, CSE, and AOE. Each sex education policy has different requirements based

on what students can and cannot learn. Condom use, age of first intercourse, and number of sexual partners were specific health behaviors that were monitored by the YRBSS. This study added to the body of literature regarding sex education policies associated with condom use and the number of partners for sixth, seventh, and eighth graders.

Research Questions

RQ1: What associations exist between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$1: There are no associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a1: There are associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ2: What associations exist between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$2: There are no associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a2: There are associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ3: What associations exist between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

$H_0 3$: There are no associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders).

$H_a 3$: There are associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

RQ4: What associations exist between state education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders)?

$H_0 4$: There are no associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

$H_a 4$: There are associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

Theoretical Framework

The SEM was used to understand human development and how organisms and their environments rely on each other. Bronfenbrenner (1917) created the SEM that explained that explain human growth systems such as have microsystem, mesosystem, exosystem, macrosystem, and chronosystem. SEM includes a visual depictions of dynamic relationships between individuals and possible influences such as friends, family, work, and society (Campbell, 2019; Golden et al., 2015). McLeroy et al. (1988)

included five different levels of influence: individual/intrapersonal, interpersonal, organizational/institutional, community, and policy. The different levels are describing listed above are describing possible influences personally and culturally

Individual/intrapersonal characteristics can change behavior, as well as skills, knowledge, and motivation (McLeroy et al., 1988). Interpersonal relationships with others affect social identity; examples include peer influence and emotional support (McLeroy et al., 1988). The organizational/institutional level includes rules and regulations that impact organizations or institutions. The organization/institutional level includes incentive policies, referral systems, parental consent regulations, and confidentiality privacy (McLeroy et al., 1988). The Community level is availability and location of resources that promote health and wellness (McLeroy et al., 1988). The Community level includes health care services, poverty, tolerance, and social/cultural norms. The policy level includes local, state, and federal policies that impact health, as well as cultural norms, funding and resources, and political priorities (McLeroy et al., 1988).

This study involved using data involving individual and policy levels of the SEM. The SEM was used for the current study because it allowed individual and policy levels of the SEM to be compared using a Chi-Square test.

Nature of the Study

The design for this study was based on the research problem. Little information exists about how sex education policies impact sexual behaviors of sixth, seventh, and

eighth grade students. Condom use is defined as using a male or female condom during sexual intercourse. Age of sexual intercourse is defined as the age that individual had sexual intercourse for the first time. Number of sexual partners is defined as number of people each participant had sexual intercourse with over their life span. Sex education policies includes AOE, AP, and CSE. Data related to sixth, seventh, and eighth grade students were collected from the YRBSS. CDC data were available for public use. Middle school behavioral data was analyzed using the 2019 YRBSS. Data about sex education policies came from state laws and were quantified like a categorical variable.

YRBSS data were collected via anonymous surveys in randomly selected schools in different states. The survey takes around 45 minutes to complete. Students used a scannable questionnaire booklet to take the survey.

Data were checked for outliers and calculated to ensure statistics were not skewed based on median number of students taking the survey at each school. Specifically, schools who had less than 40 participants were taken out of the survey. A three-stage cluster is used to produce a nationally represented sample in the U.S.

Chi-square was used to explore if there were associations involving state sex education policies and sexual behaviors based on significance. A p-value less than 0.05 was used to determine if results were statistically significant or not. SPSS was used to run calculations after receiving data sets from the CDC.

Definitions

Abstinence-Only Education (AOE): A type of sex education that mandates abstinence as the only means of prevention against unintended pregnancy and STIs/STDs (SSA, 2019).

Abstinence Plus (AP) Education: A type of sex education that mandates abstinence as the only means of prevention against unintended pregnancy and STI/STD prevention; however, AP also involves teaching contraceptives in the context of marriage (Kirby, 2001).

Comprehensive Sex Education (CSE): A type of sex education approach that involves giving students skills, knowledge, and attitudes to help them understand and enjoy sexuality and healthy relationships; the focus in on lowering risk (Guttmacher, 2020).

Condom Use: Using a condom during sexual intercourse (Brener et al., 2013; CDC, 2019; Underwood et al., 2020).

Multiple Sexual Partners: Having more than one sex partner during an individual life span (Brener et al., 2013; CDC, 2019; Underwood et al., 2020).

Assumptions

The current study involved several assumptions. For example, data for this study were collected from randomly selected schools of sixth, seventh, and eighth graders, thus not all middle school students were represented in the data Therefore the assumptions is that data represented all middle school students to USA .

I assumed there are a multitude of factors that could contribute to condom use and number of sexual partners other than specific state policies; for example, peer influence could be a factor. I also assumed current data from the YRBSS were generalizable to all state populations for sixth, seventh, and eighth graders. Although there was a large number of students who completed the YRBSS, some sixth, seventh, and eighth grade students may not be in school or did not complete the survey. Another assumption was that all participants answered questions on the YRBSS truthfully.

Scope and Delimitations

Research on sixth, seventh, and eighth graders has led to mixed results in terms of whether AOE, CSE, or AP were most effective for middle school students with increasing sexual healthy behaviors or decreasing risky sexual behaviors . The effects of sex education policies on middle school students is unknown or under researched. Therefore, I focused on how state sex education policies affect condom use and number of sexual partners for sixth, seventh, and eighth graders. Participants completed the YRBSS and who were in mostly public schools. Checks and balances are provided during the YRBSS process to ensure validity and reliability. For example, test questions are tested and retested (Brener et al., 2013; Underwood et al., 2020). Results of this study will be generalizable to other sixth, seventh, and eighth grade students because of the large number of students surveyed in the current study. If students are getting more effective sex education, it is possible that risky behaviors like multiple sex partners and not using condoms could be reduced (Brener et al., 2013; Underwood et al., 2020). Data

should be used to make recommendations regarding type of policies impact sixth, seventh, and eighth grade sexual behaviors in positive ways.

Limitations

Limitations of this study involved amount of data and time during which data were collected. Not all states have the most available data, and the most recent available data is from 2019. Furthermore, other variables could impact sexual health that were outside the scope of this study. Also, in terms of how parent permissions were obtained for the YRBSS, not all schools followed the same procedures. The YRBSS only included data on leading causes of death, disability, and social problems for young people; thus, data were limited to what was available from the survey, yet other factors could contribute to the condom use and number of sexual partners. Thus, data that were available for sixth, seventh, and eighth graders were used to ensure the largest sample size possible.

The current researcher for this study has biases related to health and health and health education. Therefore, other sources of data involving state policies, such as the CDC and Sexuality Information and Education Council of the United States (SIECUS), were used to counteract any biases that may occur during analysis.

Significance

This study could contribute to social change via understanding if different types of sex education policies impact sixth, seventh, and eighth grade sexual behaviors. Lack of research exists involving middle school condom use, , number of sexual partners, and how sex education policies impact these behaviors. Therefore, findings can assist in terms

of supporting current policies and/or encouraging policy changes involving sex education. This study promotes more research involving recommendations for statewide sex education policies that could be implemented and are based on data, rather than political agenda or religious affiliation. More research involving sex education policies will lead to evidence regarding the most effective types of sex education for this population. With more effective sex education, this could impact the rate of sexual behaviors.

Summary

This study involved investigating how sex education policies affected sixth, seventh, and eighth grade students' sexual behaviors. YRBSS data were used and analyzed via a chi-square analysis to assess rates of condom use, number of sexual partners, and type of sex education policies. The SEM was used as a framework for the current study and thus the independent and dependent variables were compared. Chapter 2 includes a detailed analysis of current literature involving the proposed topic for this current study.

Chapter 2: Literature Review

For middle school students between the ages of 10 and 14 in the U.S., sexual behaviors such as kissing, touching, mutual masturbation, and oral and anal sex start to occur (Lerner & Hawkins, 2016). For adolescents, these behaviors are considered risky because they can negatively impact themselves and society. Oral and anal sex can result in a STI. Reducing the number of sexual partners adolescents have and increasing condom use rates are found to prevent adverse health outcomes, such as unplanned teen pregnancies and transmission of STIs (Lerner & Hawkins, 2016; Zhao et al., 2016). The U.S. has one of the highest teen pregnancy rates of any developed country in the world (Lerner & Hawkins, 2016). Among teenagers who are having sex, it was estimated that one out of four of them has a STI (Lerner & Hawkins, 2016).

Adolescents who have sex between ages 12 and 18 have higher levels of inconsistent condom use and more sexual partners compared to adolescents who delay sex (Lerner & Hawkins, 2016; Zhao et al., 2016). Individuals who have had multiple sex partners before age 15 had worse health outcomes in adolescence and adulthood (Sayegh et al., 2012). The CDC (2017) found of the states who took the YRBSS 4.7-15% of middle school students were having sexual intercourse and 1.3-4.3% had sex with three or more people (Martinez & Abma, 2020). Middle school students who are engaging in sexual activity are at risk of negative health outcomes during adolescence and adulthood, including STIs and teen pregnancy. Multiple sex partners and substance abuse could be associated with increased risk of STIs and teen pregnancy (CDC, 2017). Lerner and

Hawkins (2016) stated multiple sex partners and erratic condom use could be correlated. However, proper condom use is found to reduce negative health risks, such as STIs and unplanned pregnancies (Zembe et al., 2012). According to the CDC (2017), 43-56% of middle school students who completed the YRBSS did not use a condom during their last sexual intercourse. Sayegh et al. (2017) found that one out of 10 sixth, seventh, and eighth grade students are having sex, and 32% of these students did not use a condom during their last sexual encounter. Consequences of adolescents having unprotected sexual intercourse can affect their families and communities.

Only 50% of teen mothers will receive a high school diploma by age 22, thus limiting what jobs they would be qualified to take (Martinez & Abma, 2020). Therefore, working to reduce the number of sexual partners and increasing condom use among young adolescents was important to reduce negative health outcomes.

One way to reduce number of partners and increase condom use is sex education in schools is CSE. CSE provides students with skills and knowledge in order to promote positive sexual health (CDC, 2020). However, 17% of public schools are able to teach sex education (CDC, 2020). Policies could directly affect what public schools can and cannot teach and whether sex education is taught. However, few studies include information about sixth-eighth grade students, state policies for sexual education, and specific health behaviors. Therefore, this study was intended to fill the gap in literature.

There is research regarding the impact of sex education on sexual behaviors. Types of sex education include AOE, AP, and CSE. While research is limited in terms of what type of sex education was most useful for sixth, seventh, and eight graders, different

types of sex education could impact behaviors differently. Benefits of CSE includes reductions in teen pregnancy and STI rates (Guttmacher, 2020; European Expert Group on Sexuality Education, 2016). Well-implemented CSE is associated with delays in sex initiation and fewer sexual partners. In addition, sex education is important prior to engaging in sexual behaviors in order to reduce negative consequences (Lerner & Hawkins, 2016). Timing and content of middle school sex education in schools is shaped by policies, specifically for K-12 schools (Hall et al., 2019). Therefore, it seems important to understand how state level policies affect sexual behaviors of middle school students to see if there was a need to modify policies to improve sex education during middle school years. I addressed state level policies involving sex education and sexual behaviors of middle school students. The SEM was used to guide this research.

This chapter includes literature search strategies, theoretical foundation, conceptual framework, and information about effects of policies on sex education, school-based sexual education, AOE and AP education, CSE, middle school sexual education, number of sexual partners, and condom use, followed by a summary and conclusions.

The literature review includes research involving school-based sex education, international sex education, policies related to sexual education, CSE, AOE, middle school sex education, and multiple sexual partners and condom use among middle school students. The SEM was used to look specifically at how policies affected sexual health behaviors such as condom use and number of partners.

Literature Search Strategy

keywords for this study were: *abstinence-only education, curriculum, policy,* Sex Education, *sex education policies, health education, middle school, comprehensive sexual education,* and *socioecological model*. I used the following databases: Academic Search Complete, PubMed, Education Source, Public Health Database, Google Scholar, ERIC, and ProQuest.

This review includes peer-reviewed articles published between 2013 and 2023 on various topics. These topics include sex education outside of the U.S. and how policies affected this type of education in the U.S. Following this is a review of literature on AOE, CSE, AP, along with literature regarding behaviors that are relevant in terms of this current study. Research exists related to use of the SEM when studying sexual health and high school students.

Theoretical Foundation

The SEM was created to understand human development, thus understanding how an organism and its environment rely on each other (Campbell, 2019; Golden et al., 2015). Bronfenbrenner created the SEM that includes nesting circles that explained human growth systems that have microsystem, mesosystem, exosystem, macrosystem, and chronosystem. SEM nesting circles are visual depictions of a dynamic relationship between individuals and possible influences (Campbell, 2019; Golden et al., 2015). Specifically, for the public health promotion field, ecological models are used to research health-related topics of interest (Golden et al., 2015).

The Ecological Model for health promotion focused on individual and social environment factors that target health promotion (McLeroy et al., 1988). The model proposed by McLeroy et al., (1988) builds off of Bronfenbrenner, specifically using multiple levels of influence; micro-, meso-, exo-, and macro-systems (McLeroy et al., 1988). Assumptions of the SEM are that there were multiple influences at each level. McLeroy et al. (1988) adapted the model and included five different levels of influence, including: individual/intrapersonal, interpersonal, organizational/institutional, community, and policy.

Individual/intrapersonal have individual characteristics that could have changed behavior, such as skills, knowledge, and motivation (McLeroy et al., 1988). Interpersonal includes relationships with others and affects social identity; examples could include peer influence and emotional support (McLeroy et al., 1988). Organization/institutional level include rules or regulation that impacted an organization or institutional. Organization/institutional level include incentive policies, referral system and parental consent regulations and confidentiality privacy (McLeroy et al., 1988). Community level is defined of availability and location of resources that promote health and wellness (McLeroy et al., 1988). Community level included health care services, poverty, tolerance, and social/cultural norms. Policy level includes local, state, and federal policies that impact health. Policy level includes cultural norms, funding and resources, and political priorities (McLeroy et al., 1988).

The SEM as a theory-based framework provided an understanding of health's social determinants at many different levels and factors (Max et al., 2015). Utilizing the

SEM gave insight into how policy can correlate with individual-level behaviors. SEM is used in previous research related to sex education such as: promoting successful school education, HIV education, understanding social determinates of sexual health, knowledge and attitudes about sex and influences of sex education in different parts of the world (Yoo, 2009; Challa et al., 2018; Muchimba, 2019; Rizvi et al., 2020; Sekgobela et al. 2020).

SEM approaches in sex education includes more than just the individual level for interventions; for example, other influences such as the community, technology, and society could have impacted sexual behaviors norms (Mackee, 2008). Furthermore, media programs could distribute accurate information. Thus, SEM is used to address multiple points of influence, targeting social norms, not just individuals' points of influence (Mackee, 2008). SEM is used to examine sex education curriculum as it related to populations such as lesbian, gay, bisexual, transgender, queer (LGBTQ) (Eila & Tokunaga, 2014). Therefore, the SEM is used to help administrators understand how curricula is affecting students inside and outside the classroom (Eila & Tokunaga, 2014). Results suggest that historically sex education in the US did not foster education that promoted healthy sexual lives (Eila & Tokunaga, 2014). Furthermore, Eila & Tokunaga, (2014) suggest that social sexual health was needed for an effective sexual health curriculum (Eila & Tokunaga, 2014). Social sexual health could be defined as connections with individuals or community related to other sexuality (Eila & Tokunaga, 2014). However, social sexual includes connectedness with family, friends, and

community, yet does not mention policy which impacts previous mentioned entities (Eila & Tokunaga, 2014).

SEM is also used to analyze effectiveness in a middle school sex education program. Effectiveness is measured by a student reported impact measure using an ecological approach (Markham et al., 2014). Results suggest there are three important factors that were critical in having a positive impact with changing behaviors (e.g., delaying sexual intercourse and other sexual risk behaviors), including: evidence-based sex education program, student program satisfaction, and empathetic program delivery (Markham et al., 2014). Using an ecological approach and researching student, teacher, and school factors allowed a broader prospective on what effected the successfulness of sex education (Markham et al., 2014).

The SEM is used to analyze and compare states' sex education policies to see how they affect sexual health outcomes (individual level) for middle school-aged adolescents. SEM provides a general guide that could provide a framework for how social determinants of health influence health issues, creating a point of reference for interventions and creating the possible answer to the research questions (Max et al., 2015). The model posits that local, state, and federal policies impact health (McLeroy et al., 1988). Data suggests that state sex education laws relates to how policy affects sexual behavior outcomes (Fox et al., 2019; Stanger-Hall, & Hall, 2011; Rabbitte & Enriquez, 2019). In the proposed study, both the individual and policy levels of SEM are examined. The individual level studied middle school students' behavior relevant to condom use during sexual intercourse and number of sexual partners. In contrast, the policy level

discusses how the state laws dictate sexual health curriculum in public schools and, in turn, affected individual level data. SEM does frame this study; the sources of the data depict the following levels.

The policy level is represented by state policy related to sex education in public schools. The policy affects sex education in several ways. For example, depending on the type of sexual education, it could have influenced social determents of health (individual level of SEM) based on what skills, knowledge, and attitudes are attained. For example, if individuals are educated about contraceptives via CSE, this information could increase their usage of condoms during sexual activity.

Additionally, the SEM policy level affects the organizational/ institutional level because the state's policies affect local school districts and school curriculum (McLeroy et al., 1988). Furthermore, the secondary data for this study involves the individual/intrapersonal level of the SEM because the results are affected by the skills, knowledge, and attitudes of the individuals that the data reflected related to condom use and number of partners for middle school students (McLeroy et al., 1988). Some social-ecological models suggest that many factors influence adolescent sexual health, including family, peers, school, religion, and community; these factors can establish important protective and risk factors (Vasilenko et al., 2019). Therefore, the current study further research on schools because it will examine statewide policy that effects school curriculum. SEM has other uses related to health education and sexual health.

SEM is used as a theoretical framework to analyze data from a health survey (Rizvi et al., 2020). The microenvironment level includes factors such as family, friends,

and partners. The microenvironment level includes policy, media message, and health care facilities. For the health survey in the Rizvi et al. (2020) study, SEM is used to look at the individual-level microenvironmental and macroenvironmental levels. Furthermore, the researchers defined the individual level as age, sociodemographic, and education. Lastly, at the macroenvironment level, access to healthcare facilities was an issue (Rizvi et al., 2020).

The results of Rizvi et al., (2020) study suggests that at the individual level of SEM, a contraception need was unmet for females, ages15-24 (Rizvi et al., 2020). Also, there was an increase in likelihood for the husband to want more children at the microenvironment level. Furthermore, SEM was used because the study suggest that different SEM levels could be affected if females used contraceptives or not (Rizvi et al., 2020). Other studies use ecological perspectives to study similar topics to the current study.

Salazar et al., (2010) study an ecological perspective to determine adolescent sexual risk behaviors and related biological outcomes, including pregnancy and sexually transmitted disease. Findings relevant to the current study included condom attitudes and self-efficacy for condom use (individual level); partner norms to use condoms (Relational level); and condom availability and community STD rates (Community). Salazar et al., (2010) noted that less than 3 % of studies perform research at individual and societal level factors (Salazar et al., 2010). Therefore, it was notable that on the community and societal level policy, the current study will fill a gap in research with understanding SEM, policy, and how it relates to adolescent sexual health.

SEM is used to look at the holistic approach for gaps in specific programming for sexual health involving young people (Winters & Alson, 2018). A framework is developed using a social determinant of health (SDH) to indicate areas that were more high risk for adverse health behaviors in Washington State (Winters & Alson, 2018). However, traditional measurements such as teen pregnancy are not used, behaviors dating violence, youth poverty, income inequality, academic achievement, positive social connection, healthy relationships, and binge drinking were studied (Winters & Alson, 2018). Therefore, data suggest that looking at traditional indicators for sexual health could narrow the scope of sexual health and could influence other health determinants (Winters & Alson, 2018).

The hypothesis for the current study revolved around the assumption that some of the SEM levels may be affected by the policy. Thus, the different types of sex education policy (CSE, AP, AOE) in different states impacted the populations sexual behaviors differently. Therefore, data from the YRBSS could show different statistics based on the state policy around sexual education. Therefore, demonstrating if differing sex education policies could influence the sexual health outcomes of different states.

SEM is chosen because it related to the health disparities of sexual health and helps explain the influences between varying model levels. Therefore, it was logical that SEM would guide the framework to understand how one level (e.g., policy) affected another level (e.g., individual). By studying the policy and individual levels, we added to the literature as there has was limited research on the levels proposed in this study (Salazar et al., 2010). The current study used the SEM to look at both individual and

policy levels to further understand the impact of how policies around sex education effects health behaviors of middle school-aged individuals.

Past research involving SEM has served as a framework related to sexual health. The current study benefits from the SEM framework by allowing us to see if and how state policies affected individual health behaviors, thus helping study the current sex education policies in place were making a positive difference in the lives of 6th, 7th, and 8th-grade students.

Literature Review

SEM and Sex Education

SEM could be used to look at how different factors of a person's environment impact sexual health. The following paragraphs discussed how research related to the current study has accumulated. SEM is adapted to explain usage of contraceptive services by adolescents. Furthermore, contraceptive use has multiple environmental, social, and communal factors that influence human behaviors (Ezenwaka et al., 2020). Another issue at the community level included the social norms around buying condoms. Furthermore, mass media related to teen sexual activity can be portrayed as a negative influence. At the community level of SEM, Ezenwaka et al. (2020) noted the negative consequences of sex education conflicting with social norms of different groups such as having a family.

Researchers looks at how SEM compares to policy in different ways that include both strengths and weaknesses. Studies research the SEM's policy level, but multiples perspectives, such as the views of the adolescents were not considered (Ezenwaka1, 2020). Furthermore, adverse effects (e.g., adolescent birth rates, STI rates, abortion rates)

are often looked at when comparing the effectiveness of sex education with a policy (Fox et al., 2019; Rabbitte & Enriquez, 2019; Stranger-Hall & Hall, 2011). Yet, these were not the only factors that determine if sex education was effective or not.

Similar to the current study, some studies have use SEM to compare secondary data with policy and the effects on individuals. Ezenwaka et al. (2020) explored factors that keep adolescents from using contraceptives through the lens of the SEM. A mixed-method approach is also used to study the effects of policy on sex education enforcement (Rocha & Duarte, 2015). Results suggest that several ecological systems play a role in the implementation of sexual education. The legislation is included in the macrosystem of the health and education department (Exo and mesosystems) (Rocha & Duarte, 2015). Both legislation and education law can affect sexual health implementation and evaluation at the school level (microsystem level) (Rocha & Duarte, 2015). Other studies relate to the constructs to the current study methods looked at teenage pregnancy rates in Nigeria; this paper looks at barriers to utilizing contraceptive services using SEM Model (Somefun. 2019).

According to Ezenwaka et al. (2020), different SEM levels are studied, and sex education is found relevant. The researchers studied six communities in Nigeria and conducted interviews with policy makers, community leaders, health service providers and parents of adolescents. The social-ecological model is used to explain factices that impacted adolescents using condoms in negative ways, furthermore, relating to the current study by related policy and SEM. Herrman et al., (2017) completed a study related to teens perceptions about the support and challenge for teens who want to

practice sexual health. The socio-ecological model provides the framework to analyze different constructs within the model (Herrman et al., 2017). Chunga et al., (2018) researched factors with adolescent pregnancy in low- and middle-income countries. Chunga et al., (2018) use the ecological mode to study the various factors of an adolescent attitude. Heslop et al., (2020) researched the perspectives of community stakeholders with community stakeholders using structured interviews. Four key themes emerged: 'you're not going to get the whole town to start thinking about adolescent sexual health'; backlash, stigma, and secrecy; being consistent, credible, and available; and small-town communication (Heslop et al., 2020). However, the previous studies discusses did not relate sex education and policy level to the individual level (Ezenwaka et al., 2020; Herrman et al., 2017; Chunga et al., 2018; Heslop et al., 2020). Thus, the need for the current study to relate policy to individual behavior for middle school students. Yet, some specific studies did look at the policy level of the SEM.

Gilliam et al. (2016) suggested that SEM is used to create curriculum that was being moved from the personal to the interpersonal to the social-political level during different lessons of the curriculum. Furthermore, Gilliam et al. (2016) suggested that health educators need to address other SEM levels that relate to impacts on health behavior. Therefore, further reason for the current research for studying the policy level of SEM. Themes from the research include how different SEM levels affect topics that relate to sex education and the study of human development—for example, these topics include not having sex education or sex education that was incomprehensive or adolescent pregnancy (Ezenwaka et al., 2020; Chunga et al., 2018). Social norms also

provide an issue with sexual health-related topics like buying condoms thinking around sexual health that could cause detrimental norms to an individual's health (Herrman et al., 2017; Heslop et al., 2020).

Data relates to 6th, 7th, and 8th-grade students were less abundant, specifically comparing national data on multiple partners and condom use is not studied or compared between different states. Other studies looked data from an individual state. For instance, Fox et al., (2019) looks at how federal funding for abstinence-only education effects sexual health behaviors. Other studies related to middle school students focused on using focus groups with adolescents, parents, and teachers in public schools that had more negative or positive points of influence according to using the SEM model (Kazdouh et al., 2019). Furthermore, Kazdouh et al., (2019) uses the SEM to interview adolescents, parents, teachers, adults on protective factors and perceived facilitators of risky sexual behaviors leading to STIs. Data sets are coded and analyzed with thematic analysis (Kazdouh et al., 2019). During the research, five significant themes are found and includes risky sexual practices, the adolescents' social domain, how school affects relevant topics, and media, including social-cultural norms (Kazdouh et al., 2019). Therefore Kazdouh et al. (2019) studies concepts relate to socio-cultural along with personal barriers that includes lack of sex education within a school which could promote sex education within a school (Kazdouh et al., 2019). However, this study did not look at the particular policy of sex education that was allowed to be taught.

Specific studies that uses SEM studied two 7th grade classes that were given a two-hour seminar. Pre and Posttest are given based on pubertal development status and

their knowledge, attitudes, and behaviors related to puberty (Zang et al., 2011). While feedback was positive, few students' effects are recorded; this could be from the relatively small amount of time the intervention was given (Zang et al., 2011). Zang et al., (2011) recommended that appropriate educational activities and materials engage and equip schools, parents, and community members with knowledge and skills and practical knowledge for the student's overall wellbeing (Zang et al., 2011). Wallin (2019) suggested that data related to sex education in Georgia (GA) and interviewed teachers who taught sexual education. Wallin (2019) found that some districts are not teaching sex education, and teachers' training could be critical for improving curricula (Wallin, 2019). Wallin (2019) goes into detail about one of the issues of sex education in GA: the lack of accountability if school districts do not teach sexual education. Different types of sex education curricula were looked at (AOE, AP, CSE) but did not have any relationship to behaviors (Wallin, 2019). SEM is also used to look at topics related to sexual health related to this study that did not necessarily research a middle school population. Most research using SEM focused on the broader term of adolescents that can intertwine with middle school age students.

When the effectiveness of policy are looked at over time, studies utilizing time-series cross-sectional regression have omitted variables, along with limited data on adolescent pregnancy (Fox et al., 2019). Furthermore, it was difficult to understand all of the factors that go into adolescent pregnancy when looking at a range of time (Fox et al., 2019). Data on adolescents could limit the research limitations and societal norms with this age group around the topic of sex. Many different topics and levels of SEM were

covered in the research. However, studying how the policy level affects the individual level was under-researched compared to other levels of the SEM. Furthermore, SEM will be used in the current study to form the underlining theme of between policies and individual outcomes of middle-school aged kids.

Effects of Policy on Sex Education

Policy and sex education are strongly correlated. Furthermore, a policy that impacted school curriculum could affect children's overall health (Marquez & Main, 2021). However, what is less clear is how that policy influences health behaviors. Studies that measured and holistically evaluated the effects of policies found negative and positive effects on sexual health depending on the type of sex education implemented. Using 51 states, a retrospective observational cross-sectional study is using, importing data from the vital national statistics. Chevrette and Abenhaim (2015) research state policies from the Guttmacher Institute. The researchers found that type of sex education does not affect abortion policies, but abortion policies impact abortion rates (Chevrette & Abenhaim, 2015). Furthermore, teen birth rates did not appear to be influenced by state-level policies, suggesting that education policy is not the only influence (Chevrette & Abenhaim, 2015). Thus, research suggest mixed results between what effected policy (i.e., AOE, CSE, or AP) has on some sexual health behaviors and outcomes such as number of partners and condom use. Therefore, it was important to understand the reach on how policy can affect a school-based setting with sexual education.

Leung et al. (2019) found mixed views of CSE for teen pregnancy rates and suggested schools incorporate more evidence-based programs, better training for

educators and parents, and including topics besides just biological parts. In addition to the effects of policies on behaviors, several studies look at the effects of how money influenced policies and, in turn, behaviors. Research related to policy in relatively specific outcomes; outcomes include that federal abstinence-only funding did not affect adolescent birthrate or abortion rates (Carr & Packham, 2017; Fox et al., 2019). Furthermore, data suggest millions of dollars spent on AOE did not affect conservative states, which were most responsive to changes in funding related to sex education (Fox et al., 2019). AOE restricts fundamental student rights to sexual information to be healthy individuals (Fox et al., 2019; ; Rowe, 2020;Santelli et al., 2017). However, Fox et al. (2019) studies how block grants provided from the government provided funding for sex education affected adolescent birthrates. Data from this study suggest that federal abstinence-only funding did not affect adolescent birthrate in conservative states (Fox et al., 2019).

Therefore, rather than using AOE, data suggest governments should support a comprehensive sexual health view (Leung et al., 2019). Governments should support CSE for several reasons, including condom use was a critical factor in trials that prevent STI/HIV. (Carr & Packham, 2017; Fox et al., 2019). Data also suggests that specific actions can increase CSE via school policy; these include making health education a graduation requirement, supporting curricula, training, staff, and resources, along with the budget for CSE in the state department (Dickson et al., 2018).

However, other factors besides what is considered best practice could affect why states choose sex education policies. Other considerations could be states can control

what type of sex education was allowed based on constituents (Rowe, 2020). Another aspect of sex education was the moral inclusion or exclusion of information included in curricula based on morals and values, further evidence of the strong contradiction between best practice, morals, and values (Prosser, 2015; Rowe, 2020))

Sex education restricts fundamental rights and could harm individuals based on what was being funded more often (Fox et al., 2019; Santelli et al., 2017). Thus, funding could be a contributing factor for negative sexual behaviors. Research claims that CSE was a human right for young people to learn accurate medical information, (Leung et al., 2019). Therefore, the moral and ethical conundrum was promoting ideology over the health and rights of young people or directing federal investments towards more comprehensive sex education programs in support of the sexual and reproductive health of young people (Guttmacher Institute, 2020b). State policy is influenced by federal funding personal ideology, and religious views. However, religious views did not necessarily disagree with CSE when looking at sex education within a church (Hach & Roberts-Dobie, 2016; Guttmacher Institute, 2020b*).* Data related to nationwide sex education programs did not necessarily agree with best practices or cultural norms, thus suggests the need for a federal policy that follows decisions made by data.

Guttmacher Institute (2020b) has a summary related to Sex and HIV Education in the United States. As of 2020, 39 states mandated sex education, 17 states required that content be medically accurate, three states prohibited promoting religion, and 36 states allowed children to be removed by parents' consent (Guttmacher Institute, 2020b). Furthermore, 19 states require information about condoms or contraception and 37

required information about abstinence. Lastly, a higher percentage of states require healthy relationships, teen dating violence, and sexual violence topics to be taught (Guttmacher Institute, 2020b). With the way governmental structures work in the United States, states could decide what curricula best meet their people's needs, allowing the school district to make their own decisions about sex education curriculum (Moss et al., 2020; Rowe, 2020). Disparities are found when diverse districts require different criteria to be taught, which allows information gaps within the student body (Moss et al., 2020).

In addition to the Guttmacher Institute, SIECUS s that less than 40%of high schools in the United States and 14%of middle schools provided all 19 topics identified by the Center for Disease Control and Prevention (CDC, 2019). Both positive and negative trends are found in 2018 about state policy; the most common improvement is state sex education policy was the need to include topics such as child sexual abuse, assault, and dating violence prevention and that the education needs to be medically accurate and age appropriate (SIECUS, 2018). However, other issues included abstinence instruction, opt-in policy requirements, abortion-related restrictions, and meeting the needs of a diverse population (Moss et al., 2020; SIECUS, 2018;). Funding shifts towards less abstinence-based education and more CSE during the Obama administration; however, the trend changed during the Trump administration (Guttmacher Institute, 2017; Shemesh et al., 2018). With political leaders having different views on sexual education, funding seemed to follow a political ideology, which can hinder consistency and limit policies in line with evidence-based recommendations.

As the political leadership in the United States shifts, views and beliefs may shift for what was recommended for sexual education. SIECUS (2021) suggests that laws and policy allow for all people to have freedom and autonomy over their bodies; this includes creating funding for medically and scientifically accurate CSE while at the same time stopping funding for AOE programs. Sex education federal policy needs to be set, that policy reflects data with best practice, not political views (SIECUS, 2021). Furthermore, the relationship between political views and religious ideology seems to play a more substantial role in sex education policy rather than scientific finds and best practices (Baker et al., 2015; Guttmacher Institute, 2017; Rowe, 2020). Therefore, when looking at sexual education, it is essential to understand the relationship between politics, funding, and policy because what was taught in public school seemed to be federal funding related. By SIECUS advocating for federal policies on sex education in schools, it allows for consistency in sex education across the US and increased the ability to provide sex education based on the current evidence, rather than on political, financial, and/or religious ideologies.

School-Based Sexual Education

In a number of school-based health education programs there is a focus on AOE sex education that focus on STI education including HIV/STI testing; abstinence-only interventions in sexual health; preventing violence and substance abuse; and the positive sexual health of teenagers (Denford et al., 2017; Markham et al., 2014; Marseille et al. 2018; Shackleton et al., 2016;). Many studies suggest that school-based sex education (CSE, AOE, or AP) could be a way to reduce teen pregnancy and STIs; increase condom

use; and reduce sex without contraceptives (Denford et al., 2017; Markham et al., 2014; Marseille et al., 2018; Lopez et al., 2016;). There is a need for more practical school sex education to prevent STIs and unwanted pregnancies (Lee et al., 2018).

Markham et al. (2014) studies three types of school-based sex education programs including comprehensive sex education (CSE), abstinence plus education (AP), and abstinence only education (AOE) among ages 10-18 years old in the United States. School-based interventions targeting sexual acts help the design, content, and create effective sexual health programs (Denford et al., 2017; Mturi & Bechuke, 2019). While there is barriers for sexual health, these were more in line with a lack of access to sex education and sex education that was incomprehensive (Ezenwaka et al., 2020). Ezenwaka et al. (2020) discusses the critical role of CSE with appropriate information and teaching students to accept personalities and presences to enhance sexual health (Ezenwaka et al., 2020).

Researchers complete research on three types of school based sex education programs, including comprehensive sex education (CSE), abstinence plus education (AP), and abstinence only education (AOE). While there is a deficiency of research on the effectiveness of each in the middle school population, the literature presented focused on youth, ages 10-18 years old, in the United States while. Markham et al., (2014) found that both AOE and CSE sex education delayed intentional sexual intercourse and reduced other sexual behaviors the year following the study. However, both programs delayed sexual intercourse until the 10th grade, yet results are not sustained with oral or vaginal sex (Markham et al., 2014). Markham et al. (2014), suggest that additional high school

sex education could be needed for reeducating other sexual risk behaviors sex (Markham et al., 2014).

Hoofer and Hoofer (2017) suggested that CSE is needs to give students responsibilities of their sexual conduct that was medically accurate and did increase stereotypes for different groups of people. Fox et al. (2019) found that the millions of dollars that were spent on AOE did not affect adolescent birth rates. Yet, the conservative states that were the most effective by adolescent birthrates showed more responsive changes to funding for sex education (Fox et al., 2019). However, this study did not look at middle school data.

Denford et al. (2017) completes a systematic review of school based sex education programs, this review includes both middle and high school programs, therefore results are combined (Denford et al., 2017). Results suggests that targeting risky sexual behaviors could be effective. Also, effective programs had specific features that included not focusing on abstinence and including education on condoms (Denford et al., 2017). Mturi & Bechuke, (2019) focus on who students, teachers, and school principals relates to sex education in South Africa. Mturi & Bechuke (2019) studies what increased or decreased the effectiveness of sex education (Mturi & Bechuke, 2019). Thus, it is recommended that sex education started earlier and include appropriate age specific topic on sexual matter (Mturi & Bechuke, 2019). However, the relationship between policy and middle school sexual behaviors is not studied.

Including school policy changes, parent involvement, and work with local communities that are active in reducing teenage pregnancies can be helpful in reducing

negative consequences of teen sexual outcomes (Shackleton et al., 2016). Schools are important in educating students, including sexual health. Depending on state law, school boards could decide specific school policy (NCSL, 2020). The type of program implemented to be most effective in building healthy sexual behaviors among middle school students was in question.

AOE and AP Education

AOE is a form of sex education that teaches abstinence from sexual activity until marriage (SSA, 2019). Furthermore, AOE must be medically accurate, age-appropriate, based on learning theories, and culturally appropriate. In AOE, waiting to have sex until marriages to avoid risk behaviors are taught (SSA, 2019). AOE includes tactics that involved attending to scaring individuals not to have sex. An example of the scare tactic includes showing pictures of individuals who have STIs (Astle et al., 2021). AOE is widely implemented across the United States (Hoefer & Hoefer, 2017). Evidence suggests that AOE and Abstinence -plus (AP) education was less effective in preventing pregnancy and sexually transmitted infections compared to CSE (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011; Yakubu et al., 2019). In addition, AOE interventions, programs that did not teach comprehensive skills, were not effective in promoting behaviors such as preventing adolescents birth rates and reducing sex and heterosexist stereotypes (Hoefer & Hoefer, 2017; Fox et al., 2018).

When comparing AOE to CSE, the former is ineffective or even harmful when looking at risky sexual behavior, including teen pregnancy (Stanger-Hall & Hall, 2011). The data for the current sexual risk avoidance education (SARE) or AOE curricula

suggests no statistical difference in non-safe behaviors such as not using a condom and early sexual initiation (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). AOE does not reflect students' experience; thus, it is suggested that the curriculum needs to be updated to reflect students' experiences. Therefore, focusing on safe sexual activity could be more useful for today's youth (Astle et al., 2021: Kahan & Halpern, 2018).

Abstinence-plus education is a program that promotes abstinence as the safest possibility, yet also includes education on pregnancy, HIV, STIs, and contraceptives (Williams et al., 2016). Abstinence-plus education has affected students' levels of abstinent sexual attitudes, social norms, self-efficacy, decision-making, or self-efficacy in a positive way (Williams et al., 2016). Abstinence-plus education could be more effective than AOE with delaying initiation of sex and increasing condom and contraceptive (Kirby, 2001). Depending on state law, school boards has decided specific school policy (ncsl.org, 2020). Data suggests that personal views of administrators, and state officials and topics such as homosexuality and abortion affected what type of curriculum can be taught within schools (AOE, CSE, of AP) (Gill, 2015).

Few studies supported that AOE suggest positive results when looking at sexual health; for example, the following parts of sexual health were found to increase with AOE in specific studies: sex attitudes, condom attitudes, self-efficacy, ethnicity, age, gender, and technology (Chokprajakchad et al., 2020; Shepherd et al., 2017; Smith et al., 2017). Supporting norms of sexual abstinence could be increased by using technology, parent support, and teaching both student and parent in the community about sexual

health (Chokprajakchad et al., 2020; Wakefiled, 2019).The positive results of AOE are limited, and mixed results are seen throughout the literature; however, parent support is necessary when positive results were shown (Wakefiled, 2019). AOE's other variables that have shown positive effects include students' abstinent sexual attitudes, self-efficacy, and social norms (Williams et al., 2016).

Eighty-four percent of American women and 90%of American males (Ages 14-44) engaged in premarital sex (Hoefer & Hoefer, 2017; Stanger-Hall & Hall. 2011). Furthermore, 4.9-10.3%of 6th, 7th, or 8th graders surveyed in the United States reported having sex (e.g., oral, anal, and vaginal) (Centers for Disease and Control [CDC], 2017). One billion dollars was spent on Abstinence-only curricula; however, limited positive outcomes are available. Data suggest AOE does not reduce the change of teen pregnancy or sexually transmitted infections (Santiago-Tyler, 2019; Stanger-Hall & Hall, 2011; Yakubu et al., 2019).

CSE

AOE has either negative or ineffective impact on sexual health behaviors (Birch et al., 2017; Burns, 2016; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011;). However, results on sexual behavior differed with comprehensive sex education (CSE). CSE is defined as a sex education approach that gives individuals the skills, knowledge, and attitudes to help young people understand and enjoy sexuality and enjoy healthy relationships (Guttmacher, 2020).

Key differences for AOE and CSE include different topics and the frame in which the curricula were meant to be taught. For example, AOE is designed to be conducted

within the context of marriage and using a "scare" tactic that can be expected (Astle et al., 2021; SSA,, 2019). However, CSE does not designate a time or context for sexual activity but refers to a healthy relationship with boundaries and the difference between sexual intercourse and emotional feelings (Guttmacher, 2020).

CSE covers different topics that include biological, emotional, and social aspects of sexuality (Adjei et al., 2017; Adong, & Mphil, 2018;, 2018; Guttmacher, 2020; Miedema et al., 2020;). In addition, CSE includes topics such as sexual rights, pleasure, relationships, abortion, contraceptives, STI prevention, inform young people of their rights and improving public health outcomes (Adjei et al., 2017; Adong, & Mphil,, 2018; Miedema et al., 2020). CSE includes education on young people's rights, positive sexual relationships, sexual and reproductive health, and gender equality (Guttmacher, 2020; Miedema et al., 2020; Santiago-Tyler, 2019).

CSE has a global perspective outside of the U.S. and was shown to be effective in poorer countries with higher rates of STI and unintended pregnancy (Keogh et al., 2018). Furthermore, international data suggest that CSE could be useful in reducing teen pregnancy and increase condom use and dual contraceptive use (Green et al., 2019; Lee et al., 2019). In countries outside the U.S., youth, ages 10-14-years-old, have shown positive responses to CSE including improvement in reproductive health knowledge, delay of sexual intercourse and improved sexual health related skills (Kemigisha et al., 2019). Government funding, political support, and implementation could be necessary for the long-term growth of CSE in other counties (Keogh et al., 2018), yet the challenges with sex education are similar in the U.S.

In the U.S., similar results are found. CSE demonstrates the ability to decrease teen pregnancy and delay initiation into sex. For instance, out of 1,719 adolescents surveyed, 66%who received CSE had a lower risk for pregnancy (Burns, 2016: Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011; Yakubu et al., 2019;). In addition, CSE is associated with a lower teen pregnancy rate when compared to AOE and AP health education state policies (Stanger-Hall & Hall, 2011; Rabbitte & Enriquez, 2019; Yakubu et al., 2019).

CSE has positive effects on sexual behaviors/outcomes and not increase negative sexual behaviors/outcomes. The behaviors and outcomes include frequency of sexual activity; the number of sex partners; frequency of unprotected sexual activity; use of protection (condoms and hormonal contraception); unintended pregnancy; STIs, increase safe behaviors with sexuality, prevent child sexual abuse, positive relationships, safe sexual practices, gender equality, and youth rights (Burns, 2016; Chin et al., 2012; Jeffries et al., 2010; Miedema et al., 2010; Schneider & Hirsch, 2020; Yakubu et al., 2019). In addition, researchers suggest that CSE improves self-esteem and the construction of self-efficacy, knowledge, and attitudes about condom use for the student. Therefore, someone who learns from CSE is more likely to delay sexual acts, avoid teenage pregnancies, take voluntary HIV antibody tests, and tend to practice safer sexual practice to prevent STIs/STDs (Adjei et al., 2017; Boti et al., 2019; Burns, 2016; Leung et al., 2019; Salas, 2019; Yakubu et al., 2019;).

Data suggest CSE could increase sexual abstinence and prevent unintended pregnancy, furthermore, researchers found AOE to be insufficient (Burns, 2016; Kahn

and Halpern, 2018; Yakabu et al., 2019;;). More recent research on CSE reveals that the need for services that are available to youth and school environments that allow CSE to impact the sexual health of students in positive way. (Vanwesenbeeck, 2019). Other countries are encouraged to follow the guidelines but not required. Herat et al. (2018) suggest that now more than ever children need information that will help them transition into adulthood, suggesting the need for CSE.

Erickson and Weed (2019) said out of 103 schools studied that implement CSE, six studies show evidence for effectiveness, which is defined as using condoms and preventing pregnancy for at least 12 months after the study. Further research should look at the results for reexamining the evidence for school-based CSE (Erickson & Weed, 2019). Research suggests that only 20%of middle school students receive all 16 essential topics for comprehensive health education (Fox et al., 2019). Though there is a vast amount of research on the effectiveness of the CSE program, research suggest more evaluations of programs are needed for the implementation of best practice (Adjei et al., 2017; Astle et al., 2021; Birch et al., 2017; Adong, & Mphil,, 2018; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011; Yakubu et al., 2019;). Therefore, a vast amount of research suggests that CSE can be an effective form of sexual education. However, more research is needed to generalize to other populations, such as middle school students.

Government support and policy do not necessarily follow best practices. Research also suggests that patterns of sexual health start from adolescence to early adulthood. CSE could be the way to improve sexual health (Kahn & Halpern, 2018). Globally young

people express frustration about the lack of information on sexuality and sexual behavior (Kantor & Lindberg, 2020). However, general guidance provides a more robust framework for developing and measuring sex education, suggesting areas that can be improved to serve youth better (Kantor & Lindberg, 2019). Therefore, a logical conclusion for research around policy for middle school sexual health was to see what was the best type of sex education that is most effective at reducing the number of partners and increasing condom use during this critical part of life in 6th, 7th, and 8th grade (Kahn & Halpern, 2018).

Middle School Sex Education

Between 47-50% of high school students and 17-20% of middle school students in the United States depending on the state received instruction on all 16 topics for CSE suggest from the CDC, yet data suggest that middle school students may not be getting the information they need for sexual health (Kamara et al., 2020; Pavelová et al., 2021; Rabbitte & Enriquez, 2019; Scull et al., 2018; Sumida et al., 2018). Therefore, further research could have increased understanding of how middle school sex education programs affect condom use and sexual intercourse for 6th, 7th, and 8th-grade students. Past research recommend that more research was needed to support effective sex education at a middle school level to see what effects condom use and sexual intercourse rates based on specific state data with different state policies related to sexual health requirements.

Researchers observe middle school health education effectiveness in preventing risky sexual behavior. Sexual behaviors tend to increase during the middle school years

for both boys and girls (Bogani et al., 2015; Yeo et al., 2019;) and researchers found the importance of educating about sex and risk reduction prior to the onset of sexual behavior (Markham et al., 2014) Borgani et al. (2015) suggest that 6th, 7th, and 8th grade can be a sufficient time (or age) to improve sexual health behaviors and outcomes for the future. Data suggests that middle school programs can have short and long-term effects on sexual risk behaviors (Bartlett et al., 2018; Bogani et al., 2015: Markham et al., 2014; Piotrowski & Hedeker, 2016; Scull et al., 2018; Scull et al., 2018; Yeo et al., 2019). For instance, meta-analyses on middle school sex education suggest CSE could delay initiation of sexual intercourse (Markham et al., 2014; Piotrowski & Hedeker, 2016;). Also, behaviors such as oral, vaginal, and anal sex are reduced after the study (Markham et al., 2014). In addition, researchers conducted a large-scale study on a range of middle schools for effectiveness of sex education programs (Piotrowski & Hedeker, 2016; Rohrbach et al., 2018; Scull et al., 2018). Some groups in the study receive CSE and others receive AOE did not, yet the focus is on the participants beliefs, behaviors, and knowledge towards sexual education. Results suggest that the belief about the importance of abstinence, reasons for not having sex, perceived friends about delaying teen sex, and ability to refuse risky situations were critical for improving results of CSE (Piotrowski & Hedeker, 2016; Rohrbach et al., 2018; Scull et al., 2018). While data suggest that CSE middle school programs can have a short and long-term effect on risk behaviors and outcomes such as teen pregnancy, STI reeducation, and multiple partners, schools can be forced to choose a different type of sex education based on state policy (Bartlett et al.,

2018; Heart et al,. 2018; LeCroy et al., 2018; Piotrowski & Hedeker, 2016; Rodrigues et al., 2018; Rohrbach et al., 2018Vasilenko et al., 2019;).

A logical argument is made for CSE because of the policies that reflected the current population's current needs with teaching about contraceptives, healthy relationships, and STI's (Sumida et al., 2018). Evidence suggests that CSE can help reduce sexual behaviors, however, some research was contradictory on the type of program (CSE or AOE) most effective in reducing sexual behaviors for middle-school-age children (Jeynes, 2020 Scull et al., 2018; Markham et al., 2014;). For example, meta-analyses indicated programs for middle-school-age children on risk avoidance, risk reduction, and AOE have shown favorable results with delaying sexual behavior (Jeynes, 2020; Markham et al., 2014). Studies finding favorable conditions for AOE to be effective including a control group in the methodology. Also, researchers found that studies that show positive results, such as abstinence, had other variables influencing the outcome, such as participants having an influential figure such as a parent or peer. Jeynes (2020) studied 16,960 students and found positive AOE results in participants who are 11 years old. Results suggest a relationship between AOE programs and sexual behavior and coexisting attitudes, including a more positive outlook on not having sex before marriage (Jeynes, 2020).

Some sexual health statistics have decreased over time. Data suggests that rates of unintended pregnancies for high schools' students dropped since 1991, yet the U.S was still higher than similarly developed countries (Martinez & Abma, 2020). For example, when comparing countries with comparable data, the U.S had more pregnancies per 1000

people, among 15-19 year-olds, than any other country (Martinez & Abma, 2020). Reports suggest that in the U.S between 2015-2017, 42%of never-married female teenagers and 38%of never-married male teenagers had sexual intercourse (Martinez & Abma, 2020). Therefore, with the data showing that young people were having sex, studying how policy influences sex education and health behaviors such as number of partners and condom use were logical.

Number of Sexual Partners

Individuals who have multiple sex partners before age 15 or have multiple sex partners are associated with worse health outcomes in adolescence and adulthood and the risk increase when condoms are not used correctly and consistently (Bogani et al., 2015; ; Heart et al., 2018; Nambalirwa & Luyonde, 2018; Sayegh et al., 2012; Nambalirwa & Luyonde, 2018). Factors that impact sexual activity can be both intrinsic and extrinsic; intrinsic factors included self-desire; extrinsic factors include economic challenges; indecent media and content; wanting to belong in a social group; and social activities (Adong, & Mphil,, 2018).

Many individuals have one or more partners during adolescents. Many factors can encourage sexual activity for adolescents, including lack of parental monitoring, family changes, parental education, communication, and access to information (Butts et al., 2018; ; Campus, 2018; Rodrigues et al., 2018; Santos et al., 2020). Limiting the number of sexual partners and increasing condom use rates is a way to prevent adverse health outcomes (Zhao et al., 2016). However, other actions, such as sexting, are related to sexual intercourse with multiple partners, particularly for individuals 16 years of age

(Field, 2018). Furthermore, the link between sexual experiences and oral sex is found. Individuals who have sex for the first time before 18 years old are more likely to report having oral sex, therefore were more likely to have more than one sexual partner in the last 12 months (Holway & Hernandez, 2018). While there is a plethora of data around older adolescents (e.g., high schoolers), there is limited data around middle school students specifically.

The CDC (2017) found 4.7-15% of middle school students surveyed from different states had sexual intercourse and 1.3-4.3% had sex with three or more people. Therefore, middle school students engaging in sexual activity are at risk of adverse health outcomes during adolescence and adulthood, including STIs and teen pregnancy. For instance, data suggest multiple sex partners and substance abuse are associated with an increased risk of STIs and teen pregnancy, thus a reason related to completing research on a topic relates to middle school students (CDC, 2017). Heart et al. (2018) recommended that curriculum-based CSE can reduce the number of sexual partners a person has, while AOE is found to be ineffective in preventing multiple partners (Heart et al., 2018). Research supports CSE as a way to prevent and protect young people from having multiple sex partners (Adong, & Mphil,, 2018; Heart et al., 2018).

Condom Use

Self-efficacy, perceived control, and attitudes towards condom services are critical (Espada et al., 2015). Furthermore, positive attitudes towards condoms should be promoted in sex education programs to increase condom use, which, in turn, was found to be effective in reducing negative health behaviors like STI's and unintended pregnancy

(Espada et al., 2015). Condom use is an effective way to prevent STIs. Condom use, compared to other contraceptives, can be an effective way to prevents STIs and unintended pregnancy (Krugu et al., 2016; Mola et al., 2016). However, with post-partum teenagers STI rates have risen with the rise of permanent contraceptives such as birth control pills that effectively prevent pregnancy, yet not STIs. Chlamydia, gonorrhea, and primary and secondary syphilis increased in both male and female teenagers from 2012 to 2016, that are related with the increase on permeant contraceptives. Condoms can be effective for preventing STIs and STDs (Kortsmit et al., 2018). Condom use for oral sexual activity can be low, but risk include contracting syphilis, gonorrhea, chlamydia, and HIV (Holway & Hernandez, 2018).

An argument could be made that not allowing teens to use condoms could be considered unconstitutional; however, with AOE, teen's will not learn about contraceptives (Rowe, 2020). The World Health Organization (WHO) (date) claims that contraceptives are needed as a critical part of CSE for young people, yet there is many barriers to accessing them. Legal barriers could be an issue when attempting to get contraceptives for some individuals. Other barriers for condom use could be the level of parental involvement, lack of knowledge, drug use, and sexting (Field, 2018; Eversole et al., 2017; Guilamo-Ramos et al., 2018; Heart et al., 2018; Mola et al., 2016).

While there are barriers to condom use, personal attitudes, normative beliefs, behavioral control, family communication, and education are found to be effective constructs when promoting condom use (Bartlett et al., 2018; Guilamo-Ramos et al., 2018; Holway & Hernandez, 2018; Krugu et al., 2016; ; Scull et al., 2018; Shegog et al.,

2017). Specific examples are social norms like religious views Bartlett et al., 2018; Guilamo-Ramos et al., 2018; Holway & Hernandez, 2018; Krugu et al., 2016; ; Scull et al., 2018; Shegog et al., 2017). Other factors that are increased condom use include negotiation skills, communication skills, problem-solving skills, self-efficacy, and decision-making skills (Bartlett et al., 2018; Krugu et al.; Shegog et al., 2017). Condom use is correlated with sexual health issues but not necessarily used with middle school students.

Although multiple sex partners and condom use are not correlated, proper condom use has reduced adverse health risks, such as STIs and unplanned pregnancies (CDC, 2017; Heart et al., 2018; Holway & Hernandez, 2018; Shegog et al., 2017). Adolescence is a time for both sexual development, initiation, and exploration (Eversole et al., 2017). Data suggests that 43-56%of middle school students surveyed in the Youth Risk Behavior Surveillance Survey (YRBSS) does not use a condom during the last sexual intercourse (CDC, 2017). Heart et al. (2018) recommends that young people avoid sexual intercourse or use a condom correctly every time they attempt HIV and STIs (Heart et al., 2018). The consequences of adolescents having unprotected sexual intercourse affects their families and communities (Sayegh et al., 2012). Several different specific programs have shown to be effective with reducing some behaviors.

Middle school students have sex with multiple partners without using a condom (CDC, 2017). Studies that represent thousands of 6th- 8th-grade students and urban public schools in California suggested that this time frame could be a critical time for intervention (De Rosa et al., 2010). Data indicated that oral sex, intercourse, and multiple

partners could address before and during middle school (De Rosa et al., 2010). Due to the results suggesting 9%of middle school students surveyed are having sexual intercourse, 69%of these students reported using a condom during their last sexual intercourse, and 43%reported having more than one sexual partner (De Rosa et al., 2010).

A program that was found effective for increasing action planning of condom use in 12-14 year-olds includes targeting the behavior change process such as culturally specific programs, self-efficacy, social norms, attitudes, and action planning (Bartlett et al., 2018; Butts et al., 2018; Espada et al., 2015; LeCroy et al., 2018 et al.,; Mmbaga et al., 2017; Scull et al., 2018; Shegog et al., 2017:).

Research also documents that gender specific programs on condom use are useful for adolescents (LeCroy et al., 2018). If a sex education program for early adolescent females can help reduce indicators related to sexual health, then data suggest in can be effective in promoting condom use, thus both school and community is used to successfully implement sexual risk reduction programs (LeCroy et al., 2018). Variables researched includes condom technical skill, condom self-efficacy, STD knowledge, self-assertive behaviors (LeCroy et al., 2018). Although research exist related to condom use in middle school students, little research is published on how sex education policy affects condom use of middle school students. Research documents the relationship between policy related to teaching about condoms and high school student's behaviors. However, little research exists related to policy and 6th, 7th, and 8th-grade student's behavior related to sexual education. Therefore, with different factors contributing to if a condom is used or not, it is essential to ensure sex education is reflected with the knowledge

needed at school (Eversole et al., 2017). Furthermore, it was logical with sex education to be able to promote both self-efficacy and condom (Bartlett et al., 2018; Butts et al., 2018; Espada et al., 2015; LeCory et al., 2018; Scull et al., 2018; Shegog et al., 2017;). However, it is unclear if the relationship between self-efficacy and abstinence education could promote some factors related to condom use, thus the need for more research.

Having Sexual Intercourse Before Age 11

There were benefits of delaying sexual intercourse, using contraceptives if they were sexually active, and having a consensual sexual experience (Marseille et al., 2018; Scull et al., 2019;). Having sexual intercourse before age 11 could of lead to adverse health outcomes such as STIs and unintended pregnancy (Scull et al., 2019; Marseille et al., 2018; Lucia et al., 2015). Furthermore, many adolescents having sexual intercourse did not use condoms (46%) (Marseille et al., 2018; Scull et al., 2019;). Sexual intercourse is a normal part of development; however, the early sexual debut could have been defined as risk-taking behavior, thus associated with other risk factors such as engaging in unprotected sex, having multiple sex partners, using substances before sex, experiencing teen pregnancy, and STIs (Scull et al., 2019: Cox et al., 2015; Marseille et al., 2018; Lucia et al., 2015).

Other research showed the possible harm of having sexual intercourse in middle school. For example, data suggest that students in middle school who had sexual intercourse tended not to use a condom (Lucia et al., 2015 Marseille et al., 2018; Rodrigues et al., 2015;). Risk factors relate with early sexual initiation and factors that could inhibit individuals from having sexual intercourse. Data suggests that risk factors

could include age, more outings with friends, previous school retention, drug use, lower parent education levels, and poor mental health (Gazendam et al., 2020; Lucia et al., 2015; Rodrigues et al., 2015; et al., Shegog et al.,2017;).

However, factors that inhibit sexual initiation could be higher academic performance, valuing school achievement, sexual health knowledge, refusal self-efficacy, parent-child communication (Rodrigues et al., 2015; Shegog et al.,2017)

Marseille et al., (2018) conducts a study that understood the need to provide adequate sex education programs for middle school and high school students. However, the systematic review found insufficient evidence of sexual education impacting sexual behaviors (Marseille et al., 2018). Marseille et al., (2018) studies a specific look at sexual initiation and found a statistically significant outcome for this study (Marseille et al., 2018). However, Lucia et al., (2015). suggest that sex education research should be done on the following topics to reduce sexual initiation. Appropriate sex education should have emphasized to parents, school, media, and church to provide unprejudiced information about sex to adolescents; this includes age-appropriate information about sexuality, drugs, and alcohol (Lucia et al., 2015). Although some research relates to sexual initiation, little research discusses the impact of state policy on this specific sexual behavior for middle school, thus requiring more research.

Summary and Conclusions

Middle school students participate in sexual acts in the U.S., including kissing, touching, mutual masturbation, and oral and anal sex (Lerner & Hawkins, 2016). Sexual activity among adolescents, young adolescents, and middle adolescents leads to

consequences such as STIs and unintended pregnancy (Lerner & Hawkins, 2016; Zhao et al., 2016). sex education can reduce STIs as well as unintended pregnancy, sexual initiation, and multiple partners (Lerner & Hawkins, 2016; Zhao et al., 2016). However, what can be covered in sex education classrooms varies from state to state. Federal funding follows policy, and the current administration agendas can dictate policy. Policies can dictate what is taught due to the government's ability to provide funding (Guttmacher Institute, 2017; Shemesh et al., 2018). Policies dictates if sex education curricula can involve AOE and CSE. CSE leads to more positive effects on populations compared to AOE (Baker et al., 2015; Carr & Packham, 2017; Fox et al., 2019; Guttmacher Institute, 2017; Rowe, 2020;). However, there was a lack of data regarding specific comparisons between middle school health behaviors involving condom use, sexual initiation age, and multiple partners, thus the need for further research. Therefore,; a quantitative approach was used. Chapter 3 includes details about statical analysis and methods in order to provide answers to the research questions.

Chapter 3: Research Methods

Quantitative methods were used to analyze state policies on sexual health curriculum. Data from state policies on sexual health were compared with statistics involving condom use, number of partners, and age of first sexual intercourse (sixth, seventh, or eighth grade) using the YRBSS. Thus, the current study added to the current body involving associations between sex education policy and these variables. Quantitative data were used from the YBRSS related to middle school students' sexual behaviors and state sexual education policies.

Chapter 3 includes the research design and rationale, methodology, procedures, data analysis plan, threats to validity, and a summary.

Research Design and Rationale

The variables in this study were types of sex education policy (AOE, AP, CSE) and rates of sexual health behaviors via the YRBSS. The independent variable was state sex education policy, and the dependent variables were rates of condom use, age of first sexual intercourse, and number of sexual partners for sixth, seventh, and eighth graders in Maine, Delaware, and New Mexico. I used the 2019 dataset because it was the most current data available. By defining different state policies, I determine what impact, if any, state sex education policies were having on sexual behaviors of middle school students. There is a deficit of research on effects of sex education policies in middle schools. The current design choice was used to address how policies affect sex education among middle school students. I used Chi-Square analysis to see if state policies were significant or insignificant in terms of impacting these behaviors.

According to McHugh (2013), the Chi-Square test is practical when variables are categorical. Number of sexual partners was categorical because of limited numbers of choices on the YRBSS survey that participants could respond to based on answer choices one, two, three, four, five, or six or more. Therefore, each letter was clearly defined with a specific answer choice.

The research design involved comparing different sex education policies and their associations with health behaviors using Pearson's chi-square. Secondary data were used for the current study from different states. AOE includes mandates teaching that abstinence is the only way to prevent pregnancy and STIs/STDs (SSA, 2019). AP education involves strongly encouraging abstinence. However, it allows teaching about contraceptives in the context of marriage (Kirby, 2001). CSE involves promoting abstinence as well as teaching contraceptives in the context of protection and not necessarily pregnancy prevention or marriage, as well as teaching gender identity and acceptance (Guttmacher, 2020).

The different states that were compared were Delaware, Maine, and New Mexico. Each of these states had students answer all four sexual health questions included on the YRBSS. Each of these states had different types of sex education policies.

New Mexico

New Mexico Administrative Codes §§ 6.12.2.10, 6.29.6.8, and 22-13-1.1.1 mandate sexual education; this includes the ability to demonstrate refusal skills, overcome peer pressure, and use decision-making skills(SIECUS, 2020d). However, New Mexico's sex education policies stress abstinence and include teaching students about

contraceptives (CDC, 2017d; SIECUS, 2020d). However, the law did regulate HIV prevention (CDC, 2017d). Furthermore, the policy mandates teaching ways to prevent HIV, but the law has no standard to be medically accurate (SIECUS, 2020d). The policy does not mention anything related to medical accuracy or consent. The state policy was AOE (SIECUS, 2020d).

Maine

Maine's laws related to sex education were Title 22 from 1902 and 1910; these laws mandate state curriculum that is AP (SIECUS, 2020c). Maine's laws mandate that curriculum must include information about abstinence, healthy relationships, contraception, family planning, STDS, affirmative consent, and conflict resolution (SIECUS, 2020c). Maine's sex education policies require both HIV and STD prevention as well as teaching about contraceptives, and abstinence is emphasized (CDC, 2017c ; SIECUS, 2020c). The policies mandate that information needs to be medically accurate (SIECUS, 2020c). Since contraceptives and abstinence must be taught, this policy could be considered AP.

Delaware

Delaware Administrative Code Title 14, § 851 mandates sex education as part of K-12 health education in Delaware (SIECUS, 2020a). Delaware's sex education policy mandates students must have CSE. The law requires both HIV and STD prevention but stresses the benefits of abstinence in terms of avoiding high-risk behaviors. However, contraceptives are not required in Delaware's law (CDC, 2017a). The policy did not

mention gender identity nor a standard to remove students out of sexual health class. The policy did not have a standard for medical accuracy.

Methodology

I used secondary data from the YRBSS and state policy information. Information from the YRBSS was collected via surveys at schools around the country in different states. Samples were selected using procedure coding system (PCS) sampling in order to analyze a cluster sample of classes and schools that were selected during the first sampling stage with student populations that were proportional in terms of enrollment sizes. However, times and classes in which students take the survey are random (Brener et al., 2013; Underwood et al., 2020). All students who were in the sample class were allowed to participate. Schools could use either sample class sampling or multiple school sampling when administering the survey (Brener et al., 2013). Multiple schools within the same district were chosen to participate in survey. This approach was most useful with larger numbers of schools in school districts with 50 or more schools. For a multiple class surveys, multiple surveys were conducted with different classes in the same school. The number of classes needed for one survey was multiplied by number of surveys, and then classes were assigned randomly to each survey that was already taken for that particular school (Brener et al., 2013). A three-stage cluster design was used to create a national representation of students in order to ensure different population were represented in the survey.

Priority Population

The target population included middle school students in 6th, 7th, and 8th grades who completed the YRBSS, based on the most recent data from 2019. The population that was studied were the individuals who completed the survey most recently in their states. The population studied included students in 6th, 7th, and 8th grades in the states that have middle school YRBSS data within the United States. For parent's consent, schools had a choice in active and passive permission. Schools could have picked the type of consent use; parents of students could opt into the survey or opt-out; thus, this could affect the data depending on the percent of students surveyed, therefore we do not know how and if the data were impacted (Brener et al., 2013). Prior to survey administration, each school was given an administrative script to provide to participating students. This ensured students received the same information related to taking the survey (Brener et al., 2013). Specific data for 6th, 7th, and 8th-grade students were only available for specific states. Therefore, the state had to have completed the YRBSS between the appropriate times related to the policy. The state policies around sexual health in public schools will be retrieved from laws written to govern states. Data were available via download on the CDC website. The other data source was state policy from state law codes; this could have been accessed via state legislature websites. This represented the best data to see if the type of policy based on research-based definition.

Sampling and Sampling Procedures

The YRBSS uses a two-range cluster sample design to represent students in each specific grade for their levels, territorial, tribal, and large urban school district that was

proportional to school enrollment size (Underwood et al., 2020). In the first sampling stage, in the second sampling state, specific classes were selected to participate in the sampling (Underwood et al., 2020).

Samples were selected using PCS system. The school were selected for the first sampling stage with a student population proportional to the enrollment sizes. The period in which students take the survey was random (Brener et al., 2013). All students who were in the sample class were allowed to participate (Brener et al., 2013). Schools use one of two methods for sampling: multiple class sampling or multiple school sampling. For multiple school samples, the number of surveys needed for one survey multiplied by the amount of survey being coordinated; therefore, there no overlap with sample schools (Brener et al., 2013). This approach was most useful with more than 50 schools. Therefore, the success of one survey does not depend on another. In multiple class surveys, multiple surveys were being conducted between classes for the same grade level in the same school. The number of classes needed for one survey was multiplied by the number of surveys, and then the class was assigned randomly to each survey (Brener et al., 2013). Therefore, this approach was functional was the states when the coordinates could work closely together. The CDC's IRB created protocols for the survey. Protocol ensure that student's privacy was protected by allowing anonymous and voluntary participation (Underwood et al., 2020).

Instrumentation

Different types of sexual education were defined as a categorical variable. Rankings were derided based on leading expert's definitions of the different types of sex education.

To increase reliability for the current study, both CDC and SIECUS analysis of state policy were used to verify rankings of what type of sex education state policy each state had at the time of the YRBSS survey administration. Therefore, both reliability and validity were checked to reduce researcher bias.

Abstinence-only education (AOE) was defined as a form of sex education that teaches abstinence from sexual activity until marriage (SSA.gov, 2019). Furthermore, AOE must be medically accurate, age-appropriate, based on learning theories, and culturally appropriate. In AOE, waiting to have sex until marriages to avoid risk behaviors was taught. (SSA,, 2019).

Abstinence-plus programs were defined as curricula that encourage only abstinence and comprehensive programs as curricula that emphasize abstinence as the safest behavior. Yet, AP programs also educated on condoms or other forms of contraception for those who do have sex (Kirby, 2001).

CSE was defined as a sex education approach that gives individuals the skills, knowledge, and attitudes to help young people understand and enjoy sexuality and enjoy healthy relationships (Guttmacher, 2020). CSE covers different topics, including biological, emotional, and social aspects of sexuality (Adjei et al., 2017; Adong, & Mphil,, 2018: Guttmacher, 2020; Miedema et al., 2020). In addition, CSE includes sexual

rights, pleasure, relationships, contraceptives, STI prevention, inform young people and their rights, and improving public health outcomes (Adjei et al., 2017; Adong, & Mphil,, 2018; Miedema et al., 2020;). CSE included education on young people's rights, positive sexual relationships, sexual and reproductive health, and gender equality (Guttmacher, 2020: Miedema et al., 2020; Santiago-Tyler, 2019;). The HECAT (Health Education Curriculum Analysis Tools) defines CSE to include topics such as healthy relationship, sexual abstinence, behaviors to prevent or reduce STD and unintended pregnancy, avoiding pressuring other into sexual act, treating others with respect regardless of their sexuality, and using health services to promote health. Specifically, the following definitions were be used to rank sex education policy in the current study. Abstinence-only education mandates teaching abstinences until marriage was the only way to prevent pregnancy and STIs/STDs (SSA, 2019). Abstinence Plus education includes strongly encouraging abstinence until marriage. However, it taught about contraceptives in the context of marriage (Kirby, 2001). CSE was defined as promoting abstinence, teaching contraceptives in the context of protection, not necessarily pregnancy prevention or marriage, teaching gender identity and acceptance (Guttmacher, 2020).

Operational Variables

The data from the YRBSS was used to measure variables such as condom use and number of partners for 6^{th-} 8^{th} graders. Specific questions for the middle school YRBSS include the following. Students were allowed to pick from multiple choice answer listed:

The dependent variables were measured by self-reported data represented by a multiple-answer question. Each question was categorical nominal variable that were

recorded. Have you ever had sexual intercourse? Yes-1, no -0. How old were you when you had sexual intercourse for the first time was another dependent variable that was measured by self-related reported data represented by a multiple answer question? Each question will be a categorical nominal variable recorded as such. I have never had sexual intercourse -1, 8 years old or younger- 2, 9 years old-3,10 years old -4, E. 11 years old-5, 12 years old -6, 13 years old or older-7. The following question measures another dependent variable. How many people have you ever had sexual intercourse? Each question will be a categorical nominal variable that will be recorded as such: I have never had sexual intercourse - 0, 1 people -1, 2 people -2, 3 people -3, 4 people- 4, 5 people -5, 6 or more people -6. The last dependent variable was measured by the following questions, the last time you had sexual intercourse, did you or your partner use a condom? Each question will be a categorical nominal variable that will be recorded as such: I have never had sexual intercourse -0, Yes.-1, No-2. The independent variable will be measured simply by understanding what type of sex education was being taught (CSE, AP, or AOE). The data was compared based on different rates found in the YRBSS compared to the policy of each state the data was collected.

Data Analysis Plan

SPSS version 27 was used to analyze the data. To use a Chi-Square test for goodness of fit, both a categorical variable and observed frequencies were needed (Pallant, 2013). The chi-square test of independence was designed for exploring the relationship between two categorical variables. The process for completing this analysis in SPSS includes completing the chi-square test and interpreting the output. The output

from SPSS presented the observed frequencies from the current data file. The data will present observed N vs. expected N. Following this, the SPSS output will show the discrepancy between expected and observed values showing a statistically significant P. Value (Pallant, 2013). Another output of SPSS that was needed included Persons Chi-Square, this will show a *p* value, which did show if the data is statistically significant. A *p* value of 0.05 or lower will be considered an excellent fit and a statistically significant difference (Pallant, 2013).

The research questions for this study were:

RQ1: What associations exist between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$1: There are no associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a1: There are associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ2: What associations exist between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$2: There are no associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a2: There are associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ3: What associations exist between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

$H_0$3: There are no associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders).

H_a3: There are associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

RQ4: What associations exist between state education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders)?

$H_0$4: There are no associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

H_a4: There are associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

Threats to Validity

Threats to validity included the YRBSS; the survey was created for health professionals, health educators, and policymakers to understand the prevalence of trends over time and evaluate and improve health-related policy (Brener et al., 2013; Underwood et al., 2020). The YRBSS uses schools and large district areas collected data for high school and middle school students annually. The YRBSS was based upon a self-administered survey (Brener et al., 2013; Underwood et al., 2020). The CDC (2013) has conducted two test-retest reliability studies in which there was no statistical difference from how the questions were answered. Although the data is self-reported, the CDC concluded that there was validity for adolescents to report their behaviors based on current literature. For example, studies have identified several ways to identify careless responses, including special designed items response consistency, outlier analysis, response time, and self-reported diligence (Meade & Craig, 2012).

Furthermore, because the YRBSS is anonymous, individuals were more likely to be truthful (Leikes et al., 2012; Yu, 2010). Research showed there were cases of inaccurate self-reported data (Leikes et al., 2012; Yu, 2010). In the current study, a large amount of data from different locations ensured that data were reliable for the behaviors of middle school students (Underwood et al., 2020; Yu, 2010). Furthermore, the YRBSS has done test and retest to ensure both reliability and validity for the data (Underwood et al., 2020). In addition, data has shown some predictability through years of administering the YRBSS survey and collecting data. When looking at weighted vs unweighted data was important to understand that the median could be different. For example, in 2013, the

weighted data median was 2,170 and the unweighted median was 1,767. School response rates ranged from 73 to 100%and overall response rates ranged from 75 to 85 percent (Brener et al., 2013).

Limitations of the YRBSS included self-reported data included only surveying school-age children, grades 6-12. Parent permission procedures were not the same for every school, therefore some schools may survey a different percentage of their student populations, thus not representing the entire population of 6th, 7th, and 8th grade students in that particular school. YRBSS addresses only behaviors that contribute to the leading causes of death, disability, and social problems; however other behaviors influenced health behaviors that were not being studied (Brener et al., 2013); Underwood et al., 2020;. For example, the YRBSS did not look at issues such as access to healthcare; this could impact other issues related to health. Thus, no matter what data is presented around health, it would be beyond this study's scope to find other data points outside of what the YRBSS provides.

Self-reported data can be skewed; thus, behaviors can be under or over-reported. Not all students between the age of 11-17 were in a public school system. While some students may be homeschooled or in private school, not all students in the age group were represented in the YRBSS survey administrations, thus we do not know how that effects the data. Ohio and South Dakota included both public and private schools in their sampling frames; all other states included only public schools (Brener et al., 2013).

Questions on the YRBSS survey were limited, and many sexual health behaviors were not included in the survey. For example, the number of times a student was tested

for an STI/STD was unknown from data. With ranking the type of state sex education policy, research biases can become evident based on the researcher interpretation of what the different types of sex education policy were However, other sources that analyze state sex education policy will be utilized to verify the ranking of each policy.

Ethical Procedures

Walden University had a specific IRB process to ensure ethical procedures were withheld and followed. Secondary data was downloaded as state data; this was confidential because individuals were identified since the data will be declassified, therefore the data was anonymous. Ethical considerations of research included analysis of data to ensure that data was reported in a way that was unbiased and as factual as possible Thus, it was critical to get approval from Walden's IRB, and find ways throughout my analyses to check for research bias. For example, by researching the policy for each state, an analysis was made based on research about this topic to compare other findings (APA, 2017). Furthermore, regardless of notions about personal feelings on the research topic, multiple data points were analyzed to reduce such issues. Walden's IRB Approval process had a four-step process to ensure guidance were present of ethical issues, and the guidance that was present was competed by a series of forms and committee members.

Summary

YRBSS data were used; although data were self-reported, the CDC had conducted research on the instrument that has shown both reliability and validity for this type of data. I used Chi-square analysis to analyze the research questions. I aimed to address if there was statistical significance in terms of relationships of different types of state sex

education policies and specific sexual behaviors. Research biases were addressed by using data from the CDC and SIECUS related to state policies. Also, the IRB process allowed an external review to ensure the study process was ethical.

Chapter 4 includes results of the current study.

Chapter 4: Results

The purpose of this study was to assess quantitative data involving state sex education policies for schools and see if there were association between whether these policies were implemented and sexual health behaviors of sixth, seventh, and eighth grade students. Sexual health behaviors that I focused on included condom use, age of first sexual intercourse, and number of sexual partners. The following research questions were addressed :

RQ1: What associations exist between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$1: There are no associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a1: There are associations between state sex education policies and condom use during sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ2: What associations exist between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders)?

$H_0$2: There are no associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

H_a2: There are associations between state sex education policies and ever having sexual intercourse among middle school students (sixth, seventh, and eighth graders).

RQ3: What associations exist between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

$H_0$3: There are no associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders).

H_a3: There are associations between state sex education policies and having sexual intercourse for the first time before age 11 among middle school students (sixth, seventh, and eighth graders)?

RQ4: What associations exist between state education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders)?

$H_0$4: There are no associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

H_a4: There are associations between state sex education policies and number of sexual partners for middle school students (sixth, seventh, and eighth graders).

Chapter 4 includes an analysis of how YRBSS data were collected, followed by information about statistical analyses. Chapter 4 includes a summary of results and transition to Chapter 5.

Data Collection

Data used for the current study came from the YRBSS, and consists of a total of 13,677 sixth, seventh, and eighth grade students from Delaware, Maine, and New Mexico. Data for the current study were collected during the 2019-2020 school year via anonymous surveys that were given in public and private schools. The response rate of the 2019 YRBSS was 59% (CDC, 2019). Each type of sexual education policy was given a corresponding code to represent the policy that was mandated in each state (AOE = 1, AP = 2, and CSE = 3).

Table 1

Demographic Information of Participants

	Total Sample *N* =11,065	Delaware *N* = 1,091	Maine *N* = 4,780	New Mexico *N* = 4,625
Race, n (%)				
White	5,048 (43.9%)	389 (35.6%)	3,816 (79.8%)	843 (18.2%)
Black or African American	640 (5.6%)	313 (28.6%)	193 (<0.0%)	134 (<0.0%)
Hispanic/Latino	3,437 (30.2%)	237 (21.7 %)	263 (0.1%)	2,974 (65.3%)
All Other Races	1,225 (11.6%)	152 (13.9%)	508 (10.6%)	674 (14.5%)
Gender, n (%)				
Male	5,544 (50.2%)	552 (48.5%)	2,518 (49.3%)	2,442 (50.8%)

Female	5,512 (49.5%)	584 (51.5%)	2,596 (50.7%)	2,364 (49.1%)
Age, n (%)				
10 years old or younger	28 (2.0%)	6 (< 0.0%)	4 (< 0.0%)	18 (<0.0%)
11 years old	1,321 (11.5%)	206 (18.0%)	17 (<0.0%)	1,098 (22.7%)
12 years old	3,434 (29.9%)	329 (28.8%)	1,425 (27.6%)	1,653 (34.2 %)
13 years old	4,575 (39.8%)	445 (38.9%)	2,525 (48.9%)	1,605 (33.2%)
14 years old	1,696 (24.9%)	148 (12.9%)	1,117 (21.6%)	431 (0.8%)
15 years old	64 (6.0%)	7 (<0.0%)	41 (<0.0%)	16 (<0.0%)
16 years old or older	9 (1.0%)	1 (<0.0%)	4 (<0.0%)	4 (<0.0%)

Specific data for this study were from Delaware, Maine, and New Mexico, and the total number of participants was 10,270. Of the total sample, 50.1% were female, and 97.1% of the participants were between 11 and 14 years old. 17% of the sample size was in the sixth grade, 41.5% were in seventh grade, 41.3% were in eighth grade, and 0.1% were upgraded or in another grade. Of the sample, 48% were White, 33.1% were Hispanic/Latino, 6.1% were Black or African American, and 12.7% were other races.

The specific way in which states recruit students to the YRBSS differ depending on districts and schools. However, the data does represent over 11,000 students from different states with a range of different races. The national YRBS survey which included both middle and high school students were designed to represent national statistics. For example, 50.6% of students were male, and 49.4% were female. When looking at race/ethnicity, 51.2% were white followed by , Hispanic (26.1%), Black or African

American (12.2%), and other (10.6%) (CDC, 2019). Therefore, the sample for the current study was similar with white and Hispanic demographics, however, the current study did have a lower number of individuals who identify as Black or African American.

Results

Association Between State Sex Education Policy and Condom Use During Sexual Intercourse

The demographics of the participants are listed in Table 1. At least 10,220 participants completed the condom use question. However, there was not a statistically significant association between condom use and the type of state sex education provided to students, thus confirming the null hypothesis (p=0.098). Overall, there was a high percentage of students who had never had sex among all groups. The following percentages were found for the different types of sex education policy: CSE =94.4%, AP= 95.0%, AOE =93.8% (Table 3). Condom use rates did not differ based on the different type of sex education policy. Crammer's V was found to be 0.020, indicating a small association between variables.

Table 2

Condom Use Stratified by Sex Education Policy

	AOE *N* = 4,175	AP *N* = 4,480	CSE *N* = 990
Never had sex	3,916 (93.8%)	4,033 (95.0 %)	935 (94.4%)
Yes	159 (3.8%)	139 (3.1%)	34 (3.4%)
No	100 (2.4%)	90 (2%)	22 (2.2%)

Association Between State Sex Education Policy and Ever Having Sexual Intercourse

At least 11,493 participants completed the sexual intercourse question. There was a statistically significant difference between ever having sexual intercourse and state sex education (p=0.020). The Crammer's V value was low (0.028) indicating a low association between variables. When looking at the different types of sex education policy, 6.3% of students receiving AOE, 5.0% of students receiving AP, and 6.1% of students receiving CSE reported ever having sexual intercourse (Table 3).

Table 3

Sex Education Policies and Number of Students Who Have Had Sex

	AOE *N* = 4,456	AP *N* = 4,475	CSE *N* = 1,069
Yes	251 (6.3%)	224 (5.0%)	65 (5.7%)
No	4,203 (93.7%)	5,251(95%)	1,004 (94.3%)

Association Between State Sex Education Policy and Having Sexual Intercourse for the First Time Before Age 11

A total of 10,263 participants completed the question asking if they had sex before age 11. There was a statistically significant difference regarding the proportion of students that had sexual intercourse before age 11 and the type of state sex education policy (AOE=6.3%, AP=5.0%, CSE=6.1% P=0.003). (Table 4). Looking at each state sex education policy, the following percentages were the total amount of students who had sex at age 8, 9, and 10 years old (AOE=1.6%, AP=1%, and CSE=1.8%) However, the

association between having sexual intercourse and having sex before age 11 was low according to the Crammer's V Value. (V=.038).

Table 4

Sexual Intercourse Before 11 Years Compared to Sex Education Policies

Sex Ed	AOE	AP	CSE
	N = 4,183	*N* = 4,504	*N* = 1,001
8 years old or younger	29 (0.7%)	27 (0.6%)	9 (0.9%)
9 years old	12 (0.3%)	14 (0.3%)	2 (0.2%)
10 years old	25 (0.6%)	5 (0.1%)	7 (0.7%)
11 years old	29 (0.7%)	18 (0.4%)	6 (0.6%)
12 years old	75 (1.8%)	49 (1.1%)	11 (1.1%)
13 years old	87 (2.1%)	108 (2.3%)	24 (2.4%)

Association Between State Education Policy and Number of Sexual Partners

At total of 10,238 participants completed the question about the number of sexual partners they've had. However, the research was not statistically significant (P=0.468) (Table 2). Thus, confirming the null hypothesis because the P values above 0.05. In addition, data also suggested that AOE had a higher percentage of individuals who had one to six sex partner (3.6%) compared to AP (2.7%) and CSE (3.3%) (Table 5). In addition, The Crammer's V Value was 0.24, thus suggesting a low association between variables.

Table 5

Number of Sex Partners Compared to Different Sex Education Policy

	AOE N=4,172	AP N=4,483	CSE N=998
1 person	150 (3.6%)	121 (2.7%)	33 (3.3%)
2 people	42 (1.0%)	49 (1.1%)	14 (1.4%)
3 people	21 (0.5%)	13 (0.3%)	5 (0.5%)
4 people	13 (0.3%)	9 (0.2%)	4 (0.4%)
5 people	8 (0.2%)	9 (0.2%)	2 (0.2%)
6 or more people	29 (0.7%)	26 (0.6%)	4 (0.4%)
Count	4172	4483	996

Summary

Results of analysis suggest some associations between specific sex health behaviors and state education policies. RQ2 and RQ3 were statistically significant, indicating associations between state sexual education policies and having sexual intercourse before the age of 11.

However, RQ1 and RQ4 were found not to be statistically significant, indicating that there were no associations between condom use, multiple sex partners, and state sexual education policies. Chapter 5 includes interpretations of results and social change implications.

Chapter 5: Discussion, Conclusion, and Recommendations

This study involved using quantitative data from Delaware, Maine, and New Mexico to see if sexual behaviors were affected by different types of sexual education policies (CSE, AP, or AOE) for sixth, seventh, and eighth grade students. The study was conducted to address if one particular sexual education policy led to lower or higher frequency of sexual behaviors. I used the SEM to compare state sex education policies with individual sexual behaviors of this population. YRBSS data were analyzed to make comparisons between sex education policies and individual sexual behaviors.

An association was found between state sexual education policies and students having sexual intercourse before age 11. No associations were found between condom use and number of sexual partners because data were not found to be statistically significant. Results from this study suggest slight differences in terms of rates of condom use based on state sexual education policies that show associations with having sexual intercourse before age 11. AP led to the lowest percent of students who had sexual intercourse (5.0%) compared to CSE (5.7%) and AOE (6.3%).

Data suggests among students who were taught AOE, 6.3% of sixth, seventh, and eighth grade students had sexual intercourse, and 93.7% did not. For those who had AP education, 5.0% had sexual intercourse, and 95% did not. For CSE, 6.1% of students did have sexual intercourse, but 93.9% did not (see Table 5). When adding students who had sex at ages 8, 9, or 10 1.6% were taught AOE, 1% were taught AP, and 1.8% were taught CSE. Data suggests small differences among students who had AP or CSE showing risky behaviors compared to AOE.

Interpretation of Findings

The current data extends knowledge in health education involving how sexual education policies impact health behaviors. AOE could be considered a less effective type of sexual education policy. Data from the current study suggests that AOE may have a negative effect compared to AP and CSE. In addition, in terms of number of students who had sexual intercourse within the different sex educations polices, 6.3% of students whose state policy was AOE has sex , 5.0% of students whose state policy was AP has sex and 5.7% of students whose state who had CSE had sex. Therefore, a larger percentage of students whose state required AOE had sex compared to those who took AP and CSE. Among those who had sexual partners before age 11, those who's state required were more likely to have sex with one to six partners (3.6%) compared to AP (2.7%) and CSE (3.3%) However, there was a lower percentage of students who had sex between the ages of 8 and 11 years old in the AP group (AP = 1.4%, AOE = 2.3%, CSE = 2.4%). Therefore, data from the current study suggests that AP could reduce likelihood of sexual intercourse more effectively between the ages of 8 and 11.

This study also involved looking at specific types of sexual education related to specific state policies. Students receiving AOE are not restraining from sexual intercourse (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). Furthermore, compared to AOE and CSE, AP was not an effective form of sex education, particularly in terms of condom use and age of first sexual initiation (Birch et al., 2017; Fox et al., 2018; Hoefer & Hoefer, 2017; Stanger-Hall & Hall, 2011). However, data from the current study did not suggest AOE is necessarily negative but less effective than

AP or CSE; thus, it cannot be concluded that AOE is causing students to make decisions that impact sexual health in a negative way. If sexual abstinence norm are supported by technology, parents, and community, they were found to positively impact sexual health (Chokprajakchad et al., 2020; Shepherd et al., 2017; Smith et al., 2017)). However, the study suggested data that AOE did not impact sexual behaviors as well as AP or CSE.

CSE is most effective when preventing specific behaviors involving multiple sex partners and increasing condom use (Brener et al., 2013; Green et al., 2019; Lee et al., 2019; Underwood et al., 2020) Data suggests that CSE could be effective because of its comprehensive approach involving teaching students about condom use and consequences of multiple sex partners, which yields better results in terms of healthy sexual life compared to AOE that involves withholding information (Brener et al., 2013; Green et al., 2019; Lee et al., 2019; Underwood et al., 2020). However, there are conflicting results, specifically when looking at current study data. The Current study findings suggested higher percentages of students who were in states with AOE policies were more likely to have more sexual partners and start sex at an earlier age. AOE was not found to impact behaviors compared to AP or CSE in terms of having sex partners before age 11.

AP could be more effective by promoting abstinent sexual attitudes, social norms, self-efficacy, decision-making, and self-efficacy positively (Williams et al., 2016). Data from the study suggests students who receive AP (5%) were less likely to engage in sexual behaviors compared to students who receive CSE (5.7%) or AOE (6.3%). Among those who had sex before age 11, 93.8% of those who took AOE, 95% of those who took

AP, and 94.2% of those who took CSE never had sexual intercourse. Therefore, there was a slightly lower percentage of individuals who had sexual intercourse before age 11 among those who took AP.

Furthermore, results from the current study are similar to former research stating that AP could be more effective than AOE in delaying sexual intercourse and condom use (Kirby, 2001). The current study suggests that when looking at sexual initiation and number of sexual partners, AP was more effective in reducing those behaviors.

CSE was shown to have some impact on sexual behaviors. However, it was not necessarily shown to be the most effective as some past research suggests (Keogh et al., 2018). Previous research advises that CSE has been effective in poorer countries in preventing STIs and unintended pregnancy (Keogh et al., 2018). Research related to CSE was also conducted on children ages 11-14 showed positive results in delaying sexual intercourse (Kemigisha et al., 2019). Furthermore, previous research suggests that CSE decreases teen pregnancy and delayed initiation of sexual behaviors (Burns, 2016; Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011; Yakubu et al., 2019;). However, the current study agreed with current research on its effects compared to AP (Rabbitte & Enriquez, 2019; Stanger-Hall & Hall, 2011Yakubu et al., 2019). An association was found when looking at CSE with the behaviors of initiating sexual activity and multiple sex partners. The current study shows that when looking at starting sexual activity and having multiple sex partners, the state with CSE is slightly less effective than AP thus having a lower number of students never having sex. However, AP has the lowest percent of students who are having sex before the age of 11. Furthermore, when comparing the

results of the current study with sexual initiation the results for each type of sex education were as follows AOE 6.3% of CSE had 5.7% and AP had 5%, thus AP and CSE has lower percentage of students having sex during middle school.

Individuals who have multiple sex partners could be associated with worse health outcomes later in life consistently (Bogani et al., 2015; ; Nambalirwa & Luyonde, 2018; Heart et al., 2018). Middle school students who engage with multiple sex partners are at a higher risk of STIs and teen pregnancy (CDC, 2017). Multiple sex partners did show an association with different types of sexual education, thus agreeing with previous research that includes how intrinsic and extrinsic factors can impact sexual health (Adong, & Mphil,, 2018). Previous research also recommends that CSE could reduce young people from having multiple sex partners (Adong, & Mphil,, 2018; Heart et al., 2018). However, the current study also cannot confirm or deny previous research because of the data related to R4 is found to be not statically significant (P=.468).

Teaching middle school students to use condoms could be a critical time for intervention (De Rosa et al., 2010). Sex education programs that emphasize cultural-specific programs, self-efficacy, social norms, attitudes, and action planning tend to be more effective in promoting condom use (Bartlett et al., 2018; Butts et al., 2018; Espada et al., 2015; LeCroy et al., 2018 et al.; Mmbaga et al., 2017; Scull et al., 2018; Shegog et al., 2017). Lastly, earlier research would promote that condoms should be talked about in sex education because of their ability to prevent STIs/STDS and unintended pregnancy (Bartlett et al., 2018; Butts et al., 2018; Espada et al., 2015; LeCroy et al., 2018 et al.; Mmbaga et al., 2017; Scull et al., 2018; Shegog et al., 2017). However, the current study

cannot confirm or deny these claims because there was no association between sex education policy and condom use for middle school-age children.

There are benefits to delaying sexual intercourse. Using contraceptives and having sexual intercourse before the age of 11 can increase the risk of contracting STIs and having an unintended pregnancy (Marseille et al., 2018; Lucia et al., 2015; Scull et al., 2019). Students need sexual education; however, limited evidence of sexual education impacting sexual initiation exists (Lucia et al., 2015; Marseille et al., 2018;). Many risk factors are associated with early initiation of sexual activity, including performance, sexual initiation, valuing school achievement, sexual health knowledge, refusal of self-efficacy, and parent-child communication (Rodrigues et al., 2015; Shegog et al.,2017). However, the current study shows an association between having sex before age 11 (P=0.003), sexual initiation (P=0.020) and state education policy. The current study suggests that a low or weak association existed between state policy and sexual initiation and having sex before age 11 (V=0.028 and V=0.038).

The SEM furthers research that policies can impact individual behaviors that relates to sexual health. However, the amount of impact could be seen as relatively small due to association statistics and the percent difference in research questions. In previous research, SEM could help to show how outside factors impact sexual health, including contraceptives, social, family norms, and communal factors (Ezenwaka et al., 2020).

Many perspectives are researched within sex education. However, the children's perspective is not considered (Ezenwaka, 2020). Additionally, adverse effects of policy and how it relates to SEM, adolescent birth rates, STI rates, and abortion rates (Fox et al.,

2019; Rabbitte & Enriquez, 2019; Stranger-Hall & Hall, 2011). Earlier research focuses on policy and its effectiveness on individuals and results suggest that SEM could play a role in the implementation of sexual education (Rocha & Duarte, 2015). Other studies have looked at specific sexual behaviors such as barriers to contraceptive services, a framework for using condoms, community stakeholders, and adolescent attitudes (Chunga et al., 2018; Herrman et al., 2017; Heslop et al., 2020; Somefun. 2019). Although these studies did look at SEM, they did not compare SEM to state sexual education policy and the individual level (Chunga et al., 2018; Ezenwaka et al., 2020; Herrman et al., 2017Heslop et al., 2020). Research suggests that there could be an association between sex education and state policy; however, this study did not find a strong association (Marquez & Main, 2021). The association between having sexual intercourse and having sex before age 11 are low (V=0.028 and V=0.038). Therefore, the current study adds to the literature related to SEM by showing an association between policy, sexual initiation, and the number of sexual partners for middle school students.

Limitations of the Study

Limitations of the current study include the amount of data that is used, and the number of participants included in the current study, as only three states are included. Only having three states to include in the data limits the number of participants in the study and limits how the results of the data can be generalized to larger populations such as the entire U.S. Many states do not have middle school sex education data. Furthermore, it is important to understand that the most current data was used but there is a 3-year lag in data availability. Furthermore, not all schools who took the YRBSS

followed the same opting in or opting out procedures, therefore is it possible that the sample size that is in the current study did not include all students in that particular school (Underwood et al., 2020; Brener et al., 2013). Also, the current data has limitations related to sexual health. For example, YRBSS only relates to health behaviors that are the leading causes for death however, other factors could impact sexual health that are not shown, including access to healthcare and socioeconomic status. Other limitations for the current study include the rating of each states sexual health policy. Policies as written by lawmakers may or may not meet the same definition and each school district could have a different interpretation of what the specific policy states. Also, for the behaviors that are studied, there is not data on how long the sex education policy deterred students from risky health behaviors. Other limitations of the study include that the population breakdown does not represent the United States as a whole because populations were taken from specific states with available data. Furthermore, the populations could be impacted by specific religious beliefs, thus impacting sexual choices compared to what sexual education they have had.

Recommendations

Based on the current results more research is needed to see what specific sex education policy is most effective when reducing sexual behaviors. Furthermore, state's sex education policy should be more aligned with AP or CSE compared to state policy needs to be derived from experts and based on research.

States need to collect more anonymous survey information and other sources of data on middle school sexual behaviors so that more research can be done to see the

difference in state sexual education polices. More research is needed on the effectiveness of health education on health behaviors at the state level, especially among middle school students. The study shows some differences between different types of sexual education policies, yet the differences are small.

In addition, comparing the association between states with AOE and states with no sex education policy to see if AOE is increasing risky behaviors. Correspondingly, it is clear that there could be an association between state sexual education policy and sexual behaviors. However, further research could determine why the association between variables is low related to state policy and individual sex behaviors for 6th , 7th and 8th grade students. Furthermore, more research could determine what needs to be done to increase the impact of health education programs that teach sex education. Lastly, further research could help to determine whether other levels of the SEM are more or less critical when delaying sexual behaviors.

Implications

The current study proposes that AOE is not preventing risky sexual health behaviors as well as CSE and AP. Therefore, students who are still receiving AOE could be receiving a type of sex education that is less effective compared to CSE and AP. The current study can add to the body of literature that AOE does not help delay sexual initiation or reduce the number of sexual partners compared to CSE and AP for middle school students. More research is needed to be able to provide a clear definition of what CSE is so that law makers can clearly write what needs to be taught in school districts. Therefore, it is possible for law makers and district officials to make more informed

decisions so that students receive the best curricula possible related to sexual education. The current study uses the SEM model to relate to how policy impacts social change from the policy level to individual level. Therefore, it is in the scope of the current study that sex education policy can impact the individual and behaviors of the individual. Hopefully, this study will impact state choices in health education policies by helping policy makers understand the connection between sexual health policy and students' sexual behaviors and outcomes. For example, if students receive sex education that more resembles AP and CSE that the current data suggest middle school students are less likely to participate in some risky behaviors such as sexual initiation and sex before age 11. Thus, if states approve policies that are supported by research (not political or religious ideology) that are found to be effective, this could impact society in several ways. For instance, if middle school students are not engaging in sexual activity or engaging less, this could reduce the number of STIs and possible teen pregnancies. Therefore, reducing medical cost related and services along with creating individual who are more likely to live healthier lives.

Conclusions

Students need quality sex education. There is a debate for many different reasons related to what type of sex education students should be receiving, specifically around the age of middle school. This current study suggest that sex education can have an impact on sexual behaviors via association with state policy. However, the current research also adds to the debate regarding what types of sex education is more effective for middle school students. This study found that AP and CSE is consistently associated with

delayed risky behaviors such as sex before age 11. Therefore, more research is needed to ensure students are receiving information that will help them live sexual healthy lives. Policies are needed to ensure that all schools within a specific state are following a curriculum that mandates teaching information that will reduce risk behaviors. Furthermore, additional research is also needed to see how state policy related to sex education can impact sexual behaviors among middle school students. Lastly, due to other political and religious ideology AOE could be preferred in some states. Therefore, more research is needed on what could be considered best practice for getting educational and political leadership to understand what curricula best practices in sex education policy for middle school students is.

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