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Legislating the birds and the bees: Evaluating the effectiveness of state sexuality education mandates

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In the United States, laws regarding sexuality education and what that entails vary widely between states. In those states where it is mandated, few require that the information be "medically accurate." These programs usually exist as "abstinence only" or "abstinence plus" models. However, there has been research to indicate that a "comprehensive" sexuality education curriculum may be more effective than an abstinence-based model. While there is substantial literature to indicate that comprehensive sex education is effective in achieving some desired outcomes, much of this literature requires updating and some dependent variables have yet to be studied. This article will examine sexuality education programs by state mandate to determine which model of sexuality education is best for a high school environment, in terms of rates of teen pregnancy, gender-based violence, and STI rates, while controlling for several confounding variables.

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Introduction

In the United States, sex and sexuality education have been a hot topic of debate for decades. The popular film *Mean Girls* pokes fun at this phenomenon in an iconic scene where a gym teacher stands in front of a group of students, pointing to a chalkboard that states, "If you have sex, you *will* get pregnant and die" (2004). In the United States, sex is a taboo topic and many legislators feel that it should be kept out of schools as much as possible. Conservative legislators and communities, in particular, tend to promote a sexuality education curriculum based on abstinence that relies on scaring students into remaining abstinent until marriage (Kantor, 1993).

Brought to the forefront by the "Sex Ed" episode of *Last Week Tonight with John Oliver,* fear tactics surrounding sex and drugs are used in current high school health education classes, which are usually taught by high school physical education teachers (2015). Parents, educators, and legislators push for this system, thinking that it will deter students from engaging in sexual activity, but this is usually not successful, according to Oliver. Talks from speakers like the famous Pam Stenzel, who has written books like "The High Cost of Free Love," are often used in middle and high school sex education programs to teach students about the grave dangers of hookup culture and pre-marital sex (Gray, 2013). However, more recently, questions have risen around whether these fear tactics actually serve their purpose. Researchers, educators, and parents seek to find the best model of sex education for high school aged students in the United States. The three most widely used models of sexuality education are abstinence-only, abstinence-plus, or comprehensive.

Each state sets its own educational policy and has a different mandate regarding sexuality education, if the state government has come to a consensus about sexuality education at all.

According to the National Conference of State Legislatures, twenty-four states, as well as the District of Columbia, require some form of sexuality education in high schools. Twenty states require that their sex education programs be "medically accurate." However, the definition of the term "medically accurate" is not standardized and varies greatly across states ("State Policies on Sex Education in Schools," 2019). Some states such as California and Oregon mandate more comprehensive sexuality education programs that cover gender and sexuality diversity, issues faced by marginalized racial and cultural communities, gender-based violence, and healthy relationships. Other states, such as Indiana, Louisiana, Pennsylvania, South Carolina, and others mandate only education about the transmission of STD/STIs, while others still have no mandate.

This paper analyzes these state mandates by their comprehensiveness compared with that state's ranking in terms of three primary health outcomes, which include teenage pregnancy, STI/STD rates, and rates of gender-based violence among high school aged students. Gender-based violence is the umbrella term used for sexual assault, sexual harassment, stalking, sex trafficking, intimate partner violence, and rape. This term is used because these behaviors are a result of structural gender inequity and these acts are most often committed against women, people who do not identify with the gender binary, and those whose gender expression does not match societal expectations of their gender identity. It is the least studied of the three categories of dependent variables in terms of sexuality education, which is one way that this study expands on existing literature.

Some literature currently exists on comprehensive sexuality education, but there are many gaps in what information is available. Much of the literature is outdated, much of it coming from the mid 1990's. Further, there is limited information on comprehensive sexuality education at the college level, though most of these are not exhaustive and focus primarily on consent

education and gender-based violence, which leaves out students who may be engaging in sexual behaviors before going to college, as well as people who did not attend college at all. I examine the degree to which states mandate comprehensive sexuality education and explore whether having a more comprehensive state level mandate correlates with better outcomes on measures of teen pregnancy, STD/STIs, and gender-based violence. These outcomes may also be a function of other broad societal factors; thus, I control for aspects of political ideology, religiosity, and demographic factors.

In this study, I discover that more work is to be done in the research and implementation of the most effective sexuality education mandates in the United States. For most categories of dependent variables used throughout this paper, the comprehensiveness score does not account for any variation in the dependent variables. In the few cases where the presence of abstinence or comprehensiveness has an effect on these variables, this occurred in conjunction with several sociocultural factors that were controlled for throughout the creation of the regression analyses. However, these data lay the groundwork for more in depth analysis of sexuality education mandates in the future, as it suggests that more work is required for these mandates to be effective in combating these negative outcomes.

Types of Sexuality Education

Abstinence-only and abstinence-plus models of sex education are very similar. Abstinence-only programs typically do not involve discussion about contraceptives and protection against unwanted pregnancy or STD/STIs, as some see this as encouraging students to engage in sex by giving them an option other than abstinence alone. These classes typically use fear tactics to deter sexual activity, utilizing negative portrayals of pregnancy and sexually transmitted infections/diseases (Kantor, 1993). An abstinence-plus model of sexuality education

uses similar tactics but discusses birth control and contraception. These programs can include demonstrations on how to use a condom, resources to be tested for STIs, and other information on how to avoid or repair any harm caused by sexual activity at a young age. The umbrella term "abstinence-based" encompasses both approaches, usually in circles that acknowledge comprehensive sexuality education as an alternative, like Advocates for Youth. There has been a long push for abstinence-plus education, as opposed to abstinence-only, however, and it is surprisingly recent. In 2011, the New York Times reported that schools in Texas would begin teaching abstinence-plus in response to the rising rate of teenage pregnancy, as well as with the help of the Obama administration's dedication to "evidence based" education to combat teenage pregnancy (Smith, 2011).

Some places employ a comprehensive sex education model. While there is not a consensus on the exact curriculum for this model, there has been some agreement regarding what it should include, as comprehensive sexuality education would ideally fill gaps that are left in abstinence-based models. Truly comprehensive sexuality education will go beyond that which is taught in the abstinence-plus model of sex education that is most often employed in the United States. (Willis, 2019; Stanger-Hall et al., 2011; Santelli, 2018; McNeill, 2013; Fine, 2006). The Guttmacher Institute, a sexual rights organization, provides a definition of comprehensive sexuality education and the goals of sexuality education as a whole:

> CSE [Comprehensive Sexuality Education] must help young people to:
> A) Acquire accurate information on sexual and reproductive rights, information to dispel myths, and references to resources and services.
> B) Develop life skills including critical thinking, communication and negotiation, self-development and decision-making; sense of self; confidence; assertiveness; ability to take responsibility; ability to ask questions and seek help; and empathy.
> C) Nurture positive attitudes and values, including open-mindedness, respect for self and others, positive self-worth/esteem, comfort, nonjudgmental attitude, sense of responsibility, and positive attitude toward their sexual and reproductive

health. (A Definition of Comprehensive Sexuality Education)

With these goals in mind, the organization created a list of seven essential components that should appear in a comprehensive sexuality education curriculum. The reasoning behind each of these facets has been backed up by other sociological and feminist scholars and research.

The first of these components is gender. Analyzing gender roles and their relationship to sexual scripts is essential in education that seeks to achieve gender equity within sexual practices (Donais, 2019). This facet also lends itself to combating the heteronormativity and cisnormativity that exist in sex education, which means that students who do not conform to the gender binary and students who belong to the LGBTQ+ community are often left out of the conversation (García, 2009; McNeill, 2013). The Guttmacher Institute asserts that it is important to address different identities in the classroom to help the students see things through an intersectional lens. The term, intersectionality refers to a framework for evaluating social issues while taking into consideration the intersections of different aspects of one's identity (Crenshaw, 1991). Education about intersectionality fosters consideration and awareness of institutional oppression. In combination with other forms of diversity, the Guttmacher Institute asserts that lesson plans should actively take into consideration the diverse needs of LGBTQ+ students, as well as the ways in which our gender identity affects our sexual decision making and experiences.

Sexual and reproductive health are also a component in the Guttmacher framework. This facet would include education about STD/STIs, as well as accurate and unbiased information about HIV. Educators would also be expected to talk to students about being tested for sexually transmitted infections, including resources, treatments, and counseling. This goes beyond the traditional scare tactics by providing them with realistic knowledge and action steps for students who find themselves in this situation.

The Guttmacher Institute also includes sexual rights in their definition. The International Planned Parenthood Federation (IPPF) has written in detail about sexual rights. The IPPF declaration of sexual rights establishes what is known as sexual citizenship. Similar to the United States' constitution, which outlines the rights of United States citizens, the declaration outlines the rights all individuals, of any identity, have relating to sexuality. These rights include the right to participate in sex, as well as the right to refuse sex ("Sexual rights: An IPPF declaration"). This is a stepping stone to conversations in classrooms about sexual consent.

The fourth component of the Guttmacher definition of comprehensive sexuality education is pleasure, as noted by Michelle Fine in her work discovering and examining the benefits of discussing sexual desire in schools (2006). VAWPP and other college level programs leave room for discussions about enthusiastic consent and examine gender and cultural norms that suppress female sexuality. Fine's work outlines the ways in which actively disregarding women's sexual desires perpetuates the harmful gender norm of "token resistance," the harmful phenomenon in which women are believed to say no when they mean yes, based on the implication that women need to be convinced to have sex, while men are expected to want to have sex all the time (Donais, 2019). Discussing sexual pleasure, in combination with gender roles and sexual rights, could combat expectations that lead to harmful sexual behaviors on both ends of the spectrum.

Those harmful sexual behaviors fall under what the Guttmacher Institute constitutes as "violence." Including a discussion about violence in sexuality education allows for there to be education on its prevention. According to the organization, this component would primarily focus on gender-based violence and prevention strategies. These include discussions of sexual assault, dating violence, domestic violence, and other forms of gender-based violence that would

contribute to sexuality education curriculum, as well as discussions of familial violence and violence as a result of bullying and other behaviors exhibited by some high school students.

Comprehensive sexuality education also employs intersectionality in regard to racial and cultural diversity, as it does sexuality and gender. The combination of heteronormativity, sexism, and racism within current sexuality education curricula can be detrimental to female students, students of color, members of the LGBTQ+ community, and students coming from other marginalized communities (García, 2009). The harm caused by these biases in education is heightened for students with more than one marginalized identity (Crenshaw, 1991). That said, it is important to include a racial and cultural diversity component in evaluating the comprehensiveness of any sexuality education mandate in a country as diverse as the United States. This can be done by considering the unique challenges faced by different racial and cultural demographics in lesson plans and accounting for these differences in the classroom by being open with students about the ways in which race and culture affect our everyday experiences, including sexual behavior and health outcomes.

Lastly, the Guttmacher Institute asserts that comprehensive sexuality education would contain education about healthy and unhealthy interpersonal relationships. Students would learn about healthy communication, peer pressure, refusal skills, trust, and honesty (A Definition of Comprehensive Sexuality Education). This particular component has been tested a bit in DeGue's study, as the "Safe Dates" program, which the studied showed to be effective in producing long term behavioral changes, includes a focus on "caring relationships," refusal and communication skills, as well as power imbalances between genders that facilitate intimate partner violence and dating abuse (Crime Solutions).

Using this definition, I code the state mandates and give each state a score between 1 and 7; this is the number of components of the Gutmacher definition included in the state mandate. This score will be the main independent variable of the study. Each state's comprehensiveness score is analyzed against the state's prevalence of teenage pregnancy, STI/STDs, and gender-based violence; I hypothesize that states with higher comprehensiveness scores will experience lower rates of each negative health and behavioral outcome.

Review of Literature

Current literature on comprehensive sexuality education, though mostly conducted around the 1990s and 2000s, focuses heavily on those outcomes that are commonly included in analyses of sexuality education. These include teenage pregnancy rates and the prevalence of STD/STIs in high school students, both of which are being used as dependent variables in this study as well. Comprehensive sexuality education is more likely to achieve these outcomes than abstinence-based programs (Stanger-Hall et. al., 2011). In the Stanger-Hall study, other variables were not accounted for, but the authors acknowledge that race and socioeconomic status also play a role in students' risk factors for negative health outcomes, which informed my choice to address race and class in the variables I controlled for in my research. The authors also provide evidence that abstinence-only or abstinence-plus models are not taking us in the direction of achieving these outcomes (Stanger-Hall et al., 2011). Therefore, the authors propose that comprehensive sexuality education be implemented for these outcomes alone. These data are particularly impactful in this review, as this study includes two of three of the same dependent variables that I am including in this paper. This study, however, does not speak to their proposed model's effect on gender-based violence.

Further, political conservatives tend to lean toward abstinence-based programs because they believe that talking about sex will lead to higher rates of teenage sexual activity. Kantor, in his study, points to the Far Right and their political ideologies and religious views for this phenomenon (1993). This is where fear tactics come in, as they are meant to deter students from engaging in sexual activity (Kantor, 1993). However, studies have shown that students in the United States do not engage in sexual activity at a lower rate than students in, for instance, Norway where comprehensive and openly communicative sexuality education is the norm (Guttmacher Institute; Bartz, 2007).

Several countries all over the world have implemented comprehensive sexuality education and mandates the model throughout the country. These countries include Sweden, Norway, and Australia, among others (Bartz, 2007; Mitchell et al., 2011). The sexuality education program in Norway written about by Tiffany Bartz allows for sexuality counseling and free STI testing, as well as classroom visits from medical and social professionals to talk about healthy and safe sex practices. These classroom discussions include some aspects of the Guttmacher Definition, such as sexual rights in the form of consent education, as well as lessons about violence and healthy relationships. However, Bartz's study also analyzes the backlash these aspects of the curriculum have begun to receive as a result of recent immigration from the Muslim community. In a way that they had not previously, the Norwegian government has had to consider differing cultural values and how these differences come into play when creating educational mandates (Bartz, 2007). This study heavily informs research surrounding the implementation of sexuality education in the United States, as it is home to a more culturally and ethnically diverse community than Norway has now and throughout history.

It is important, thus, to control for religiosity, ethnic diversity, and political ideology when examining the differences in state demographics in this study as these are factors that show up in discussions about school curricula. Political conservatives or those with a strong religious background, for instance, tend to lean toward abstinence-based programs because they have a stronger aversion to premarital and extramarital sexual activity and discussing sexual pleasure (Kantor, 1993). Certain religious teachings espouse contraception as a sin and do not believe it should be used or taught in schools. Further, individuals from different geographical regions and ethnic background may also bring differing attitudes about sex to the table in these conversations.

Though studies in other countries suggest that the implementation of comprehensive sexuality education is successful in terms of rates of teenage pregnancy, abortion, and STD/STIs, they tend to not say much about gender-based violence. In fact, some reports suggest that even in countries with a commitment to comprehensive and holistic sexuality education, like Denmark, rates of gender-based violence can be much higher than expected (Nagesh, 2019; Ruvir, 2017). Any studies regarding other countries, the Nordic countries especially, are incredibly difficult to generalize in the United States, however. Because of the lack of cultural heterogeneity in many of these countries in comparison with the United States, any comparison between the two does not allow us to control for the many sociocultural confounding variables in the United States that can affect rates of teenage pregnancy, STD/STIs, or gender-based violence among high school students. In the analysis later on, we see that these sociocultural factors greatly influence these dependent variables.

Another barrier to understanding the effects of high school sexuality education in the United States is that much more of the research done on this topic has only been done at the

college level than at the high school level. This is particularly true in terms of the gender-based violence variable I am investigating in this study, as most of the college level programs are exclusively consent or violence education programs. This also cannot be generalized to make predictions about outcomes at the high school level. The experiences of high school students compared with college students is very different, as is the environment in which they would be receiving the education. It is important, however, to look at the tactics used in these education programs and their success rates to determine which aspects of these programs may be effective if introduced in a high school classroom, if any.

"Consent 201." At many universities, including the University of Connecticut, programs like the Violence Against Women Prevention Program (VAWPP) include Consent 201 workshops, which take place in the university's First Year Experience classes. Programs like this target students' understanding of rape culture, acceptance of rape myths, and ability to challenge gender norms within their communities (Donais, 2019). Donais' study analyzed the effectiveness of the Consent 201 workshop on attitude changes about sexual assault. The main goals of the workshop are to increase victim/survivor empathy, decrease rape myth acceptance, and show how gender norms create power imbalances that can lead to gender-based violence (Donais, 2019). These goals are similar to those outlined in the Guttmacher Institute's goals for comprehensive sexuality education. However, some would argue that college is too late to be teaching students about these things, as the majority of high school students are sexually active by their senior year ("Most Sexually Active…," 2018). And, while the Consent 201 workshop is mandated within the university for all students enrolled in a First Year Experience course, it is not mandated on a state basis or for students before they enter college.

The study by DeGue examines several sexual assault education programs and their effectiveness in lowering behaviors that lead to the perpetration of sexual assault. Though many of the programs included in the study are college level consent and gender-based violence awareness programs, there are also several included that take place in classrooms with younger students. However, very few of the programs DeGue studied are focused on or built around high school students. The study concluded that only two education programs were effective in achieving this outcome, both of which were geared at middle school aged children. The first of the effective programs was called "Shifting Boundaries," an initiative focused on school surveillance and teaching students about the legal consequences of sexual harassment and dating violence ("Program Profiles: Shifting Boundaries," 2012). This program does not reflect the goals of the Guttmacher definition. The other "effective" program is "Safe Dates," which includes education about healthy relationships, abuse cycles, supporting friends, gender stereotypes, and communication ("Program Profiles: Safe Dates," 2011). Because it includes several components of the Guttmacher definition, this program's success suggests that these factors could be effective if introduced in a curriculum geared at producing long term behavioral change, which DeGue measured using follow-up interviews that continued until four years after the program.

Programs like The Men's Project, a gender equity and gender-based violence prevention education program designed for college aged men, had a positive effect on long-term behavior change four months after the education, but did not at the seven-month mark. Most of the other programs studied fell into the category of programs that required more research, however (DeGue, 2014). Using this study and Donais' as a framework, I can build on the foundation that many prevention-based education programs on college campuses are successful in reducing

attitudes that lead to sexual assault, but not necessarily behaviors. A gap exists in the literature here, as little work has been done to find a model of consent education that works at a high school level to reduce rates of physical sexual violence, rather than just attitudes that perpetuate it. DeGue says:

> Comprehensive strategies should include multiple intervention components and affect multiple settings to address a range of risk and protective factors for sexual violence (Nation et al., 2003). However, the vast majority of interventions evaluated for sexual violence prevention have been fairly one-dimensional — implemented in a single setting, typically a school or college, and often utilizing a narrow set of strategies to address individual attitudes and knowledge related to sexual violence. (DeGue, 2014)

Therefore, DeGue argues that implementing consent education into high school sexuality education programs could be effective in supplementing the consent education that is often more prominent at the college level. This paper takes this a step further by examining the effectiveness of legally mandating these programs.

As said before, however, comprehensive sexuality education is not being widely used in the United States. While some states do not mandate sex education at all, those that do vary heavily. No states mandate all the facets addressed by the Guttmacher Institute, resulting in a maximum score of 6 for comprehensiveness, because no states address the concept of sexual pleasure in the classroom. What we are left with then is a vast majority of high schools in the United States practicing an abstinence-based model of education.

Chart 1 shows the comprehensiveness scores for each state in the United States based on the coding scheme that I developed and describe below. Dark green indicates a score of 6, which is the highest score achieved in this study, while white is a score of 0, usually meaning that the state does not mandate sex education at all. The gradient between them reflects states that fall somewhere in between. As you can see, many states receive a score of 0 for their sexuality

education mandate, and many receive a score of 1indicated by the lightest shade of green in the chart. Only five states received a score greater than 4 out of 7 for their curriculum.

Chart 1:
Comprehensiveness Score by State in the United States

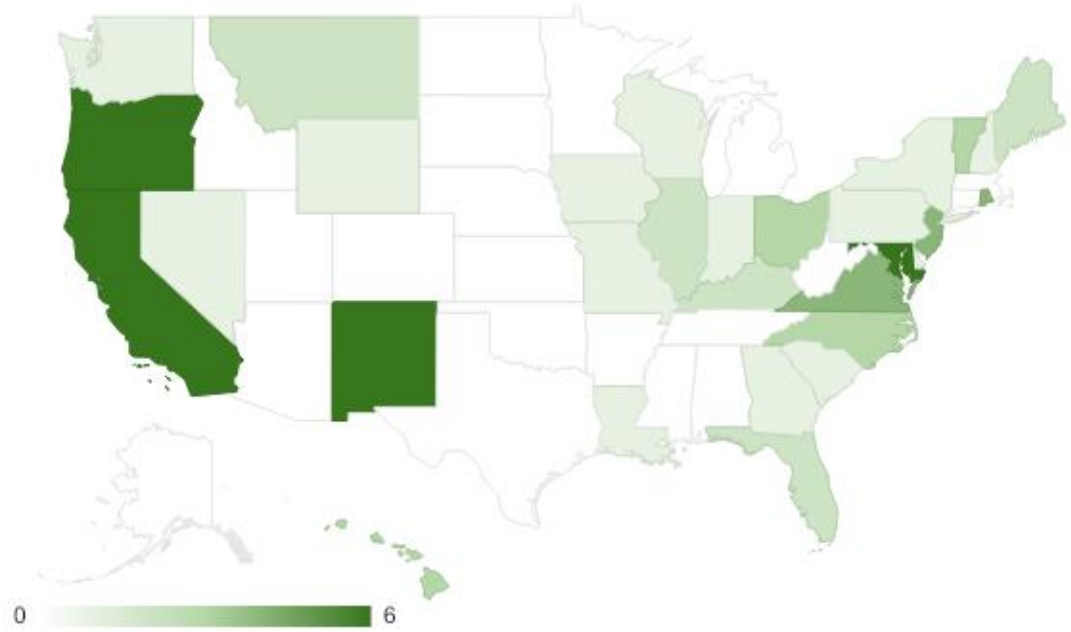
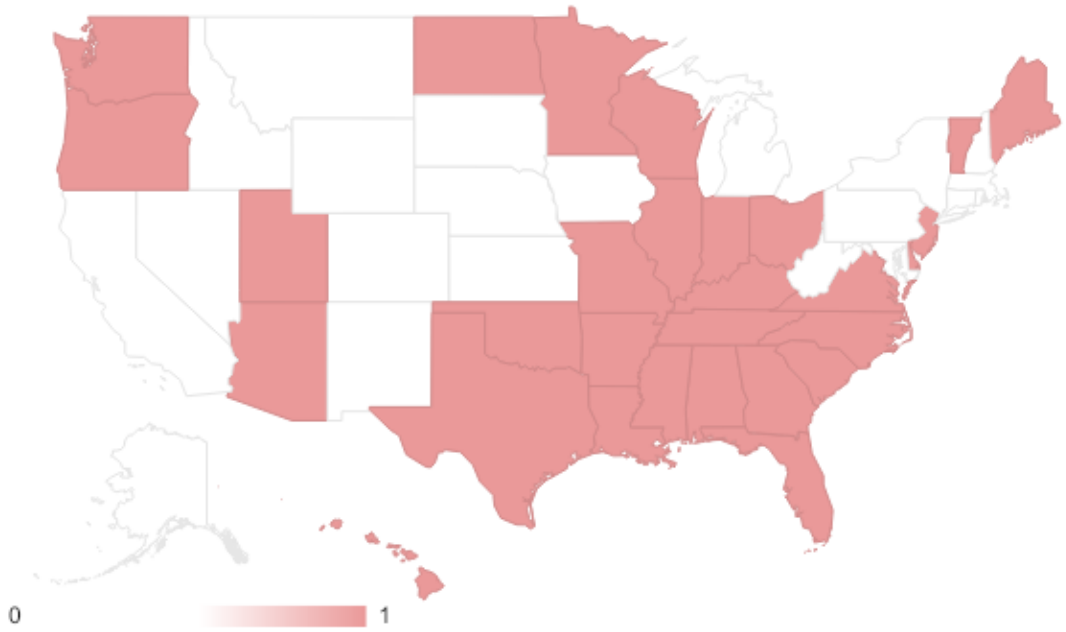


Chart 2 shows us the states that emphasize abstinence in their education. If abstinence is mentioned in the state mandate, the state receives a 1 for this variable and if it is not, the state receives a 0. Here, we can see that 27 states mandate that abstinence be emphasized in their sexuality education curriculum, accounting for more than half of states in the United States. This includes states that do not mandate sexuality education overall, but mandate that abstinence be emphasized if a school or municipality decides to include it into the curriculum.

Chart 2:
States that Emphasize Abstinence in the United States



` **Public Opinion.** Though ideologies weigh heavily on public opinion, there have been some studies that show that parents and educators do not feel as negatively toward comprehensive, as opposed to abstinence-based, sexuality education as we may think. In a study of one North Carolina school district, Ito et al. examined the opinions of parents surrounding the implementation of a more comprehensive sexuality curriculum (2006). Parents overwhelmingly preferred comprehensive education to abstinence based, as they felt it was a more realistic and thus a more effective approach to preventing negative health outcomes like those analyzed in this study (Ito et al., 2006). Further, Bleakley, Hennessy, and Fishbein, discovered that 82% of people in a random sample preferred comprehensive sexuality education to abstinence-based programs for the same reasons as in the former (Bleakley et al, 2006). They consider this approach more "balanced" and would like to see more information about birth control, as well as pregnancy and STD prevention, in public education. 68.5% of people also believe sex education should include teaching students how to use a condom (Bleakley et al, 2006). This is already an

important distinction, as education about using condoms and other contraception would not be categorized as abstinence-only education, but at least abstinence-plus (Sex Education Programs, 2020). Though this may not seem like an important distinction in comparison with comprehensive sex education, the push for abstinence-plus education over abstinence-only has historical significance and required research and activism to implement (Smith, 2011).

Most often, sexuality education mandates in the United States result in some form of abstinence based education, but some states exhibit more components of the Guttmacher definition than others. In this study, this does not automatically mean these programs are not "abstinence-based." A state that emphasizes abstinence but includes several components of comprehensive sex education may still be able to make the case for including those components, depending on their health outcomes. The Guttmacher Institute, as stated earlier, provides us with a framework by defining comprehensive sexuality education using seven components deemed necessary for education to be fully "comprehensive." Some of these facets are more controversial. Talking about sexual pleasure, a diverse range of gender and sexuality, and gender biases in school may be considered too taboo a subject in some places, depending on the culture of that particular state.

Taboo school curricula. It is important to note that comprehensive sexuality education, while evidenced to be more effective at certain desired outcomes than abstinence-based programs, has received backlash because it is a controversial topic. Many parents and administrators believe that talking to young people about sex will "give them permission" to have sex at a young age and do not know at what age is it appropriate to begin having these discussions with their children. This stance prevails despite evidence that high school aged students in countries that have implemented comprehensive sexuality education programs do not

have more sex, on average, than high school aged students in the United States (Guttmacher Institute; Bartz, 2007).

Another of the many things that has hindered the implementation of comprehensive sexuality education in the United States is society's views of sex as a taboo topic. In their piece about taboo school curricula, Evans, Avery, and Pederson examine the influence of cultural differences on teaching about "taboo" topics. The work distinguishes between taboo and controversial topics; by their definition, sex would be considered a taboo topic rather than just controversial (Evans et al., 1999). The article includes "Practical Suggestions" for implementing education about taboo topics in schools:

> We believe that it is essential for teachers and students in schools to explore taboo topics. This can be done most readily using the methods and activities found effective by advocates of issues-centered curricula, and by including study of a wide range of controversial topics contained in and related to the contents of the curriculum. (Evans et al., 1999)

Schools could include outside expertise and research in their discussions of more taboo and controversial topics, opening up the discussion to a wide range of cultures and opinions brought in by students' lived experiences. This article, like Bartz, informs this research as well in the United States, as differing cultural attitudes play a large role in parents' and administrators' beliefs surrounding comprehensive sexuality education. A more specific study by Higgins examines the implementation of death education in primary schools. Though this demographic is younger than the high school demographic I am studying, the article references how the implementation of death education, another taboo topic, supports the mission set up by the 1998 Education Reform Act. This act states that that education should promote the "spiritual, cultural, mental, and physical development of students" (Higgins, 1999). This argument is very important, as it informs the goals of this study. We aim to eventually determine the model of sexuality

education that best upholds the sentiments in the quote from the act above. At the least, this goal should be kept in mind when writing any school curricula and sexuality education should be given the same amount of consideration as other school subjects.

Many questions about how to best implement comprehensive sexuality education, if it turns out to be the best model, still exist. Most people believe that comprehensive sexuality education is more practical and appropriate than abstinence-based programs. These public opinions, alongside much of the research discussed above, leans in the direction of implementing this form of sex education to achieve greater health benefits for students. This study will examine the effects of the legal mandating of comprehensive or abstinence-based programs to determine which model of sex education is best in terms of the three categories of dependent variables in this study. I hypothesize that a more comprehensive approach will have a positive effect by lowering rates of teenage pregnancy, STD/STIs, and gender-based violence. The effects of this study, and what more can be done, will be discussed later in light of the findings.

Methodology

This study does the following: 1) determines the components of an effective and comprehensive approach to sexuality education, using the Guttmacher Institute's definition; 2) focuses on three desired health outcomes of a successful sexuality education program, which includes lowering rates of teenage pregnancy, STD/STIs, and gender-based violence; and 3) controls for any confounding variables that might influence the outcomes other than the model of sexuality education, like the social and political culture of the state.

I hypothesize that states with a more comprehensive sexuality education mandate are those that will have lower rates of undesirable health outcomes and higher rates of desirable ones. This is a deductive study, in which I test for evidence that will support my hypothesis.

There is a substantial amount of literature in existence already that has shown significant results relating comprehensive sexuality education and lower rates of teenage pregnancy and STIs (Stanger-Hall et al., 2011; Guttmacher Institute). However, much of this data is from the 1980's and 1990's, a time during which many other sociocultural factors were different than they are today. There is also not much literature relating high school sex education with gender-based violence. In this section, I go over where I found my data, the importance of each health outcome, and why I control for the confounding variables I have chosen.

Data Collection. The data I am using for the bulk of the coding and analysis process comes from the Sexuality Information and Education Council of the United States (SIECUS). The organization compiled statistics relating to state mandates surrounding sexuality education and potential outcomes in each state. These are called the SIECUS State Profiles and I use those from the fiscal year 2018. The reports start out by analyzing the state mandate for sexuality education, or health education, if there is one. Throughout this process, I open links in these state profiles and search through each sexuality education mandate for keywords and phrases indicating an aspect of the Guttmacher Institute's definition of comprehensive sexuality education. The state then receives a score of 1 through 7, which will be the sum of the components of the Guttmacher definition that the state mandate includes.

I look for particular keywords and phrases to indicate the presence of each component of the Guttmacher definition within each state mandate. For the "gender" component, I look for words and phrases regarding gender and sexual diversity, including "gender," "transgender," "LGBT," "sexual orientation," and other related words and the state receives a 1 if they are taking these identities into consideration. "Reproductive and sexual health," in this study is characterized by the discussion of STD/STIs and contraception. If concepts like "consent" or

"coercion" are addressed in the mandate, the state receives a 1 for "Sexual Rights." No states mention sexual pleasure in their curriculum, which does not come as a surprise. The state receives a 1 for the "Relationships" category if a variety of words and phrases are used in the context of educating students about the signs and behaviors present in an unhealthy relationship. "Dating violence," "intimate partner violence," and "domestic violence" are key phrases used to code for this component, as well as "healthy/unhealthy relationships," "dating," and other terms to indicate that the school board is acknowledging that students are entering into romantic or sexual partnerships at this age and helping them to navigate those relationships. If the word "violence" is mentioned in the context of relationship violence, familial violence, or in any context addressing peer pressure, bullying, and other similar contexts, the state receives a score of 1 in the "Violence" category, as well.

For the "Cultural/Racial Diversity" component, a state receives a 1 if it specifically mentions "culture" or "race" in its mandate in the context of addressing issues specific to different cultural or racial communities within the state. For example, Montana receives a 1 for including extensive guidelines in its health curriculum accounting for the large Native American population in the state. States are most likely to include cultural and racial diversity in their health curriculum based on the demographic of their state and not the nation as a whole. This would be an interesting concept to research further, as race was suggested to have had a relationship with several of the dependent variables here. The environment-based approach that many states have gone with could be valuable for the community, but a standardized curriculum that is more inclusive of all identities could be helpful for states with lower rates of racial and cultural diversity to employ an intersectional lens in their education.

We know, however, that the state mandate does not always paint an accurate picture of what these curricula look like inside of classrooms. Some school districts may have their own guidelines, while in some schools it is entirely up to the educator what is taught in sexuality education, and thus it can even vary within one school if there are multiple educators. Since there is no standardized sexuality education throughout a state or anywhere in the United States, however, the closest thing we have to a standard is a legal mandate. If a state mandates that sexuality education must include a component, or must leave one out, then all of the schools within that state at least have to abide by that mandate.

There have been several studies in the past that indicate that more comprehensive sexuality education leads to lower rates of teenage pregnancy and STIs (Stanger-Hall et al., 2011). Other studies examine the effectiveness of consent education programs on behavior and attitudes that contribute to gender-based violence (DeGue, 2014; Donais, 2019). However, the vast majority of these consent education programs exist at the college level and occur only rarely at the high school level or lower, outside of the few cases presented in DeGue's study. There has not yet been a study that combines these outcomes, or that relates them to a state's educational mandate. This study is also unique in that it is a sweeping view of the fifty states, rather than focusing on specific regions or municipalities. Though this creates limitations that are discussed throughout this paper, it is necessary to have foundational knowledge of whether the state mandates are effective in achieving certain health and behavioral outcomes for the state as a whole.

Using data from the Centers for Disease Control and Prevention (CDC) and the Guttmacher Institute, SIECUS also compiles data around several health and behavioral outcomes. These data include statistics for rates of chlamydia, gonorrhea, HIV/AIDS, teen

pregnancy, as well as the number of sexually active students and the sexual behaviors of those students. Using the CDC's Youth Risk Behavior Survey (YRBS), SIECUS includes the findings from anonymous surveys given to students. Questions include if students are sexually active, if they ever have been, when they started having sex, and if they use contraception. Other questions touch on gender-based violence; these include whether students have ever been physically forced into sexual intercourse and whether they have experienced any sexual or physical violence. These data, in the SIECUS profiles, are split into gendered categories, "male" and "female," but the CDC provides total percentages on its website.

I develop several separate regression models using the comprehensiveness of the mandate as the independent variable and three separate dependent variables. The first is the rate of teenage pregnancy, which is determined by the number of pregnant women under the age of 18 per 1,000. The rate of STD/STIs is determined by cases per 100,000 high school students. The next two regression models are rates of chlamydia per 100,000 and gonorrhea per 100,000 high school students. The last several regression models are the rates of gender-based violence. These are taken from the YRBS and include the percent of students who reported having experienced the indicated behaviors. For this study, I used the percentages of students who have experienced being physically forced to have sex, those who have experienced sexual dating violence, and those who have experienced physical dating violence.

It is important to note, as stated in the SIECUS reports, that these data are based only on people from whom the organization received responses. There are certain populations it is more difficult to speak to and some students did not answer the survey. More importantly, it is important to note that the state's model of sexuality education is likely not the only variable

contributing to these outcomes. There are many other sociocultural factors that could contribute to the health and behavior outcomes described above.

Control variables. Though I hypothesize that the presence of most or all of the components of comprehensive sexuality will lead to lower rates of the negative outcomes described above, I also believe there are many other factors that can contribute (Stanger-Hall et. al., 2011). To know whether the relationship between the comprehensiveness of the sexuality education and the health and behavior outcomes is statistically significant, it is necessary to have many control variables.

Religiosity of a community is one important control in this study, as literature has pointed to religion as a driving force behind sexual behaviors in a state, including contraceptive use, acceptance of diverse sexual orientations, and willingness to discuss sex with young adults. Recently, higher rates of Muslim immigration to Norway, for instance, has been a main cause of backlash against their intense and comprehensive sexuality education program (Bartz, 2007). Further, Christian ideology often emphasizes the importance of abstinence until marriage. In Catholic schools, sex education is routinely ignored so as not to advocate for premarital intercourse. Some religions outright denounce the use of contraception. Therefore, I hypothesize that states with a larger religious population will have higher rates of teenage pregnancy and STD/STIs, as they may be less likely to discuss contraception in schools. Religiosity would also affect the likelihood that a state would mandate that their curricula discuss diverse sexualities, or HIV/AIDS which has historically been seen as a problem exclusive to the LGBTQ+ community. I also hypothesize that gender-based violence will be more prevalent in states with higher religiosity, as sexual behavior in teenagers is likely to go undiscussed in religious communities.

In this study, this variable is measured by the percent of the population who considers themselves "highly religious," as reported by Pew Research Center (Lipka et. al., 2016).

Political ideology in a state is another important contributor to health and behavioral outcomes within a state. Typically, more political conservatives tend to be concerned with traditional values and traditional family structures (Kantor, 1993). Because these groups may be less likely to support sexuality education that includes contraception, diverse sexualities, sexual pleasure, and abortion or other pregnancy options, I hypothesize that states with a lower "liberal" population will have higher rates of all three dependent variables. It is typically conservative politicians, also, who oppose passing legislation on comprehensive sexuality education due to fear that discussing sex in schools will cause students to engage in sexual activity prematurely (Kantor, 1993). Past studies, however, point out that this is untrue, at least on an international level, as students in countries with comprehensive sexuality education are not statistically having more sex than students in the United States (Bartz, 2007). The reasons for this control are similar to the reasons to control for religiosity, as the two are often tied. In this study, members of the population who consider themselves "liberal" is the variable I chose ("Political Ideology by State," 2015). It would be interesting to delve deeper into the relationships between political culture in a state and its educational policies, but this may need to be done in a more in-depth study like that discussed in the conclusion below.

I also control for the average education level within a state. More highly educated people tend to line up with left-leaning political views and values more often. Therefore, I hypothesize that the higher the average educational level of the state, the lower the rate of all three dependent variables. Less education also indicates that this demographic may not have read studies indicating that comprehensive sexuality education may benefit students, rather than harm them,

at the high school level. This variable is measured by the percent of the population with a high school diploma in this study, found in the 2010 US Census.

As illustrated by the study done in Norway, ethnic diversity is also an important component in terms of these dependent variables. One of the factors hindering the United States from adopting federally mandated comprehensive sexuality education is its diverse population and heterogeneity, as different cultures and ethnic groups have different attitudes surrounding how open people should be about their sexuality. Further, states with a larger population of people of color, due to institutional power structures, tend to have a lower average socioeconomic status and education level. For these reasons, I hypothesize that the higher the percent of a population that identifies as "white" within a state, and thus the more homogenous the state is, the lower the rate of the three dependent variables (US Census Bureau, 2010).

I also chose to use the percent of female identifying members of the population, as well as the number of sexually active high school females as control variables in this study (US Census Bureau, 2010; SIECUS). I hypothesize that the percent female will have a similar effect on the data as percent liberal. Though there is not much variation for this particular factor, women tend to be Democrats more often than Republicans in the United States. Further, women experience gender-based violence at a much higher frequency than men do and I believe that a society with more women will be more open to public discussion about safe sex, consent, and other practices that can lead to the prevention of gender-based violence. For this same reason, I chose to focus on the percent of sexually active females in high school, rather than males, because two of the three categories of dependent variables I am studying have a greater effect on women than on men. The number of sexually active young women in high school may also affect the data because it gives us an idea of how many young women are obeying commands to

remain abstinent and how many are experiencing sexual behaviors and interactions, with or without sufficient sexuality education to help them navigate it. In the future, examining this as a dependent variable may be interesting, however in this study, this outcome does not fall into the three categories of negative health outcomes I am analyzing. Further, the variance for this variable was very low, at .000072; there are no states in the United States with less than 20% or more than 46% of female high school students who are engaging in sexual activity.

Reporting of sexual activity is an important barrier in this research to consider. Any research that relies on surveys in any, especially research surrounding more taboo topics, will have the downfall of lower reporting. Sexuality research in particular is a difficult field to acquire accurate data in; people typically respond to surveys in the manner that they believe the researcher would like them to, so it is important to keep surveys unbiased. Since we are using the SIECUS reports with the YRBS surveys as an important component, this should be considered. There is also social stigma surrounding sexuality research and it can be difficult to have a representative sample and collect accurate data (Irvine, 2014).

To analyze the data, I create regression models relating the comprehensiveness of the sexuality mandate with three main categories of health and behavioral outcomes, which are the rates of teenage pregnancy, STD/STI rates, and rates of gender-based violence within the state. I look at all the states in the United States, resulting in an "n" of 50 in most models. With this approach, I am able to get a broad scope of the state of sex education and its outcomes throughout the country as a whole. This strategy allows for this study to be highly generalizable, within the United States, as every state has been accounted for in the data. The state's comprehensiveness score, between 1 and 7, is the independent variable I am most interested in for this study, as it indicates whether the components of the Guttmacher definition in the state

mandate have an effect on the dependent variables. I also added "abstinence included" as a confounding variable to test whether the outcomes are affected when abstinence is emphasized in a state's sex education mandate, in order to broadly analyze the effects of both comprehensive and abstinence-based education in each regression.

Analysis

Using STATA data processing software, I compare all of the independent and control variables in this study against the dependent variables. I found that the comprehensiveness score I gave to each state based on the components present in their state mandate often had little effect on the dependent variable. This does not support my hypothesis that the states with the most comprehensive state mandate would be the ones with the lowest rates of negative health and behavior outcomes. However, the effects of the sociocultural factors on the dependent variables implies that there is more research to be done in terms of how schools may consider addressing any gaps in education that are leading to negative outcomes for their students. Education that addresses aspects of identity and social justice may be interesting to study to determine if students who are more aware of these sociocultural influences experience better health and behavioral outcomes than peers who are receiving a less thorough sexuality education program.

The three categories of dependent variables I studied were rates of teenage pregnancy, STI/STDs, and gender-based violence in several forms. Each of these variables, and even the specific health or behavioral outcomes within these categories, behaved differently from each other when analyzed.

The first model I present examines rates of teenage pregnancy within a state as measured by the number of pregnancies per 1,00 teenage females. Overall, the model performs well. As

Table 1 shows, teenage pregnancy is affected by religiosity, education level, racial makeup, percent female, and percent of sexually active high school females.

Table 1:
Effects of Sex Educations Programs on Teen Pregnancy per 1,000 Young Women Ages 15-19

	Coefficient	**Standard Error**	**P > |t|**
Comprehensiveness Score	0.32	0.48	0.506
Abstinence Included	0.15	1.69	0.930
% Highly Religious	0.38	0 .17	0.026
% Liberal	0.17	0.25	0.520
% High School Diploma	-2.10	0.41	0.000
% White	-0.21	0.07	0.004
% Female	-4.84	1.20	0.000
% Sexually Active Females	0.56	0.20	0.009

n= 42 r^2= .81

Teen pregnancy, however, was not affected by the state mandate's comprehensiveness score or whether the state emphasized abstinence in its education. This negates my overarching hypothesis for this study that more comprehensive sex education would lead to lower rates of teenage pregnancy. However, these data mostly supported my hypotheses in terms of the control variables. For instance, overall religiosity of a state can affect rates of teenage pregnancy, as contraception is looked at unfavorably by the religious community and above we can see that for each one percent increase in religiosity, the rate of teenage pregnancy increases by .38 per 1000. On the other hand, I hypothesized that the higher the average educational level, as well as the higher the percentage of white people and women, the lower the rate would become. With every one percent increase in adults with a high school diploma in the state, teen pregnancy decreases

by 2.10 per 1,000. For every one percent increase in the female population of the state, teen pregnancy drops by 4.84 per 1,000. Teen pregnancy also decreased by 0.21 per 1,000 with every one percent increase in the white population, which supports my hypothesis that a state with a higher white population, due to institutional privilege and oppression, would experience greater negative health outcomes than a state with a higher population of people of color. I was surprised to find that the percent of the state identifying as liberal, as opposed to conservative, had no effect on these data, but this could be because of the overlap between highly religious individuals and political conservatives, as well as the overlap between women and liberals. These data suggest that there are many more significant social factors contributing to the rate of teenage pregnancy than educational factors with the current state of these educational mandates.

The models examining STD/STI rates and rates of gender-based violence behave differently depending on the particular diagnosis and the type of violence. This shows me that there are, overwhelmingly, social factors contributing to nuanced aspects of these outcomes. This also implies that there is further research to be done from an educational standpoint on what can help to lower the rates of negative health and behavioral outcomes for teenagers.

Table 2:
Effects of Sex Educations Programs on Chlamydia per 100,000 Young People Ages 15-19

	Coefficient	**Standard Error**	**P > |t|**
Comprehensiveness Score	-15.27	39.77	0.703
Abstinence Included	-6.51	139.74	0.963
% Highly Religious	35.07	13.68	0.015
% Liberal	23.02	21.07	0.282
% High School Diploma	11.57	33.92	0.735
% White	-16.88	5.52	0.004

% Female	-69.54	99.45	0.489
% Sexually Active Females	22.52	16.54	0.183

n= 42 r^2= .52

Table 3:
Effects of Sex Educations Programs on Gonorrhea per 100,000 Young People Ages 15-19

	Coefficient	**Standard Error**	**P > |t|**
Comprehensiveness Score	-10.93	12.68	0.395
Abstinence Included	90.49	44.54	0.050
% Highly Religious	12.12	4.36	0.009
% Liberal	5.57	6.71	0.412
% High School Diploma	0.37	10.81	0.973
% White	-4.05	1.76	0.028
% Female	5.84	31.70	0.855
% Sexually Active Females	2.36	5.27	0.657

n= 42 r^2= .66

Tables 2 and 3 show the rates of chlamydia and gonorrhea compared with the independent and control variables. Both are affected by the population of highly religious households, as well as the white population in the state. In both cases, religiosity has a greater effect on the rate than the percent white; each percent increase in religiosity increases the number of cases of chlamydia by 35 per 100,000 and of gonorrhea by 12 per 100,000, while each percent increase in the white population decreases the rate of infection by 17 in the case of chlamydia and 4 in the case of gonorrhea. This supports the hypotheses I made about these confounding variables in the above section. This is because I believe religiosity has negative effects on any student's experience with sexuality education and can lead to misinformation, including negative

attitudes toward the use of contraception. However, I think that sex education outcomes are usually better in predominantly white communities, as populations with more privilege than others tend to receive better educational outcomes overall. Further, the number of highly religious and white members of the population is likely to have an effect on students' birth control access and usage.

Like teenage pregnancy, neither STD/STI was affected by the comprehensiveness of the state's sexuality education mandate. This did not support my hypothesis that the rates of infection would decrease as a mandate's comprehensiveness went up. However, the rate of gonorrhea among teenagers does appear to have a relationship with whether the state includes an emphasis on abstinence in their mandate. In this case, $P > |t| = .050$, suggesting that when abstinence is emphasized in a classroom, the rate of gonorrhea increases by 90 per 100,000. This could be for many reasons. According to the SIECUS state profiles, gonorrhea is significantly less common than chlamydia and it is possible that for this reason, it is missed in sexuality education classes that may intentionally leave out some details in the name of preserving its emphasis on abstinence. It is also possible that there is less exposure to gonorrhea outside of the classroom for students than chlamydia, so if it is not being discussed in school, it is not being discussed. More research is required to determine a solution, but I hypothesize that it would be beneficial for sexuality education teachers to spend time talking with students about the risk, transmission, and treatment of each individual STD/STI, as well as providing students with testing resources.

In Tables 4, 5, and 6, I have created regression analyses for two forms of gender-based violence. These tables display the results as they are in the SIECUS state profiles, which separates them by gender identity. I chose to include this data, as opposed to the total

percentages, for two reasons. First, some states did not supply the CDC with data for the total population, but only gave these data as "male" and "female." While this does not account for the whole population, leaving out high school students who do not conform to either gender category, it gives me a larger *n* to analyze. Further, gender-based violence refers to the phenomenon that the acts under this umbrella term, including rape, sexual assault, sexual harassment, intimate partner violence, and stalking, happen disproportionately to women more often than men. It is important, then, to separate these data and analyze how the culture of the state and its educational mandate address that phenomenon.

Table 4 shows the percent of female high school students who reported that they had been physically forced to have sex. As I would have guessed using the above justification and definition of gender-based violence, there was no statistical significance when examining the total number of students who reported this behavior, nor when it was isolated to only male students. However, there is statistical significance indicating that religiosity plays a role in the rate of female high school students who reported this, which supports the hypothesis I made when explaining why I chose to include this as a control variable in the section above.

Table 4:
Effects of Sex Educations Programs on Percent of High School Females Physically Forced to Have Sex

	Coefficient	**Standard Error**	**P > |t|**
Comprehensiveness Score	-0.20	0.28	0.486
Abstinence Included	0.44	1.01	0.669
% Highly Religious	0.21	0.10	0.041
% Liberal	0.07	0.15	0.627
% High School Diploma	0.18	0.24	0.450

% White	0.02	0.04	0.657
% Female	-0.37	0.75	0.627
% Sexually Active Females	0.09	0.11	0.421

n= 37 r^2= .42

For every one percent increase in people who considered themselves highly religious, the percent of young women who have experienced this behavior increases by .2 percent. The comprehensiveness score or presence of abstinence in the sexuality education mandate had no effect, which negates my initial hypothesis. Once again, this shows that there are societal influences weighing on these variables more heavily than educational influences. This could be due to a variety of factors, but deserves to be further researched.

As for physical dating violence, Tables 5 and 6 display the regression analyses for these data, when the results were separated into gender categories. This behavior is defined by the CDC as "being physically hurt on purpose (counting things such as being hit, slammed into something, or injured with an object or a weapon) by someone they were dating or going out with one or more times in the twelve months before the survey." This, therefore, does not explicitly include sexual dating violence. However, that reporting of these behaviors is less likely to be skewed by teenagers' fear of reporting sexual behavior, either because of their state's age of consent, their family's feelings about sex, their religion, or even what they have been taught in sex education. Table 5 displays the results from female survey respondents for this variable.

Table 5:
Effects of Sex Educations Programs on Percent of High School Females Who Have Experienced Physical Dating Violence

	Coefficient	**Standard Error**	**P > |t|**
Comprehensiveness Score	0.21	0.15	0.183

Abstinence Included	0.20	0.55	0.722
% Highly Religious	0.11	0.05	0.044
% Liberal	0.01	0.08	0.897
% High School Diploma	0.13	0.13	0.315
% White	-0.01	0.10	0.577
% Female	0.18	0.39	0.650
% Sexually Active Females	0.16	0.06	0.015

n= 38 r^2= .55

In Table 5, which examines only responses from female high school students, we see the independent variables that had an effect on the behavior are religiosity and the number of sexually active females in the state. It supports my earlier hypothesis that as religiosity increases by one percent, the rate of young women who report this behavior increases by .11 percent. Some religious teachings are highly sexist, and some religious communities may be more difficult for women experiencing violence to either report it or escape from it. Addressing the emotional and social implications of experiencing intimate partner violence at a young age could be an important step in empowering women to leave an abusive situation. The behavior is also significant when compared with the number of sexually active female high school students. According to this output, as the percent of female high school students that are sexually active increases by 1, physical dating violence against female students increases by .2%. This supports my previous hypothesis regarding this confounding variable and could suggest that physical dating violence against women is tied to sexual dating violence in some way or that the acts used to define physical dating violence are being used more often in sexually active relationships, as the “sexual dating violence” variable did not clearly define how “force” was occurring. Some

students view sexual violence differently in the context of a relationship, as result of rape myths that some existing consent education programs have worked to address (Donais, 2019).

It is incredibly important to note that physical dating violence exists in which male students are the victims of abuse as well, as we see in Table 6. When this statistic is analyzed, there are completely different independent variables responsible for it. The percentage of the population that is white and the state's comprehensiveness score are the two statistically significant variables in this output. However, it is very surprising that according to this analysis, the higher the comprehensiveness score, this variable increases by .5%. This does not support my initial hypothesis, as I believed that the rate of violence would decrease as comprehensiveness increases.

Table 6:

Effects of Sex Educations Programs on Percent of High School Males Who Have Experienced Physical Dating Violence

	Coefficient	**Standard Error**	**P > |t|**
% Highly Religious	-0.02	0.06	0.772
% Liberal	-0.12	0.09	0.203
% High School Diploma	0.04	0.14	0.789
% White	-0.07	0.02	0.003
% Female	0.33	0.45	0.462
% Sexually Active Females	0.05	0.07	0.497
Comprehensiveness Score	0.47	0.17	0.010
Abstinence Included	0.27	0.62	0.672

n= 38 r^2= .50

This is the time to note that more research needs to be done on the implementation of these mandates within schools. Several states stressed the importance of traditional family

structure, including marriage and heteronormative relationships. This type of tradition enforcing, I will call it, can potentially lead to perpetuation of traditional gender roles, leading some students to believe that it is not abuse if the male partner in a heterosexual relationship is the victim. Male high school students have already reported feeling this way after being physically hurt by a romantic partner (Jackson et. al., 2000). Further, the YRBS study does not ask for sexual orientation for this variable and therefore, students of any sexual orientation can report their experiences. It is important to keep reporting bias in mind, however. For students who are not yet out, for example, they may be less likely to reveal this information in a survey. With this in mind, this could also mean that comprehensive sexuality education does not have a relationship with the experience itself, but with the reporting of the experience. If more students are talking about diverse sexualities and how gender roles can restrict men from reporting their experiences in class, it is possible that students feel more comfortable to speak openly and honestly in cases like the CDC's study.

From the results above, we can see that the comprehensiveness of the state's sexuality education mandate does not often influence the health and behaviors outcomes I was researching as much as the environment and community surrounding the students. Throughout the process, it appeared that very few states hovered in the middle of the spectrum; most states either covered 1-2 aspects of the comprehensiveness score or 6-7 of them. Because of this, I also explored the individual components of sexuality education that went into the comprehensiveness score. There was little statistical significance present when splitting the comprehensiveness score into individual components. A bit later on, I suggest further studies that can be done to cover some of the ground that was missed by the broad, but limiting, scope of this study. The above information is helpful in assessing some things that could be added to a school's health education curriculum

to create a more holistic approach to addressing negative sexual health and behavioral outcomes in teenagers.

In the analyses for each component of the three main dependent variables in this study, there was a recurring appearance of two independent variables. Almost all outcomes had a notable relationship with the percent of the population that is white and the religiosity of the state. The recurrence of this theme suggests that these two societal factors are important to address when looking at these data. With the above data in mind alongside reviewing the literature, I can conclude that more research is needed to address the lack of discussion on the importance of social and environmental factors in mainstream health education programs.

Students of color may not be receiving education that they find relatable enough to get something out of. Further, treatment of these issues in white family's homes may look different because of certain privileges and leave white students with a larger toolbox of information for preventing undesirable health outcomes. This variable is also intrinsically linked to the percent of the population that graduates high school and other socioeconomic factors, like those living below the poverty line. The racial divides within a state can also contribute to income inequality levels, which have an effect on education due to the drawing of district lines. These disparities should, in theory, be mitigated by the United States education system, which should be looking out for students of all backgrounds. It would be interesting to further analyze these variables from within a state to see if areas in the state with more white people are receiving a "better" sexuality education curriculum than areas with more people of color.

The data suggest that the religious landscape of a state is likely also affecting the education that is publicly approved and called on in that state. If more of the population, including members of the government from or working in this state, considered themselves to be

"highly religious," religious values may appear in that state's education. For instance, states that specifically mandate that their curriculum emphasize the importance of abstinence until marriage, and that marriage should occur only between a man and a woman, are likely utilizing Christian teachings. Further research on how spirituality affects the above health outcomes and how to separate religion from secular parts of society, like within the walls of a classroom, without dishonoring students' and their families' religious beliefs is important, as well.

Another variable that had an effect on several of these dependent variables was the percent of the population with a high school diploma. This is highly correlated with the percent of the population that is white, as well as those with a higher socioeconomic status. However, there is more at play. Sex education has changed dramatically over the last century or so in the United States, first with the push for abstinence-plus education and now with calls for a much more expansive comprehensive model, as well how sex is treated by the mainstream media and within households. Depending on a family's culture, religion, and so much more, children are coming into the classroom with vastly different prior knowledge than their classmates. Depending on their parents' and older siblings' education, some students may see things they learned at home completely contradicted in a sexuality education classroom setting, whether the education is abstinence based or more comprehensive. This means that further research can also be dedicated to the question of whether sexuality education should be centralized or decentralized, both within each state and within the country as a whole.

Conclusion

The above data did not support my hypothesis that the more comprehensive a state's sexuality education mandate, the lower the rates of teenage pregnancy, STI/STDs, and gender-based violence. More research is required to determine the effectiveness of comprehensive

sexuality education on all of the dependent variables for high school aged members of the population, as most of my data suggested that the state's sexuality education mandate had very little effect on these three categories of dependent variables. In particular, this research should be done by focusing on municipalities rather than states in the future, as sex education varies widely within the state and there are norms for sex education even inside of states with no mandate at all.

My original hypothesis has been altered a bit. Instead of one comprehensive sexuality education mandate, there might be several more factors at play than I originally thought. Since societal factors, like religiosity, socioeconomic status, and race, affect these variables even more than the sex education curriculum, I think that a more comprehensive health education or sociology education alongside sexuality education could potentially be able to mitigate the negative effects of some of the dependent variables at the high school level and should be further tested. For instance, if students understood how their socioeconomic status affects them, perhaps they would become interested in addressing these structural barriers. If students could see how religion weighs on the differing opinions they may be exposed to in regard to sexuality from family, friends, and teachers, some students may feel freer to make their own autonomous choices without that influence, or to choose themselves to use this lens to inform their decision making.

The seven components of comprehensive sex education put forth by the Guttmacher Institute would still be a good framework for municipality research and research that extends beyond just sexuality education. Diversity, relationships, violence, sexual rights and citizenship, pleasure, and reproductive health still seem like worthy components to introduce to high school students and a more extensive research plan should be implemented to address them. Crafting a

model curriculum and putting it in place in schools in states and towns with relatively similar demographic makeups would be an effective way to test the effects of this as an independent variable and decide if these things should be legally implemented into high schools across the United States.

Looking at states with similar demographics but very different sex education mandates would be another way to further study this phenomenon. Isolating the effects of those mandates on the behaviors in those specific states would help the researcher to see what is and is not effective within the classroom, and maybe which education should be left for parents to decide upon. The researcher could compare different municipalities in order to more closely examine certain control variables from this study, including the percent white or the religiosity of specific communities throughout the state. Then, speaking with government and school board officials to examine the legislative history of sexuality education within that state would unveil the barriers and catalysts of producing their sexuality education mandate.

The data in this study show us a few things, definitively. The first is that, right now, society is shaping our youth, even more than their schools are. What they hear and see from friends and family, media, and around them in public spaces shapes their futures for a long time and can lead to unfortunate health and behavioral outcomes if not combatted in some way. Second, there is a lot more research to be done concerning sexuality education for high school aged students. High school aged students experience pregnancy, STD/STIs, and gender-based violence. A lot of them have sex, and they have the right to engage in these practices safely and in an informed way. We should ask ourselves if the current state of sexuality education, based on the data in this study, follows the guidelines of the 1998 Education Reform Act. Thus, there is more work to be done to determine if the sexuality education for every student in this country is

promoting their spiritual, cultural, mental, and physical well-being, and then strive for that if the answer is no. On a personal note, I believe that there needs to be honest and effective sexuality education for high school aged students before they enter college. However, more research is needed to prove that this is effective and which of the many components in play work best for students' health and behavioral outcomes. In college, students are coming from wildly different educational backgrounds based on what town they are from, let alone their state, and they are learning things from each other whether those things are going to help them or hurt them. It is important to give this topic the attention and consideration it deserves. There are many ways to continue this work and find a program that has positive and long-lasting effects, and eventually leads to lower rates of teenage pregnancy, STD/STIs, and gender-based violence across the country.

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