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Beyond the Birds and the Bees: Sex Education and its Impact on Communication, Self-Efficacy, and Relationships.

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Beyond the Birds and the Bees: Sex Education and its Impact on Communication, Self-Efficacy, and Relationships

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Abstract

Because rates of sexual activity increase significantly during adolescence, young people are at an especially high risk for negative sexual health outcomes, including sexually transmitted infection (STI) transmission, early pregnancy, and sexual violence. Current research reveals the effectiveness of comprehensive sex education (CSE) programs in combatting these outcomes, with students who participate in CSE reporting having better knowledge and feeling more prepared to face important decisions regarding their health. Research also shows that knowledge of sexual health resources impacts self-efficacy and benefits overall sexual health, with sexual resourcefulness showing direct ties to learned resourcefulness and sexual self-efficacy. The present study looks at how an individual's sex education experience (for example, topics discussed, depth of discussion) may impact their ability to communicate their sexual health needs and their willingness to access resources. In addition, this study aims to understand the link between sex education experience and relationship satisfaction later in life, a phenomenon which very few existing studies address. Our findings showed significant positive relationships and differences in communication comfort, self-efficacy, and relationship satisfaction such that people who perceived their sex education experiences to be more inclusive also demonstrated higher scores in the aforementioned areas of focus.

Introduction

Although sex education programs have been a component of United States public school curricula for decades, there is continued debate over how those programs should be taught in order to prevent the consequences of unsafe sexual activity. The most common consequences are unplanned pregnancy, HIV and STI transmission, and sexual violence, all of which increase significantly during adolescence (Hall et al., 2019; Mustanski et al., 2015; Walcott et al., 2011). The two main approaches to combatting these issues are abstinence-based sex education and comprehensive sex education (CSE). While abstinence-based sex education tends to portray sex in a negative way, encouraging youth to refrain from sexual activity, CSE provides youth with the information they need to practice safe sex if they so choose. CSE aligns with the World Health Organization (WHO)'s definition of sexual health, taking a more sex-positive approach. CSE covers a variety of sex-related topics, such as gender expression, sexual and reproductive health, HIV, sexual rights and citizenship, pleasure, violence, diversity, and relationships (de Castro et al., 2018; Brickman & Willoughby, 2017; Mustanski et al., 2015).

Multiple studies suggest that CSE curricula covering a wide range of topics is most effective at promoting safer sex. In a sample of high school students exposed to CSE, those given information on sexual and reproductive health and HIV had an increased ability to identify effective contraceptives (de Castro et al., 2018). In a sample of adolescent males, receiving instruction about birth control methods and also how to say "no" to sex was positively associated with dual contraceptive use compared to no use. For each additional sex education topic respondents were exposed to, their odds of using dual methods were 47% greater compared to no use (Jaramillo et al., 2017). CSE's sex-positive approach has also been shown to resonate better with young adults than a sex-negative approach. One study that used text message-based sex education intervention found that sex-positive messages were perceived as more believable and persuasive, affirming the idea that when it comes to promoting sexual health, focusing on the benefits of certain behaviors is more impactful than dwelling on the consequences (Brickman & Willoughby, 2017).

One component of CSE is the exploration of gender expression and sexual orientation. Information on these topics is especially important for LGBTQIA+ youth, a population that experiences sexual health issues at disproportionate rates. These sexual health inequities can be driven by lack of parental and peer support and community services, but they are especially reinforced by deficits in school-based sex education programs (Mustanski et al., 2015). Research shows that providing queer sex education to LGBTQIA+ youth can significantly improve their sexual health knowledge and inclination to practice safe sex, while also promoting relationship skills and self-acceptance. In a sample of LGBTQIA+ youth exposed

to online queer sex education, there was significant improvement in knowledge of sexual functioning, HIV and STIs, and contraception, as well as increased communication skills and connectedness to the LGBTQIA+ communities (Mustanski et al., 2015).

In addition to providing knowledge surrounding sexual health, CSE also emphasizes the promotion of individual wellbeing and healthy relationships in youth. However, there is a deficit to the healthy relationship component when it comes to state policy. In a content analysis of US sex education policies, it was discovered that only approximately half of US states addressed relationship issues (that is, healthy relationships, sexual decision-making, and sexual violence), and few states required content on communication about sexual consent (Hall et al., 2019). While there is a body of research that examines the effectiveness of sex education on outcomes like pregnancy and STIs, there is a paucity of research on the outcomes of sex education programs with a healthy relationship component. More research is needed on the effects of relationship education, since it could result not only in more supportive and stable relationships among young couples, but also lower rates of dating violence and intimate partner violence (Hall et al., 2019). Relationship health and sexual health are also linked, with research showing that high school students exposed to relationship education during CSE had 20% higher odds of affirming that they could convince their partner to use condoms (de Castro et al., 2018).

While abstinence-based sex education and CSE tend to be the most common formats for sex education, there are other emerging forms of curricula. Rights-based sex education places an intentional focus on the human right of access to adequate healthcare and information about sexual health topics to empower students by providing a more holistic view of sexual health with classroom topics such as sexuality, equality, and healthcare access (Rohrbach, 2015). Ultimately, research demonstrates that students with rights-based curricula scored higher on knowledge of sexual health, relationship rights, self-efficacy, and resource access (Rohrbach, 2015). Peer-led curricula have also been created to address the "awkwardness" and stigma surrounding sex education that is often depicted in media. Instead of promoting learning through adults or teachers, these curricula put peer leadership at the forefront by training students to spearhead courses. Peer-led programs can create a space for more open and honest communication that may not happen in adult-led courses. One study on peer-led sex education courses found that the conversational nature of these classes allowed for a free flow of discourse, alleviating the stigma of asking questions that may be deemed uncomfortable or awkward (Layzer et al., 2017). The results of this study indicated that 9th graders showed significant improvements in learned knowledge by the end of the course and 11th and 12th grade leaders showed improvement in their own knowledge and leadership skills (Layzer et al., 2017).

A newer form of sex education takes learning outside of the classroom setting and shifts it to a virtual one. In one study on the feasibility of web-based HIV and STI prevention,

researchers found that the interactive nature of online programming was an effective way for learning that stimulated discussion among participants (Widman et al., 2017). Participants engaged in a program, Health Education And Relationship Training (HEART), which aimed to enhance sexual decision-making and self-efficacy. Results from this online program showed increased understanding of HIV and STI content, as well as a desire to share this information with peers in the next three months. Another study looked at the effectiveness of an online program called *Media Aware* that combines media literacy education (MLE) with sex education. The results of the *Media Aware* program showed the following: an increase in self-efficacy and intentions to use contraception if participants were to engage in sexual activity; enhanced positive attitudes, self-efficacy, and intentions to communicate about sexual health; and an overall increase in sexual health knowledge in adolescents. Results also showed a decrease in the acceptance of dating violence and strict gender roles (Scull et al., 2018). Online programs can be used as effective tools for educational settings that are engaging and informative, while also allowing for participants to go at their own pace and learning level.

The WHO defines self-efficacy as "beliefs that individuals hold about their capability to carry out action in a way that will influence the events that affect their lives" (Smith, 2006). This draws a connection to sex education because as students are taught about consent, healthy relationships, and advocating for their own needs, they will gain autonomy. Self-efficacy and sexual resourcefulness (the feeling of having control or knowledge in stopping unwanted sexual encounters) can be improved through programs that are more comprehensive, with additions of skill-based learning (Kennett, 2012). Research demonstrates connections between learning resourcefulness, communication skills, and being able to protect oneself from unwanted sexual encounters (Kennett, 2012), all topics that previous studies have shown to increase after implementing sex education programs.

For self-efficacy and resourcefulness to positively influence sexual health practices, there must be a level of comfort in initiating and continuing conversation. Although in other curricula peers have been essential for communication comfort, communication with adults and other authority figures can impact sex education. In one study, it was found that health professionals, educators, parental figures, and other authority figures can be influential in the acquisition of HIV/AIDs knowledge and understanding. Pediatric nurses are especially influential for adolescents acquiring sexual health knowledge and understanding at an early age (Mahat et al., 2016). It is crucial for parents and guardians to play a role in making youth feel comfortable communicating about their needs because improved communication can impact decision making regarding sexual activities and can reduce risk-taking behaviors (Villarruel, 2010). In another study, a parental program that emphasized ways to enhance communication led to increases in all three types of communication: general communication, sexual risk communication, and comfort with communication (Villarruel, 2010). These findings

are consistent with other research in that youth and parents with better communication skills can more effectively discuss subjects such as sexual health. Future studies should evaluate if communication impacts healthy decision-making and resource-seeking behaviors.

Our study seeks to investigate whether engaging in sex education programs impacts a person's ability to communicate their sexual health needs to people in their life, and their willingness to access resources. In addition, this study aims to understand the association between relationship fulfillment and sex education. In acknowledging the paucity of literature, our first goal is to examine whether the increase of inclusivity in sex education curricula leads to an increase in comfort when communicating about sexual health. Additionally, we aim to examine whether depth of discussion of sex education topics predicts comfort when communicating about sexual health and predicts higher levels of overall relationship satisfaction.

Methods

Participants

We distributed an anonymous Qualtrics survey through the SONA Systems software to psychology students at Seattle University. Additionally, the link to the survey was distributed through social media platforms like Facebook, Instagram, and Snapchat. The survey included questions about demographic variables, information of participants' sex education experiences, and space for qualitative responses.

Measures

Demographics. The average age of the sample was 22.43 years (*SD*=7.27). Participants also provided information pertaining to their racial identity, sex assigned at birth, gender identity, and sexual identity (Tables 1 & 2, Appendix A). Participants were asked about current college status and whether they attended Seattle University, the school where research was being completed. In order to maintain anonymity, all questions were made voluntary and participants could refuse to respond.

Sex Education Experience. Participants were asked to answer questions about past sex education experiences, including whether they had received sex education in an academic setting. Participants were asked in what grade they received sex education, what type of schooling best describes the place where they received sex education, whether they would describe their sex education as inclusive. Participants were also invited to share how organized religion influenced their lives, on a 5-point Likert scale from 1 (not at all) to 5 (extremely).

Qualitative Portion. At the end of the survey, participants were asked to provide three

words to best describe their experience with sex education. They were also asked to provide what they want sex education curricula to include in the future and what they believe is important for people to know.

Sex Education Topics Scale. In order to determine whether past experiences of sex education could be termed in-depth, The Sex Education Topics Scale was adapted from Rohr, Reinl, and Baker (2018). Participants were first asked to select any topics that they remembered learning about in their sex education curriculum. A variety of topics such as consent, reproduction systems, sexually transmitted infections, and sexual satisfaction were included. If a topic was selected, the participant was asked to describe the depth of topic coverage in their sex education curriculum. The operational definition for the depth of coverage was quantified in a 3-point Likert Scale. Lower scores reflect that there was no more than a mention or brief conversation about topics. Higher scores indicate in-depth conversations that contributed to deeper understanding.

Communication Scale. To assess level of comfort in communicating about sexual topics, the Communication Scale was adapted from Rohr, Reinl, and Baker (2018). This scale asks participants to indicate how comfortable they are talking about sex and sexual health with on-campus resources, medical professionals, sexual partner(s), family members, teachers and professors, and close friends. It uses a 7-point Likert scale where lower scores reflect lower levels of comfort in sexual health communication and higher scores reflect higher levels of comfort.

Relationship Satisfaction Scale. The Relationship Satisfaction Scale was adapted from the book *Ten Days to Self-Esteem* by David D. Burns, M.D. (1993). Participants in a romantic partnership are asked to rank their level of satisfaction with various aspects of their relationship on a 7-point Likert scale. Questions included topics such as intimacy and closeness and resolving conflicts and arguments. Lower scores reflect low relationship satisfaction, and higher scores reflect high relationship satisfaction.

Self-Efficacy Scale. The Self-Efficacy Scale was adapted from the General Self-Efficacy Scale (GSE) developed by Schwarzer and Jerusalem (1995). This 10-question scale provides statements regarding problem solving and the participant's ability to achieve goals. Participants are asked to rate the degree to which they relate to the given statements. The GSE was reduced to five questions and all answers were rated on a 5-point Likert scale. Lower scores reflect less skillfulness in problem solving and resourcefulness, while higher scores indicate better ability and more confidence in finding solutions to problems.

Sexual Communication Self-Efficacy Scale. To assess general self-efficacy, the Sexual Communication Self-Efficacy Scale was adapted from a scale created by Quinn-Nilas et al. (2015). Sexual Communication Self-Efficacy is understood as the comfort with engaging in different types of communication with a sexual partner. Participants are asked to determine

how comfortable they would feel discussing certain situations with their sexual partners on a 5-point Likert scale. A low level of comfort indicates a lack of self-efficacy in sexual communication and a high level of comfort indicates a high level of self-efficacy in sexual communication.

Results

Sex Education Experience

In order to gauge levels of experience with sex education, participants were asked whether they had received sex education in their lifetimes. Two hundred and twenty-one participants had received sex education and seven participants never received sex education. Participants were then asked to determine in what grades sex education was received. Fourteen participants received sex education in elementary school, 33 participants received sex education in middle school, 24 participants received sex education in high school, and 153 participants received sex education at multiple times. Participants were asked to determine if they thought their sex education could be described as "inclusive." Forty-four participants believed that their sex education was inclusive, 56 participants believed that their sex education was neutral on inclusivity, and 126 participants believed that their sex education was not inclusive.

In order to test the hypothesis that individuals who perceive their sex education to be more inclusive will be more likely to feel comfortable having conversations regarding sexual health, a one-way ANOVA was run with inclusive sex education and communication comfort. There was a significant main effect for communication, $F(2,223)=31.049$, $p<.0001$, equal variances not assumed. Post-Hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly higher communication scores than participants who answered no to perceived inclusivity of sex education, $p<.0001$, $d=1.22$. Post-Hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly higher communication scores than participants who answered neutral to perceived inclusivity of sex education, $p<.0001$, $d=1.094$. This finding reveals large practical significance.

In order to test an additional hypothesis that those who engaged with organized religion in a private school experience will have had a sex education curriculum with fewer topics discussed in depth, a two-way ANOVA was run using Religion, School Environment Type, and Topic Sum. There was no significant interaction between involvement in organized religion and school environment on depth of discussion of sex education topics, $F(3, 215)=1.348$, $p=.260$.

Sex Education Topics Scale

After initial tests were conducted for our hypothesis that individuals who indicate learning about a sexual health topic in depth will be more comfortable communicating about sexual health, we decided to create a deeper question to evaluate. Does the depth of discussion of topics in sex education predict comfort in communicating sexual health? A regression revealed that having more topics discussed in depth during their sex education significantly predicted communication comfort scores, $b=0.509$, $t(216)=6.53$, $p<0.001$, $r^2=0.259$.

A regression was used to determine if the number of topics covered in depth in participants' sex education curricula predicted their general self-efficacy. The findings demonstrated that depth of discussion of sex education topics significantly predicted general self-efficacy, $b=.146$, $t(217)=2.168$, $p=.031$, $r^2=.017$.

A regression was used to answer the question: does comfort communicating with various confidants about sexual topics predict general self-efficacy? The data showed that comfort communicating with various confidants about sexual topics significantly predicted general self-efficacy, $b=.279$, $t(227)=4.366$, $p=.001$, $r^2=.074$. After seeing the significant results of comfort in communicating and general self-efficacy, another question was posed. Does the depth of discussion of sex education topics predict sexual communication self-efficacy? Depth of discussion of sex education topics significantly predicted sexual communication self-efficacy, $b=.216$, $t(217)=3.252$, $p=.001$, $r^2=.042$.

In an effort to verify whether participants perceived their sex education to be inclusive, a one-way ANOVA was conducted. The findings suggest that participants accurately demonstrated whether their sex education was inclusive. There was a significant main effect for depth of discussion of topics, $F(2,213)=71.179$, $p<0.0001$, equal variances not assumed. Post-Hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly more in-depth sex education curricula than participants who answered neutral, $p<0.0001$, $d=1.320$. Post-hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly more in-depth sex education curricula than participants who answered no, $p<0.0001$, $d=2.016$ (Figure 4, Appendix B).

Communication Scale

A one-way ANOVA was conducted to investigate the perceived inclusivity of participant's sex education curricula and whether it influenced their comfort communicating about sex. There was a significant main effect for communication, $F(2,223)=31.049$, $p < .0001$, equal variances not assumed. A Post-Hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly higher communication scores than participants who answered both no to perceived inclusivity,

$p < .0001$, $d=1.22$, and neutral to perceived inclusivity, $p < .0001$, $d=1.094$. This supported the hypothesis that individuals who perceive their sex education to be more inclusive would be more likely to feel comfortable having conversations regarding sexual health (Figure 1, Appendix B).

To further analyze the effects of different sex education topics on comfort when communicating about sex, multiple independent samples t-tests were conducted. There were significant differences in communication for participants who discussed consent ($t(223.748)=3.385$, $p < .001$, $d=.44$), healthy relationships ($t(222.336)=2.1$, $p < .037$, $d=.27$), sexual health resources ($t(200.408)=3.705$, $p < .0001$, $d=.49$), sexual communication ($t(78.598)=6.071$, $p < .0001$, $d=.98$), and sexual satisfaction ($t(42.037)=7.589$, $p < .0001$, $d=1.50$) during sex education compared to those who did not.

Relationship Satisfaction Scale

Multiple linear regression analyses were conducted to explore the potential relationships between depth of discussion of sex education topics, self-efficacy discussing sexual topics, and relationship satisfaction. Depth of discussion of sex education topics significantly predicted both relationship satisfaction ($\beta=.278$, $p=.001$, $r^2=.070$) and sexual communication self-efficacy ($\beta=.216$, $p=.001$, $r^2=.042$). Additionally, sexual communication self-efficacy significantly predicted relationship satisfaction ($\beta=.245$, $p=.004$, $r^2=.053$). (Figure 2, Appendix B).

Multiple independent samples t-tests were conducted to analyze the impact of discussing certain topics during sex education on relationship satisfaction in the future. Tests were run to compare the mean relationship satisfaction scores of those who did and those who did not discuss sexual communication during sex education, and also for those who did and those who did not discuss healthy relationships during sex education. There was a significant effect for relationship satisfaction, $t(109.838)=3.499$, $p=.001$, $d=.594$, such that those who discussed sexual communication during sex education received higher scores than those who did not (equal variances not assumed). There was also a significant effect for relationship satisfaction, $t(110.648)=2.122$, $p=.036$, $d=.371$, such that those who discussed healthy relationships during sex education received higher scores than those who did not (equal variances not assumed).

Lastly, chi-squared tests of independence were run to determine if certain elements of relationship satisfaction differed based on what topics were discussed during sex education. Level of satisfaction with intimacy and closeness in relationships differed by whether healthy relationships were discussed during sex education, χ^2 (4, N= 137)=10.39, $p=.034$. Additionally, level of satisfaction with communication and openness in relationships differed by whether sexual communication was discussed during sex education, χ^2 (5, N= 139)=12.06, $p=.034$.

General Self-Efficacy Scale

In an effort to test our third hypothesis that individuals with high self-efficacy and high sexual communication self-efficacy will be more comfortable communicating sexual health needs with medical professionals and other confidants, a univariate analysis of variance was conducted to find interactions between variables. The findings revealed that there was a significant main effect for general self-efficacy, $F(2,227)=4.159$, $p=0.017$. There was a significant main effect for sexual communication self-efficacy, $F(2,227)= 8.119$, $p<0.001$. There was no significant interaction between General Self-Efficacy and Sexual Communication Self-Efficacy on Communication Scores $F(2,2)=1.064$, $p=0.347$.

Because of the results that we found on the univariate analysis described previously, we wanted to test for main effect instead of interaction. Therefore, to further test our third hypothesis, we conducted a one-way ANOVA. There was a significant main effect for communication, $F(2,225)= 7.499$, $p=0.001$, equal variances assumed. Post-hoc Tukey HSD corrected analysis revealed that participants with high-levels of general self-efficacy had significantly higher communication scores than those with medium-levels of general self-efficacy $p=0.001$, $d=0.597$. Post-hoc Tukey HSD corrected analysis revealed that participants with high levels of general self-efficacy did not have a significant difference in communication scores compared to those with low levels of general self-efficacy $p=0.438$.

To find whether general self-efficacy predicted comfort in communication with various confidants, a regression was conducted. General self-efficacy significantly predicted communication comfort scores, $b=0.509$, $t(226)=4.366$, $p<0.001$, $r2=0.0.078$.

In determining if Sexual Communication Self-Efficacy predicted general self-efficacy, we ran a regression and found that sexual communication self-efficacy significantly predicted general self-efficacy, $b=.255$, $t(227)=3.961$, $p=.001$, $r^2 =.061$ (Figure 3, Appendix B).

To find significant mean differences in general self-efficacy levels between perceived inclusivity of sex education curriculum, independent t-tests were conducted. The data revealed that there was a significant effect for general self-efficacy, $t(168)=2.469$, $p=.015$, $d=.431$, with those who considered their sex education inclusive receiving higher scores than those who didn't, equal variances assumed.

Sexual Communication Self-Efficacy

To determine whether individuals with high self-efficacy and high sexual communication self-efficacy will be more comfortable communicating sexual health needs with medical professionals and other confidants, a one-way ANOVA was run with Sexual Communication Self Efficacy and Communication Scores. There was a significant main effect for communication, $F(2,225)=8.680$, $p<0.0001$. Equal variances assumed. Post-hoc Tukey HSD corrected analysis revealed that participants with high level sexual communication self-

efficacy had significantly higher communication comfort scores than those with medium-level of general self-efficacy p=0.002, d=0.553. Post-hoc Tukey HSD corrected analysis revealed that participants with high levels of sexual communication self-efficacy had significantly higher communication comfort scores compared to those with low levels of sexual communication self-efficacy p=0.024, d=0.909.

Qualitative Responses

Word frequency counts were conducted to find which words were most used for participants to describe their experience in sex education. The three most commonly reported words were abstinence (25 responses), heteronormative (25 responses), and informative (15 responses). At the end of the survey, participants were also asked to describe what they would like to see in future sex education curricula. General responses showed that participants would like to see more holistic and inclusive approaches to sex education, with emphasis on LGBTQIA+ topics, consent, healthy relationships, and sexual and reproductive health. Some of the most impactful responses were:

1. There needs to be a more holistic approach to sex education and an effort to make it more real […] by talking about the "difficult" topics with the help of guest speakers that specialize in the major areas of sex education. I also think that including political and intense conversation is necessary in order show that different people have different views and to teach all students healthy ways to cope with that reality instead of fighting it in a non-productive way.

2. I believe that future sex education should be more inclusive of the LGBT+ community as well as the fluidity of sexuality in general. I believe they should be more open to reproductive rights and the oppression of women's sexual health. I also believe it, above all things, to inform the people of healthy relationships, both physical, emotional, and mental, and how that looks like in different relationships. As well as the importance of consent.

3. It is important that people can know who they can reach out to for help and education even if it is not advertised in schools.

Discussion

One main interest that was addressed in the results of the study is how the comprehensiveness of sex education curricula, specifically the depth of discussion of topics,

impacts people's comfort in communicating their needs to various confidants in their lives. One hypothesis of this study proposed that higher levels of inclusivity in sex education curricula would lead to higher levels of communication about sexual health. The findings demonstrated that participants who answered "yes" to perceived inclusivity in sex education had higher communication scores than participants who answered both "no" and "neutral" to perceived inclusivity. The data revealed that having inclusive sex education can benefit one's comfort in communicating, which is crucial for one's health. Specifically, communicating with medical professionals and campus resources is crucial in getting the help that people need with their personal health matters.

As is mentioned in the literature review, learning effective communication skills has the potential to impact a person's decisions regarding the sexual activities in which they participate, and it can also result in less risky sexual behaviors. This is important in making sure that sexual health needs are being met, that people are staying safe and emphasizing consent in sexual encounters, and that people know how to ask for help when needed. The findings in this study are in alignment with existing research in the field; however, there is still a major gap in the research. More extensive research needs to be conducted to determine if the communication skills that are gained in skill-based sex education curricula results in help-seeking and problem-solving behaviors. Specifically, research needs to address an individual's comfort in asking for help with sexual health and sexual problems: for example, STIs and unwanted pregnancies.

Sex education can have effects for adolescents and young adults beyond knowledge of anatomy and prevention of unwanted pregnancy and STIs. Alternatively, this study demonstrates how learning about sex education in an environment that promotes healthy communication and in-depth sex education topics can lead to higher rates of self-efficacy. The results of this study's regressions show that sexual communication self-efficacy, depth of discussion of sex education topics, and communication comfortability all predicted higher rates of general self-efficacy. These higher rates of self-efficacy dictate an increase in decision-making, problem-solving, and communication skills, which can provide adolescents and young adults with skills that will aid them in their everyday lives. They will feel more task-oriented, confident when faced with new environments, and secure in their ability to reach out for help. These skills move beyond sexual health and prepare a young person to be a well-informed adult.

Additionally, relationship education can equip adolescents with the necessary skills to engage in more positive interactions and maintain healthier relationships throughout their lives. Participants who discussed sexual communication and healthy relationships during sex education scored higher on relationship satisfaction than those who did not, which reveals

that these topics may be valuable assets to sex education curricula. The data also shows that discussion of healthy relationships during sex education may be tied to level of satisfaction with intimacy and closeness in one's relationship, and the discussion of sexual communication during sex education may be tied to level of satisfaction with communication and openness in one's relationship. These results reveal that having these kinds of discussions during youth can influence how healthily people engage with romantic and sexual relationships later on in life. Being able to pinpoint differences between healthy and unhealthy relationships, as well as knowing what healthy communication around sex should entail (for instance, consent, protection, and pleasure) may serve as helpful knowledge as adolescents grow and begin navigating relationships of their own.

One main hypothesis of this study proposed that depth of discussion of sex education topics would predict future relationship satisfaction, which was confirmed by our results. Depth of discussion of sex education topics significantly predicted both relationship satisfaction and sexual communication self-efficacy. In addition, sexual communication self-efficacy significantly predicted relationship satisfaction, revealing the interconnectedness of all three variables as well as the potential benefits of providing comprehensive, in-depth sex education to youth. By providing a thorough description of topics and creating a space for deeper questioning and discussion, educators may be able to provide students with the groundwork to engage in healthier romantic and sexual relationships later in their lives. These findings help fill the gap in research around the potential benefits of healthy relationship education and support the notion of integrating relationship education into sex education curricula at a policy level. Future research should consider how both positive components of relationships (such as fun, respect, safety, and acceptance) and negative components (such as sexual violence and emotional abuse) are influenced by relationship education.

Limitations

The sample used in this study was one of convenience, and therefore made the results less generalizable to the greater population. Additionally, a large portion of the sample was white, female-identifying participants. This study relied on self-reported information from participants that included questions on attitudes and feelings towards subjects. Having solely a self-report format that relies on participant subjectivity can be a limitation because of the passage of time, strong individual attitudes and feelings towards the topic, and potential inconsistencies between participants. A major limitation was that our study was conducted during the COVID-19 pandemic, which may have altered participants' capacity to provide information or complete sections fully. This survey was distributed alongside many other research surveys, which could have resulted in participant burnout.

Future Research

To build upon our results, future research should consider the different types of sex education curricula available for all ages of learners. It also should delve into the differences in school environments and their chosen curricula, and how those differences may influence sexual health outcomes. Currently, there is a lack of research on inclusive sex education that needs to be further addressed, as it is important to understand the differences in curricula that are perceived as inclusive versus curricula that are not. Lastly, it is important to consider the benefits of sex education on a variety of other outcomes not strictly related to sexual health, such as healthy relationship dynamics.

Appendix A

Table 1: Gender Identity Frequencies and Percentages

Gender Identity	*Frequency*	*Percentage*
Female	170	74.9%
Male	45	19.8%
Non-Binary	8	3.5%
Transgender	4	1.8%

Table 2: Sexual Identity Frequencies and Percentages

Sexual Identity	*Frequency*	*Percentage*
Heterosexual	130	57.3%
Bisexual	42	18.5%
Queer	23	10.1%
Questioning	14	6.2%
Homosexual	10	4.4%
Pansexual	7	3.1%
Asexual	1	0.4%

Appendix B

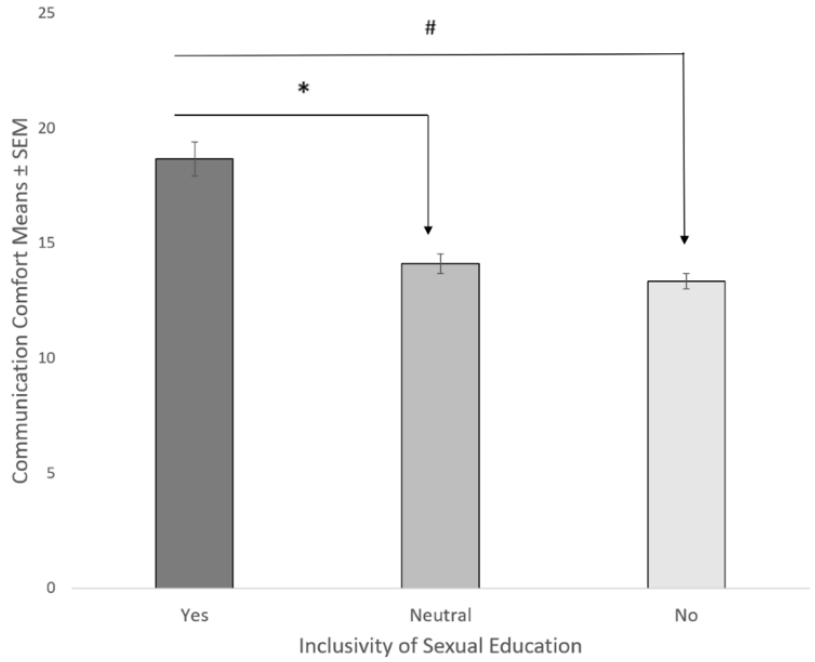

Fig 1. There was a significant main effect for communication, F(2,223)=31.049, p<0.0001, equal variances not assumed. Post-hoc Games-Howell corrected analysis revealed that participants who answered "yes" to perceived inclusivity in sex education had significantly higher communication scores than participants who answered "no" to perceived inclusivity of sex education, p<0.001, d= 1.22. Post-hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly higher communication scores than participants who answered neutral to perceived inclusivity of sex education, p<0.001, d= 1.094. * p<0.0001 ♯ p<0.0001.

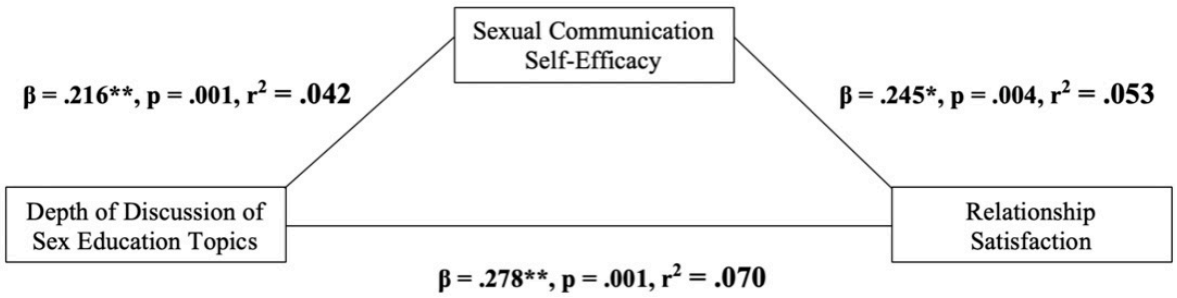

Fig 2. Multiple linear regression analyses were conducted to explore whether depth of discussion of sex education topics (Sexual Topics Scale) was predictive of relationship satisfaction (Relationship Satisfaction Scale) and self-efficacy discussing sexual topics (Sexual Communication Self-Efficacy Scale). Depth of discussion of sex education topics significantly predicted both relationship satisfaction and self-efficacy discussing sexual topics. Additionally, self-efficacy discussing sexual topics significantly predicted relationship satisfaction. **p < .001, *p < .05.

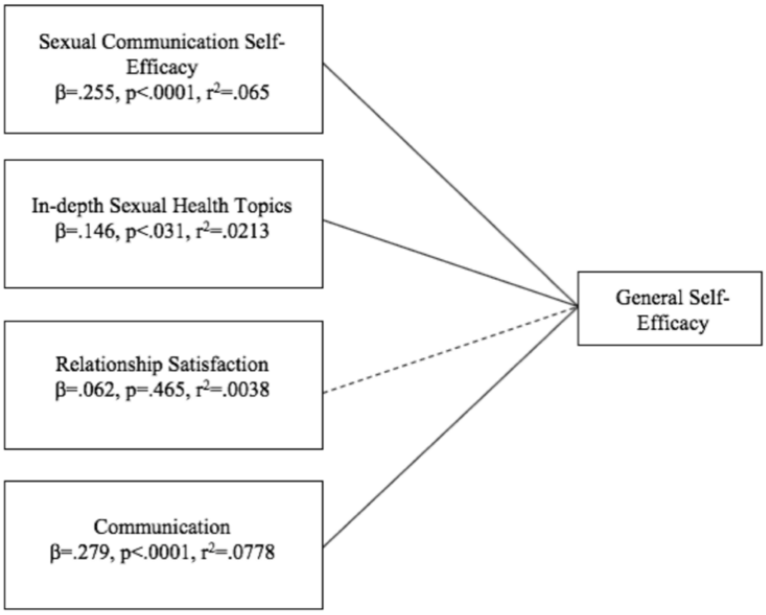

Fig 3. A linear regression analysis revealed that Communication, Depth of Discussion of Sex Education topics, and Sexual Communication Self-Efficacy all significantly predicted higher rates of General Self-Efficacy. Relationship Satisfaction was not predictive of higher rates of General Self-Efficacy. **p< .001, *p< .05.

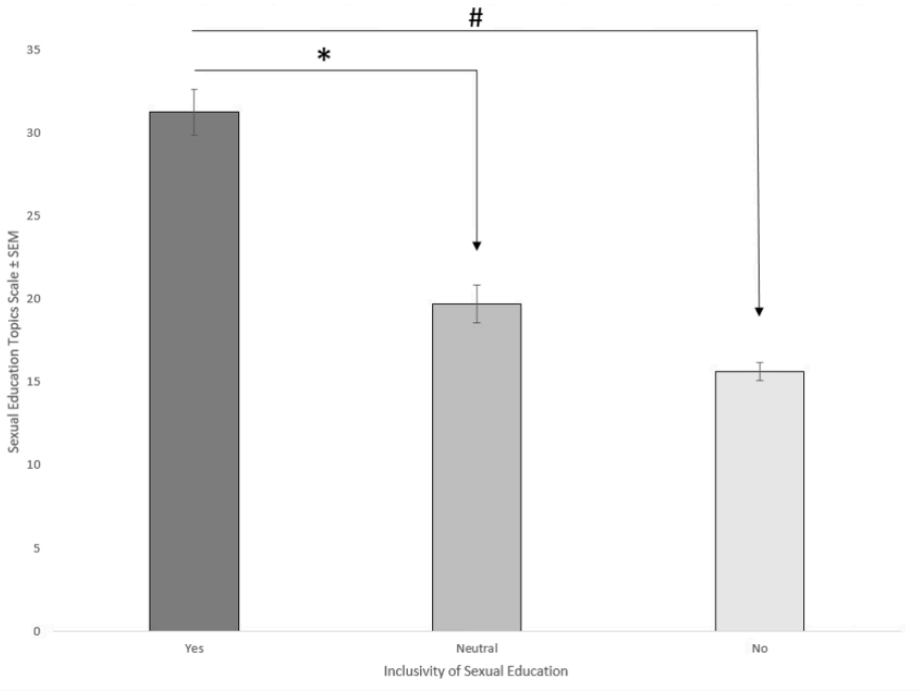

Fig 4 There was a significant main effect for depth of discussion of topics, F(2,213)=71.179, p<.0001, equal variances not assumed. Post-hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly more in-depth sex education curriculums than participants who answered neutral, p<0.0001, d=1.320. Post-hoc Games-Howell corrected analysis revealed that participants who answered yes to perceived inclusivity in sex education had significantly more in-depth sex education curriculums than participants who answered no, p<0.0001, d= 2.016. * p<.0001 # p<.0001

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