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“What’s Something You’ve Heard About Sex, But Are Unsure If It’s True?”: Assessing Middle and High School Students’ Sex Education Questions



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ABSTRACT

Purpose: Comprehensive sex education (CSE) encourages safer sex behavior for teens and young adults. However, young people recognize a gap between sex education as taught in the classroom and the reality of their sexual experiences. Thus, CSE should take into account the perspectives of its target population.

Methods: The current project assesses young people’s sexual uncertainties by analyzing open-ended responses that were anonymously submitted during in-person sex education sessions. These education programs were administered in middle and high schools in New York State by facilitators from Planned Parenthood Hudson Peconic, Inc. The authors analyzed 1,335 responses from a racially diverse sample of students between the ages of 10 and 21, with 75% of participants between 15 and 17 years old.

Results: Using content analysis, the authors identified 49 recurring content codes in participants’ responses, which were organized into 16 categories. Most responses centered around pregnancy, sexually transmitted infections, and how to prevent these outcomes. However, responses also highlighted topics that are not always covered with nuance and transparency, if at all, in sex education (e.g., withdrawal, effectiveness of condoms and other contraception, anal and oral sex). Additionally, gender analyses indicated that girls made greater reference to pain, while boys made greater reference to pleasure, which has implications for girls’ development of a positive sexuality.

Discussion: These results should be interpreted with a social equity lens to inform the development of needs-driven, target-based CSE programming.

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IMPLICATIONS AND CONTRIBUTION

Based on an analysis of 1,335 adolescents’ open-ended sex education responses, students were uncertain and wanted information about a wide range of topics, including many that are not typically covered in sex education (e.g., pleasure, withdrawal). These results should be used to develop needs-driven, comprehensive sex education programming.

A comprehensive sex education (CSE) system offers a variety of benefits to young people. CSE typically provides information about avoiding the risks associated with sexual activity (e.g.,

unwanted pregnancy, sexually transmitted infections [STIs]) and often covers several aspects of sexuality and relationships (e.g., healthy communication, desire, sexual, and gender diversity) [1]. Despite common misconceptions, research has found that CSE does not lead to earlier or increased sexual activity but predicts increased use of contraception and improved reproductive health outcomes [2–5]. Abstinence-only-until-marriage sex education programs, which focus on abstinence alone, do not delay

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sexual debut nor reduce other sexual risk behaviors [1,6,7]. Nonjudgmental information about positive, healthy, and safe sexual experiences promotes sexual responsibility, leading to smarter choices [8].

CSE has become increasingly common in the past decade. A longitudinal study found that, between 2015 and 2019, abstinence-only-until-marriage sex education had decreased compared to the time period of 2011–2015. In both time periods, however, only about half of the adolescents surveyed received sex education that met the minimum standard set by national goals [9]. Another study demonstrated that participants' reports of more CSE were correlated with positive attitudes toward consent for all participants as well as greater intentions to obtain consent for participants with lower education levels [10]. Ultimately, comprehensive and evidence-based sex education leads to the adoption of safer sex practices.

Sex education programs have typically focused on the prevention of risks associated with sexual activity, such as pregnancy and STIs [11]. Researchers and theorists argue that aiming only to prevent danger and risk "fail[s] to support young people's sexual well-being" [11] and that this danger prevention emphasis should be supplemented with conversations about pleasure and positive aspects of sexuality. To better serve young people's sexual education needs, we must evaluate and understand the sexual information that young people receive, assess their sexual uncertainties and needs, and identify the gaps between the two.

Sex education needs and preferences

Identifying the specific needs of a target group is essential for promoting health behavior. If programs hope to take an empowerment-based approach, they must assess those needs directly from the population of interest and recognize the complexities in doing so [12,13]. A review of peer-led health promotion programs with young people found that only around 8% of outcome evaluations actually assessed the needs directly from the target group [14]. Most interventions are based on assumptions of normative needs. Dominant discourse often makes the assumption that young people should be sexually innocent and thus tends to focus on the dangers of sexual activity and the surveillance and control of young people's sexualities [15]. Additionally, discourse has typically focused on the prevention of risks associated with sexual activity, and the so-called "successful" sex education programming has long been measured by its ability to reduce pregnancy and STI rates [2,3,11].

Student perspectives are typically missing from curriculum development, and students often report that sex education content is not relevant to them [16]. Indeed, the gap between knowledge and practice has been widely established and discussed by scholars in the sex education field [15]. In one qualitative study, youth recognized a large disparity between safe sex as taught in the classroom and the actual complexity of sexual encounters that young people experience [17]. Young adults argued that sexual decision-making in the real world was shaped by social context and complicated interpersonal dynamics, and these elements were not adequately addressed by sex education programs that focused on unrealistic, individualized, rational decision-making [17]. Because sexual knowledge is applied within relationships, the dynamics of those relationships can prevent sexuality education from translating into practice [15]. Thus, sexual health education should be

needs-driven in addition to evidence-based in order to maximize effectiveness [18].

Previous research has recognized teens' preferences for sex education content and delivery. Typically, students resist abstinence-only sex education because they find abstinence until marriage impractical [16]. Instead, students want information that will keep them sexually safe, whether they choose to have sex now or later [16]. Data from the United States find that over half of young people will have sexual intercourse by the time they graduate high school [19]. One qualitative study found that young people expressed the need for education on physical development and puberty, transmission of STIs, accessing and using condoms and other contraception, using sexual health services, managing relationships and dealing with jealousy, love and sexual attraction, how people have sex, sexual pleasure, masturbation, and sexual orientation [12]. Data from a radio talk-back segment in Australia found that young people sought varied information about sex, including relationships, sexual development, sexual health, and sexual practices [20]. In another study, teens 15- to 18-years-old indicated that they wanted to learn more about sexual behavior and STIs, ideally at school, from someone professional but of a similar age [21]. Ultimately, young people want relevant and reliable sex education information that relates to them and can help them make safe decisions [16].

There are also gender differences in preferences for content and delivery of sex education. For example, in one study, girls had a stronger preference for learning about relationships and contraception compared to boys and preferred a same-gender instructor [22]. Additionally, girls are particularly stigmatized by adults for being sexually active and for displaying sexual agency and desire [15]. Contemporary sex education often excludes gender and sexual minorities (e.g., transgender, gay, lesbian, and bisexual individuals) as well, because the curricula assume heterosexuality and do not cover information relevant to gender and sexual minority identities and experiences [23,24]. Gender and sexual minority students report a desire for inclusive sex education that directly addresses LGBTQ+ issues and incorporates all identities, sex practices, and relevant prevention methods [23,24].

Current project

The current project aims to assess gaps in young people's knowledge by qualitatively assessing the anonymous responses that students provided during a sex education program. In the current project, our assessment captures the responses of young people between the ages of 10 and 21, which spans across the developmental stages of middle childhood (9–11 years), adolescence (12–18 years), and young adulthood (18–25 years) [12]. We utilize the term "young people" as a broader category to represent the varying ages and developmental stages within our sample. However, the vast majority of our sample (approximately 95%) consisted of adolescents, most of whom were taught in middle and high school classroom settings.

In the current study, we analyzed anonymous feedback from young people collected at in-person sex education programming over the span of 14 months. This information was used to conceptualize and quantify what young people are hearing about sex and/or what they are uncertain about. We conducted qualitative content analysis on this open-ended response data using an inductive approach; in other words, no theory was used to inform the development of content codes for these responses.

We also used demographic information to assess differences in the frequency of categories of responses by gender and age for potential tailoring of sex education content by demographic group [22].

Methods

Participants

Participants in this study ($N = 1,335$) were students who received in-person sexual health education programming from Planned Parenthood Hudson Peconic, Inc. (PPHP) during a time period ranging from January 2019 to the onset of the COVID-19 pandemic in March 2020. During this time period, the PPHP education team provided 976 sex education programs to over 5,300 unduplicated participants. Participants were located in the counties that PPHP serves, which are Westchester, Rockland, and Suffolk Counties in New York State. While PPHP largely provides education in middle and high school classrooms, some education programming is provided at community-based organizations. Thus, for the purposes of the current research, participants who were over age 21 ($n = 22$; 1.7% of the original sample) were removed from the data set. Participants who were older adults (up to 59 years old) likely came from education session(s) hosted at a community organization that catered to older adults. We could not exclude data based on the educational setting itself because the location of the programming was removed before data transfer to ensure anonymity. Thus, we selected an age cutoff to focus our analyses on a younger sample. The final sample included 1,335 participants between the ages of 10 and 21 ($M_{age} = 15.6$; $SD_{age} = 1.5$), though the majority of participants (75.8%) were between 15 and 17 years old. Adolescents (ages 12–18) represented 94.9% of the total sample.

The sample consisted largely of cisgender girls (50.6%; $n = 675$) and cisgender boys (45.6%; $n = 609$). The sample also included seven transgender boys (0.5%), three transgender girls (0.2%), six gender queer/gender nonconforming individuals (0.4%), and two individuals who wrote-in “gender fluid” (0.1%). One participant also wrote in “bisexual” as their gender. An additional seven participants selected “other” or “something else” (0.5%) but did not further specify, while 25 participants selected “prefer not to say” or left the question blank (1.9%).

The racial /ethnic distribution of the sample was largely Hispanic/Latinx (40.1%; $n = 536$). A large proportion of participants indicated their race/ethnicity as Black or African American (19.9%; $n = 266$), White (18.7%; $n = 250$), and Asian/Pacific Islander (3.3%; $n = 44$). Nine additional participants indicated their race as American Indian/Alaska Native (0.7%). In addition to a multiracial response option, participants who selected more than one racial or ethnic category were coded as multiracial (13.3%; $n = 177$). 11 participants wrote-in a response that was not already listed (0.8%; e.g., Afro-Latina, South Asian, West Indian, Muslim, Jewish, etc.). 15 participants selected “other” without providing specification (1.1%), and 27 participants selected “prefer not to say” or left the question blank (2.0%). See Table 1 for a complete list of participant demographics.

Procedure and materials

PPHP's sexual education programming is offered in person in middle and high school classrooms, as well as local community organizations. The educational program topics include safer sex,

Table 1
Demographics for the sample

N	1,335
Age M (SD)	15.6 (1.5)
Gender n (%)	
Cisgender girls	675 (50.6)
Cisgender boys	609 (45.6)
Transgender girls	3 (0.2)
Transgender boys	7 (0.5)
Genderqueer/gender nonconforming individuals	6 (0.4)
Written in response	3 (0.2)
Other or something else (nonspecified)	7 (0.5)
Prefer not to say or left blank	25 (1.9)
Race/ethnicity n (%)	
Hispanic/Latinx	536 (40.1)
Black or African American	266 (19.9)
White	250 (18.7)
Asian/Pacific Islander	44 (3.3)
American Indian/Alaska Native	9 (0.7)
Multiracial	177 (13.3)
Written in response	11 (0.8)
Other or something else (nonspecified)	15 (1.1)
Prefer not to say or left blank	27 (2.0)

contraception, sex & technology, healthy relationships, and consent. From these options, schools and organizations choose how many and which lessons they would like PPHP facilitators to teach in their classrooms. Schools can use PPHP programming as their sole sex education curriculum or as a supplement to existing curricula. These decisions vary by school, and we do not have access to data about additional sex education provided across schools.

The data for this project were collected in the form of demographic sheets administered to each subject who received educational programming from PPHP (see Supplement Document), typically at the start of each program. The completion of these demographic sheets was optional and voluntary at all education programs. Demographic sheets included questions for participants' gender, race, and age. The measure of interest for the current study was an open-ended question on the demographic form, which stated: “What's something you've heard about sex but are unsure if it's true?” This question was followed by an open space for participants to write in a response. Participants typically wrote a statement in response to the prompt (e.g., “I heard you can contract sexually transmitted diseases [STDs]”); these statements reflect information participants have heard about sex but are uncertain about. Thus, given the nature of the prompt, all statements should be framed as questions (e.g., “Condoms prevent STDs” should be understood as “Do condoms prevent STDs?”) because participants were asked to indicate uncertainties about sexual information. Some participants wrote in an anonymous question of their own (e.g., “Can you get an STD even if you use a condom?”). Only subjects who wrote a response to this open-ended question were included in the sample.

The current study is a secondary data analysis of these data, which were originally collected for PPHP internal reporting purposes. Thus, subjects did not provide informed consent for the current research project, but secondary analysis of this data was approved by the Rutgers University Institutional Review Board. Before receiving the data, PPHP removed some demographic and setting information to protect participant anonymity. For example, the program topics, facilitator names, locations, zip codes, and dates of programming, as well as any other personally identifiable information, were removed from

the data set before securely transferring the data from PPH to the researchers for the current project. Because these steps were taken for anonymity, we cannot separate participants by school, ZIP code, or school type (e.g., middle vs. high school), nor remove community organizations from the sample.

Data Analysis Plan

Qualitative content coding. We followed a process of content coding as described by Woike (2007) [25] and O'Connor & Joffe (2020 [26]; **Figure 1**), in which the authors first familiarized themselves with the full data set and developed a coding frame. The authors organized recurring topics into content codes and described them such that they could be identified by a new set of independent coders. These independent coders were advanced undergraduate research assistants who were trained on the data set and coding frame. Due to the size of the data set, the first round of independent coding was split between two pairs of coders, who each coded approximately half of the responses in the data set. After initial reliability analyses, coding pair one completed all subsequent rounds of coding. A few decisions were made before the coding process began; both pairs of coders were selected, the inter-coder reliability threshold was set at 0.8, and the authors determined that codes would be removed from the coding frame if there were less than five agreed-upon instances of the code within the full data set.

After each coding pair completed coding all responses, inter-coder reliability between the two coders was calculated for each code [26]. Codes that did not reach sufficient reliability were considered by the first author, the coding frame was revised and clarified, and the code was sent back to coding pair one for recoding. This process was repeated until sufficient reliability was established for all codes. In the first round of coding, 31 of the 55 codes identified in the original coding frame (56.4%) were sent back for additional rounds of re-coding, and four (7.3%) were

removed from the coding frame for low agreed-upon presence in the data set. One code ("negative emotional consequences") was determined to overlap with two existing codes ("sex negativity" and "emotional component to sex") and was also removed from the coding frame. Reliability (Cohen's kappa for two coders on a nominal scale) for the first round of coding was combined across the two coding pairs and ranged from 0.41 to 0.98 (see Supplement Document). While the responses for this first round were combined between two coding pairs, all codes that were not subject to additional rounds of coding had at least 0.75 reliability for coding pair 1, who coded all subsequent data. Thus, coding pair one demonstrated sufficient reliability even for those codes that were only subject to one round of coding.

Twenty-six of the remaining 31 codes (83.9%) reached sufficient reliability after the second round of coding. Only five codes were subject to more than two rounds of coding (see Supplement Document). Once sufficient reliability was reached for all codes, the remaining discrepancies were settled by coding pair 1. The two coders discussed and came to agreement on whether the given code was present or absent in each remaining response. Once discrepancies were settled, qualitative content coding was complete for the full data set; each participant response was coded for the presence (1) or absence (0) of every content code in the coding frame. Most of the content codes were organized into broader categories by the authors (see **Table 2**).

Quantitative analyses. The prevalence of each individual code in the data set was quantified by a percentage. Composite totals were created to quantify the number of responses coded within an overarching category (e.g., every response coded within the broader "condoms" category). We used chi-square analyses to assess differences in the prevalence of each coding category by the demographic variables of gender and race/ethnicity. Analyses and discussions of differences in responding across racial/ethnic groups can be found in the Supplement Document, as there were

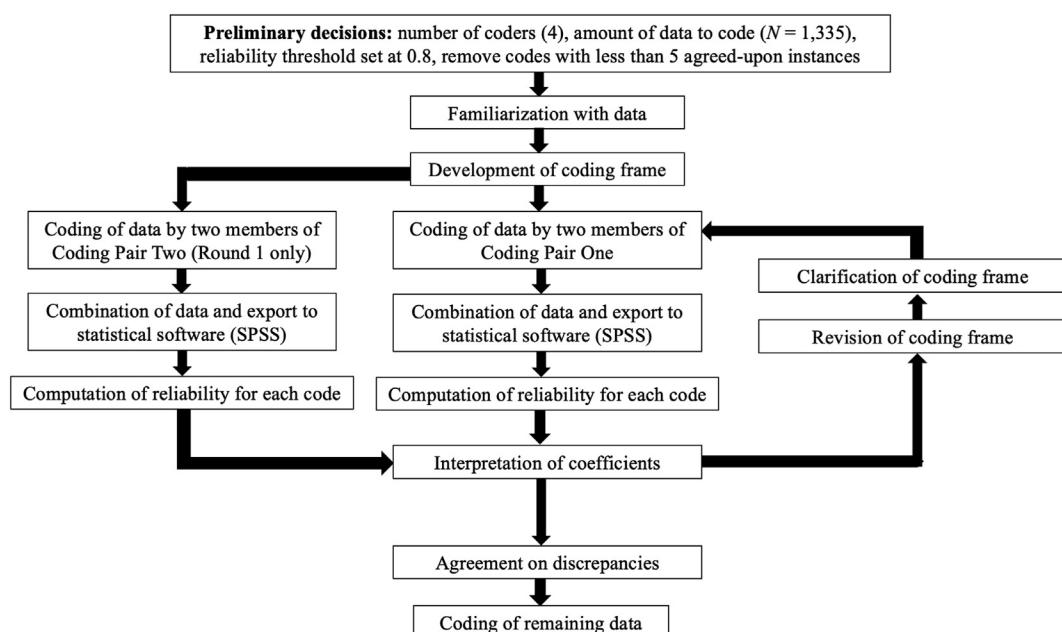


Figure 1. Qualitative content coding process. Adapted from O'Connor & Joffe, 2020 [26].

not enough data or existing literature to make claims about these differences within the scope of the current project. We used binary logistic regressions to examine the prevalence of each code category by participants' age.

Results

We identified 49 final codes in participants' responses to the prompt, "What's something you've heard about sex but are unsure if it's true?" which could be organized into 16 categories. Descriptions, examples, and prevalence for all codes, organized into their respective categories, can be found in [Table 2](#). The coding categories are as follows: condoms, birth control, pregnancy, withdrawal, STIs, pain, body/hygiene, anal or oral sex, sex negativity, pleasure, sex mechanics, consent, virginity, LGBTQ+, emotional component, and miscellaneous ([Table 2](#); [Figure 2](#)). Coding categories, rather than each individual code, were used for analyses that assessed demographic differences by gender, race/ethnicity, and age.

Many young people wrote about condoms (18.1% of responses; 241 responses). More specifically, participants wrote about whether you should use them, whether they protect against STIs and prevent pregnancy, and questioned their effectiveness (e.g., "Using a condom is not 100% guaranteed safe"). Participants heard that condoms can break and asked about what types of condoms exist and how to correctly use them.

While condoms are often used as a form of contraception, many respondents had questions about other forms of birth control, which were categorized separately (11.0%; 147 responses). These responses included whether birth control prevents pregnancy, potential side effects (e.g., "Birth control makes you gain weight"), cost and access (e.g., "How expensive is the pill option?"), and how birth control works (e.g., "If you skip one day of birth control, can you still get pregnant?"). Participants also questioned the effectiveness of birth control and referenced emergency contraception (e.g., plan B).

Respondents had also heard about pregnancy (12.8%; 171 responses), including that sex can lead to pregnancy. Participants had heard about how the timing of sex during the menstrual cycle affects pregnancy (e.g., "That you can only get pregnant if you're ovulating"), that sex during one's period could lead to pregnancy (e.g., "You can get pregnant on your period"), and generally had questions about how the process of pregnancy works or occurs (e.g., "The erection. How do you get someone pregnant with it?").

Similarly, young people had heard about and had questions about STIs (12.4%; 165 responses), including that they exist (e.g., "The different diseases you can catch"), how they are transmitted (e.g., "That you can get a disease ... your first time having sex"), and the symptoms, testing, and treatment associated (e.g., "Which STDs can be cured?"). Respondents also made references to the number of partners someone has in relation to STIs (e.g., "That you can get a disease from having sex with a lot of different people") and made specific references to HIV and/or AIDS (e.g., "How [does] AIDS occur").

Many program attendees had heard but were uncertain about the practice of withdrawal (7.6%; 102 responses), which included mention of withdrawal without further elaboration (e.g., "the pull out method"), pre-ejaculatory fluid specifically (e.g., "Premenstrual can get a girl pregnant"), and questions about the effectiveness of using withdrawal as a contraceptive method (e.g., "Does the pull out method work?"). Another common topic of

participant responses was pain during sex (12.9%; 172 responses), both generally (e.g., "It hurts") and when having sex for the first time specifically (e.g., "It's painful the first time"). Some respondents also asked about other potential injuries that could result from sex (e.g., hymen tears; "puncture a throat or another orifice"). Participants also discussed anal sex and oral sex (4.8%; 64 responses), typically asking whether anal sex could result in pregnancy and whether oral sex could transmit STIs.

Attendees had questions about the body and hygiene (5.3%; 71 responses), including mention of postcoital urination (e.g., "Why do you have to pee after sex?") and other hygiene concerns (e.g., "If it has a smell"). Students also asked whether sex changes the body in some way (e.g., butt gets bigger, vagina gets loose, etc.). Additional responses captured questions about the penis and associated reproductive anatomy (e.g., penis size; "Is blue balls real?"). Participants also wrote about virginity (1.8%; 24 responses; e.g., "Is there a cherry that needs to be popped?") and about consent (2.5%; 33 responses), both broadly and in terms of the legal age of consent for sex.

Additional codes, which stood alone and did not make up composite categories, captured a range of topics. These topics included the mechanics of sex (3.7%; 49 responses; e.g., sexual positions; "How long does it last?"; "A penis goes in a vagina?") and an emotional component to sex (e.g., "Is it true that you get all kind of emotion while having sex?"; 1.0%; 14 responses). Many students mentioned pleasure and other positive aspects of sex (4.0%; 54 responses; e.g., "It feels good"), but just as often mentioned sex-negative messages (4.4%; 59 responses; e.g., sex is dirty, bad, sinful, or shameful). Some young people inquired about LGBTQ+ topics and identities specifically (1.3%; 18 responses; e.g., being transgender, gay sex). Finally, other responses could not be coded into any of the above codes or categories and were instead coded as "miscellaneous" (5.0%; 67 responses; e.g., "Do sperm cells die instantly when it comes into contact with the outside atmosphere").

Gender differences in responses

We tested differences between cisgender boys and girls across all categories of responses ($n = 1,284$; 52.6% girls). Girls ($n = 119$; 73% of pain responses) were more likely than boys ($n = 44$; 27%) to discuss pain in their responses, $\chi^2(1) = 31.27$, $p < .001$, while boys ($n = 37$; 74%) were more likely than girls ($n = 13$; 26%) to discuss pleasure or other positive elements of sex, $\chi^2(1) = 14.73$, $p < .001$. Girls ($n = 101$; 60%) were more likely than boys ($n = 66$; 40%) to discuss pregnancy, $\chi^2(1) = 4.82$, $p = .028$. Girls ($n = 98$; 68%) were also more likely than boys ($n = 47$; 32%) to discuss birth control, $\chi^2(1) = 14.78$, $p < .001$. However, boys ($n = 141$; 60%) were more likely than girls ($n = 94$; 40%) to reference condoms, $\chi^2(1) = 18.23$, $p < .001$.

Transgender and gender expansive participants

Research should not ignore specific subpopulations in service of generalizability but should adjust methodology to gain a deeper understanding of the experiences of marginalized groups [\[27\]](#). Thus, we specifically looked at the responses of transgender and gender expansive participants in our study. This subgroup included participants who indicated their gender on the demographic form as transgender man, transgender woman, gender queer/gender nonconforming, gender fluid, or other/something else ($n = 25$).

Table 2
Description and prevalence of all content codes in the dataset, organized by category

Category	Content Code	Description	Examples	Prevalence of Code in dataset n (% responses)
Condoms	Condom effectiveness	Questions or statements about the effectiveness of condoms; questioning how well they work	"Condoms are only 99% effective" "If condoms are safe or not" "Even with a condom you can get pregnant" "If condoms work 100% of the time" "Without condoms isn't safe" "You should use a condom" "Condom facilitates safe sex" "Use protection"	79 (5.9%)
	Should use condoms	Condoms are necessary, important to use, should be used, etc.	"Condoms prevent a woman from becoming pregnant" "I heard that when you're having sex the condom can break" "What if the condom broke?" "Condoms protect against STDs" "Unprotected sex can lead to deadly diseases" "Are STDs easily transferred from unprotected sex?"	46 (3.4%)
	Condoms prevent pregnancy	Condoms work to prevent pregnancy; without condoms pregnancy is possible	"Can you make someone pregnant if you don't use a condom"	28 (2.1%)
	Condoms break	Any mention of condoms breaking	"I heard that when you're having sex the condom can break"	26 (1.9%)
	Condoms protect Against STIs	Condoms protect against STIs; without condoms STIs may be contracted	"What if the condom broke?" "Condoms protect against STDs" "Unprotected sex can lead to deadly diseases"	24 (1.8%)
	Condom correct use	Questions or statements about how to use condoms; what to do or not do when using condoms	"Are STDs easily transferred from unprotected sex?" "Don't use oil" "Is double bagging less safe?" "How to use protection properly" "I've heard that you will need two condoms if you do oral and vaginal sex" "Female condoms are just as effective as male condoms"	24 (1.8%)
	Types of condoms	Reference to any specific kind of condom (e.g., female/ internal, dental dam, latex, polyurethane)	"What if the person is allergic to latex what should they use?" "Are there actually animal skin condoms?" "If you have a foreskin do you need a condom"	19 (1.4%)
	Condom other	Anything that mentions condoms but does not fit into the other condom categories	"That unprotected sex feels way better than protected sex"	22 (1.6%)
	Condoms total	Questions or statements about the effectiveness of birth control; questioning how well it works	"...when you use stuff to not get pregnant does it really work?" "You can get pregnant on birth control"	241 (18.1%)
Birth control (BC)	BC effectiveness	Questions or statements about how birth control works or how to properly use it, including general references to specific methods	"If you skip one day of birth control can you still get pregnant?" "What types of birth control are available and how does it work?" "Can IUDs fall out?" "How the patch works"	41 (3.1%)
	How BC works	Mention of potential side effects of using birth control	"That birth controls in the long run could make a woman barren" "Can birth control make you gain weight?" "Major side effects of the pills"	40 (3.0%)
	BC side effects	Any specific reference to emergency contraception (e.g., Plan B)	"If you have sex without protection and drink a pill to prevent to get pregnant, the pill may not work" "That you can't drink plan b while using pill"	29 (2.2%)
	Emergency contraception	Questions or statements about the cost of birth control and how to access it	"How expensive is the pill option" "Where can you get birth control and how much does it cost?"	24 (1.8%)
	BC prevents pregnancy	Birth control prevents pregnancy; without birth control you can get pregnant	"That the woman can get pregnant ... the first time if she don't take a pill" "Birth control helps with preventing pregnancy"	15 (1.1%)
				13 (1.0%)

Table 2
Continued

Category	Content Code	Description	Examples	Prevalence of Code in dataset n (% responses)
Pregnancy	BC other	Anything that mentions birth control but does not fit into the other birth control categories	"Can you use two methods at one time?" "Are birth control pills for males real?"	19 (1.4%)
	<i>Birth control total</i>			147 (11.0%)
	How pregnancy works	How and whether pregnancy can occur from different activities; Reference to sperm and egg	"You can have a baby kissing" "If sperm is on a toilet & a woman were to sit on that toilet, could she potentially get pregnant?" "How babies are made"	66 (4.9%)
	Period sex	Questions or statements about sex or pregnancy during menstruation	"That you can get pregnant while having sex and your period" "Can you have sex when on your period" "Is it true you are extremely unlikely to become pregnant while menstruating"	48 (3.6%)
	Sex leads to pregnancy	Any general mention of the fact that sex can cause pregnancy	"Kids happen" "It causes pregnancy" "You can get pregnant"	42 (3.1%)
	Time in cycle & pregnancy	Questions or statements about the time during the menstrual cycle in which pregnancy can or is most likely to occur (not including menstruation)	"You can't get pregnant if [...] you have sex after ovulation" "That you can only get pregnant when you're ovulating"	16 (1.2%)
Withdrawal	Abortion	Any mention of abortion	"I heard people have abortions if they didn't have safe sex and they get pregnant" "Is it possible to receive an abortion without having anyone know? (parents)"	12 (0.9%)
	<i>Pregnancy total</i>			171 (12.8%)
	Pre-ejaculatory fluid	Specific reference to pre-ejaculatory fluid (i.e., pre-cum)	"Pre-semen can get [you] pregnant" "I've heard that pre-cum can get a girl pregnant"	57 (4.3%)
	Withdrawal effectiveness	Questions or statements about the effectiveness of withdrawal	"Is pre-cum a thing?" "You can still get pregnant from pulling out" "Is pulling out actually effective" "The pull out game always works" "Pull out game must be strong"	24 (1.8%)
Sexually transmitted infections (STIs)	Withdrawal (General)	General reference to withdrawal (i.e., pull-out method) without further specification	"Pull out method"	23 (1.7%)
	<i>Withdrawal total</i>			102 (7.6%)
	STI transmission	Questions and statements about how STIs could be transmitted	"You can get an STD even if you and your significant other are clean" "Can you pass on the STDs/STIs to your child"	71 (5.3%)
	STIs exist	Acknowledgement that STIs exist and could be transmitted during sex, including mention of specific STIs (aside from HIV)	"You will get an STI" "You get an STD from just having sex one time with a person" "You can get an infection" "HPV"	51 (3.8%)
	HIV/AIDS	Specific reference to HIV and/or AIDS	"You can catch HIV" "You can contract AIDS or HIV by having sex"	44 (3.3%)
	STI symptoms, testing, & treatment	Mention of STI symptoms, the process of testing, and treatment options, including whether STIs are treatable/curable	"Symptoms of the diseases" "Burning penis" "STDs are incurable"	27 (2.0%)
<i>STIs total</i>	STI number of partners	Reference to multiple partners/number of partners when contracting STIs	"If you kiss a lot of people you get herpes" "That you can get a disease from having sex with a lot of different people"	7 (0.5%)
				165 (12.4%)

(continued on next page)

Table 2
Continued

Category	Content Code	Description	Examples	Prevalence of Code in dataset n (% responses)
Pain	Pain (virginity)	Reference to pain or bleeding with specific reference to virginity/the “first time”	“That the first time you have sex you experience some pain” “That girl[s] bleed when they have sex for the first time” “It hurts” “That it hurts to have sex” “Is it painful for the female partner” “You can get sore from having sex” “Hymen breaks” “Vagina can tear” “Penis breaks” “That you can puncture a throat or an orifice”	93 (7.0%)
	Pain (general)	General reference to pain or bleeding without specifically referencing virginity	“That girl[s] bleed when they have sex for the first time” “It hurts” “That it hurts to have sex” “Is it painful for the female partner” “You can get sore from having sex”	73 (5.5%)
	Injury	Mention of any kind of injury or physical harm that could result from sex	“Hymen breaks” “Vagina can tear” “Penis breaks” “That you can puncture a throat or an orifice”	16 (1.2%)
Body & hygiene	<i>Pain total</i>			
	Sex changes body	Any reference to ways in which having sex will change the physical body	“Makes butt bigger” “Penis grows” “Does having sex make acne leave” “Does sex make her thick” “Your body will change” “Does size matter?” “If you have a foreskin do you need a condom” “Size doesn’t matter”	172 (12.9%) 27 (2.0%)
	Penis	Questions or statements about the penis and/or associated reproductive anatomy	“If it has a smell” “There’s a lot of bacteria spread” “That you should always take a shower after you have sexual intercourse” “Why do you have to pee after sex?”	22 (1.6%)
	Hygiene	Questions or statements related to hygiene or cleanliness that are unrelated to STIs or post-coital urination	“If it has a smell” “There’s a lot of bacteria spread” “That you should always take a shower after you have sexual intercourse”	12 (0.9%)
	Post-coital urination	Any mention of peeing after sexual contact	“If a girl doesn’t pee after sex is she susceptible to a UTI?”	11 (0.8%)
	<i>Body & hygiene total</i>			
Anal or oral sex	Anal sex - pregnancy	Questions or statements about whether anal sex can lead to pregnancy	“I heard that when someone makes anal sex it’s not possible to be pregnant” “People can get pregnant in the a-hole” “Can anal sex get you pregnant?” “Getting STIs during oral sex”	71 (5.3%) 21 (1.6%)
	Oral sex - STIs	Questions or statements about whether oral sex can lead to STIs	“Oral sex from a [woman who] has AIDS can give it to her partner without condom” “Disease through neck” “Doing anal is safe” “What happens when you put it in the butt”	19 (1.4%)
	Anal sex other	Any other mention of anal sex	“Is cum healthy if you swallow it?” “Does oral sex still pass as sex?”	13 (1.0%)
	Oral sex other	Any other mention of oral sex	“Does oral sex still pass as sex?”	12 (0.9%)
Consent	<i>Anal or oral sex total</i>			
	Age of consent	References to legality or expectations for sex in regards to age	“That it should be done when you’re over 18” “Who is blamed if two minors are caught having sex illegally?” “The legal age for consent is 16” “Are teens supposed to engage in sexual activity?” “You need consent to do anything”	64 (4.8%) 24 (1.8%)
	Consent (general)	Questions or statements about consent	“When people are about to have sexual interactions the male should always [ask] for consent first”	13 (1.0%)
Virginity	<i>Consent total</i>			
	Virginity (general)	Any reference to virginity, aside from pain/bleeding	“Virgins are people touched by angels” “I heard when you have sex you lose your virginity”	33 (2.5%) 17 (1.3%)

Table 2
Continued

Category	Content Code	Description	Examples	Prevalence of Code in dataset n (% responses)
Individual content codes	Popping cherry	Specific reference to the idea of "popping the cherry" when having sex	"Cherry popping?" "Is there a 'cherry' that needs to be popped?"	7 (0.5%)
	<i>Virginity total</i>			24 (1.8%)
	Sex negativity	Any reference to sex as bad, unhealthy, dirty, dangerous, a sin, or other phrases that promote sex negativity or sexual shame	"Too much sex can be bad" "It's dangerous" "Sex is bad for your health, it can kill your brain cells" "You die" "Is premarital sex a sin?" "I heard it's fun!!" "Is it pleasure" "It is a great feeling" "Where the things go" "Penis and vagina"	59 (4.4%)
	Pleasure	Mention of pleasure, orgasm, or any positive elements of sexuality	"Is it possible to go all the way into the stomach" "That it goes on for long periods of time" "Is having intercourse w/the same sex just as dangerous or less dangerous?" "It's more likely to catch something having sex male to male or female to female" "A man could get pregnant if he was born with a vagina" "Sex = Love" "...is there a significant emotional importance to sex?" "I've heard that sometimes you have to be in love or really like the person to have sex (something like that)"	54 (4.0%)
	Sex mechanics	Questions or statements about the mechanics of how sex works, including sex positions and duration	"If you've had that with the same blood as you your kids are like disabled" "Is it possible to use up all your sperm"	49 (3.7%)
	LGBTQ+	Any reference to queer sex or LGBTQ + identity		18 (1.3%)
	Emotional component	Reference to an emotional or relational component to sex		14 (1.0%)
Miscellaneous		Any legible response that has components which do not fit into any other code		67 (5.0%)

Responses for content codes within each category may not add up to the category total, because one participant's response can contain multiple content codes.

HPV = Human papillomavirus; STD = sexually transmitted diseases; UTI = urinary tract infection.

These participants were most commonly coded for pain ($n = 6$, e.g., "That your first time hurts"; "You're supposed to bleed your first time"), condoms ($n = 3$, "You can still get pregnant using a condom"; "No glove, no love"), pregnancy ($n = 3$, "It's where babies came from"; "What is the most common way someone can get pregnant?"), STIs ($n = 2$, "STDs are incurable"; "Which STDs can be cured"), anal and oral sex ($n = 2$, "STDs through oral"), and body/hygiene ($n = 2$, "Do vaginas really get loose?"; "If it has a smell"). Thus, the composition and content of transgender and gender expansive participants' responses were varied and similar to cisgender girls' and boys' responses.

Responses predicted by age

We used binary logistic regressions to assess the impact of age on whether responses were coded for a particular category (yes/no). The logistic regression model for the effect of age on reference to birth control was significant, $\chi^2(1) = 7.20, p = .007$, with greater age associated with greater reference to birth control, $B = 0.15, SE = 0.06$. The model for the effect of age on withdrawal was also significant, $\chi^2(1) = 4.09, p = .043$, with greater age associated with greater reference to withdrawal, $B = 0.14, SE = 0.07$. There was a significant relationship between age and reference to body/hygiene, $\chi^2(1) = 5.73, p = .017$, with greater age associated with more responses coded for body or hygiene, $B = 0.19, SE = 0.08$. Younger age, however, was associated with greater reference to pain, $B = -0.14, SE = 0.05, \chi^2(1) = 7.02, p = .008$. Younger participants also made greater reference to pleasure during sex, $B = -0.31, SE = 0.09, \chi^2(1) = 11.88, p < .001$. Thus, age had a significant effect on the likelihood of having questions about birth control, withdrawal, body/hygiene, pain, and pleasure.

Discussion

The vast majority of participants' responses focused on pregnancy, STIs, and how to prevent these two outcomes. Coding categories that reflect these general concerns include condoms,

STIs, birth control, withdrawal, pregnancy, and anal or oral sex. Altogether, 61.8% of participant responses were coded for at least one of these categories. Thus pregnancy and STIs and how to prevent these outcomes appear to reflect young people's main topic areas of information, curiosity, and uncertainty. Pregnancy and STIs, including prevention methods such as birth control and condoms, are some of the most commonly included topics in sex education programming generally [28]. Research on the impact and effectiveness of sex education programming largely focuses on reductions in pregnancy and STI rates [29,30]. Thus, sex education programming that focuses on pregnancy and STIs is appropriately situated to address this area of uncertainty.

However, participants' suggestions for sexuality education can often reflect dominant discourses to which they are exposed [31]. Thus, it is possible that the prominence of these responses reflects the existing focus of contemporary sex education as a whole (i.e., what young people are *hearing*). The scope of content typically covered in sex education will likely affect and limit the responses students give. Research finds that teens' suggestions for sexuality education often reflect the sociocultural ideas about sexuality that they are already familiar with [31]. To determine whether pregnancy and STI prevention are young people's main areas of interest or simply the dominant topic of information, future studies should ask young people directly what information they *want* to receive as opposed to what they've heard or are unsure about. Regardless, unintended pregnancy and STIs are prominent risks associated with sexual activity [32], which should be addressed in sex education. The need for clarity and information on these topics is reflected in students' responses.

While pregnancy and STI prevention are typically covered in CSE, young people may be interested in more nuanced and transparent information than is typically taught within these domains. For example, participants wanted to know how truly effective condoms and other birth control methods were, as well as how they work and how they should be used. Participants were particularly interested in the practice of withdrawal (i.e., the pull-out method), which sex education programming may not always cover. Research has established that young

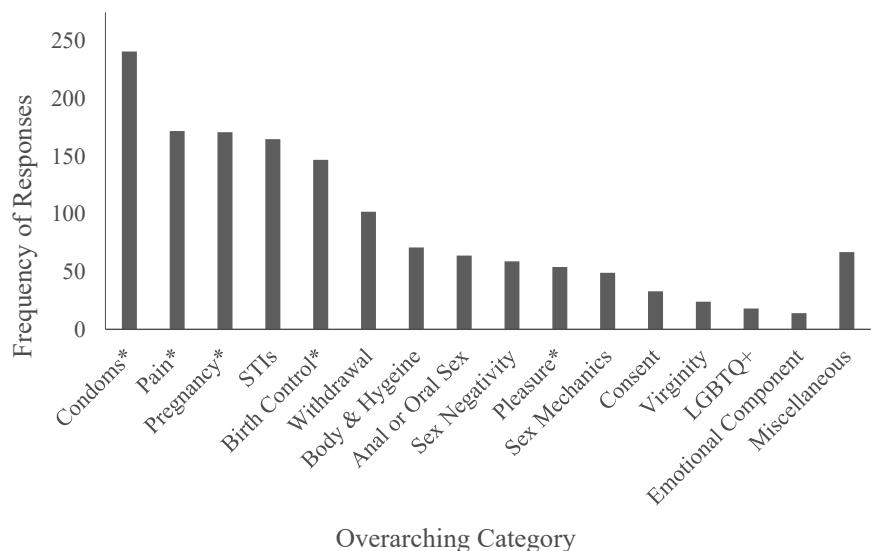


Figure 2. Frequency of responses coded within each overarching category ($N = 1,335$). Asterisks (*) indicate a category with a significant gender difference in frequency of responses between cisgender boys ($n = 609$) and cisgender girls ($n = 675$), $p < .05$.

people recognize a disparity between safe sex as taught in the classroom and the reality of their sexual encounters [15,17]. Withdrawal is a common pregnancy prevention practice for sexually active teens, with around 60% of sexually active high school students using withdrawal at their last sexual intercourse [32–34]. Teens often engage in withdrawal in combination with other contraceptive methods, such as condoms or hormonal birth control [33]. However, sex education programming typically focuses on avoiding withdrawal as a risky sexual behavior rather than recognizing the multifaceted use of this method and its prevalence [33]. Thus, sex education programs should take a nuanced, sex-positive and risk reduction approach to information that is not traditionally taught, such as withdrawal, especially when that information reflects the reality of young people's experiences and contraceptive choices.

Gender

The second most common category of responses in the entire data set, behind condoms (18.1%), was pain (12.9%). Thus, one of the most prevalent messages that young people have received about sex is that it is painful. Importantly, this reference to pain disproportionately affected girls, who were more likely to reference pain (73% of pain responses), while boys were more likely to reference pleasure (74% of pleasure responses). This finding reflects an important disparity in the conceptualization of sex for boys versus girls, suggesting that girls understand sex as painful, while boys view sex as pleasurable. Expectations for sexual pleasure can inform the pursuit of that pleasure, which shapes sexual outcomes [35–38]. Disparities in expectations for pain versus pleasure likely contribute to pleasure disparities later in life, such as the orgasm gap, a well-established finding in which men have substantially more orgasms than women during heterosexual partnered sex [39,40]. In fact, women and girls tend to view the absence of pain as the threshold for a sexually satisfying experience [36]. Justification of these pleasure disparities occurs as girls and boys learn to conceptualize sex along gendered lines, in which girls' experience is often accepted to be substantially worse [36,37,41,42].

It can still be controversial in dominant sexual education discourses to view young people as agents who pursue sexual pleasure, especially young women and girls [15]. In many sex education contexts, education about pleasure is still absent, yet knowledge about pleasure is vital for sexual health, equality, and preventing harm, particularly for young women [43]. In 1988, Michelle Fine articulated the missing discourse of desire, which argued that silence around pleasure and desire in sexual education contributed to the erasure of girls' and women's sexuality [44]. 15 years later, adolescent girls' desire was still considered largely missing from sex education spaces [45,46]. Since then, the inclusion of women's pleasure in sexual education has been encouraged, and a large body of research has been dedicated to communicating young people's pleasure and desire [46]. However, the inclusion of pleasure in sex education curricula is not free from sociopolitical context. For example, the sexualization and commodification of young girls has led to girls' sexuality and desire being seen "both everywhere and nowhere" (p. 3) [46]. Theorists argue that conversations about positive aspects of sexuality should be taught concurrently with conversation about risk, danger, and sexual abuse as part of sexuality education [47]. The findings from the current study further emphasize the importance of including nuanced discussions of pleasure,

particularly the pleasure of girls and women, in sex education programming.

The results of the present analysis also indicated that girls were more likely to mention pregnancy and birth control in their responses, while boys were more likely to discuss condoms. These gender differences likely reflect societal expectations for the gendered distribution of contraceptive responsibility, such that women are expected to use the birth control pill or other hormonal contraception while men are considered responsible for condom use [48]. The current findings suggest that young people's questions, or at least the information they have heard, focuses on the contraceptive method that is applicable to them or that they expect to be responsible for. This finding is intuitive and in line with previous research [48]; however, it is important for contraception decisions to be shared between partners. In long-term relationships such as marriage, contraceptive decision-making is typically shared [49]. However, in nonmarital dating relationships like those that adolescents and young adults typically experience, women often take on the majority of contraceptive responsibility yet have less relative power over contraceptive choice [50]. For example, one study found that 16 to 20 year old girls thought that boys viewed contraception as "not their job," while 14 to 18 year old boys thought that the responsibility should be shared [49]. In sex education, students should be given sufficient information about all contraceptive methods, so that informed decisions can be made regardless of gender.

Age

In terms of age, older participants were more likely to discuss birth control, withdrawal, and body/hygiene. Younger participants were more likely to discuss pain and pleasure. Given the framing of the question ("What's something you've heard about sex but are unsure if it's true?"), the greater reference to pain (e.g., "It hurts") and pleasure (e.g., "It feels good") in younger ages may represent curiosity about how sex feels for younger participants who have not had sexual contact yet in their lifetime. Data from the United States find that 20% of young people have had sexual intercourse by the 9th grade, while 57% of young people have had sexual intercourse by the 12th grade [19,32]. The age in our sample ranges from 10 to 21, with a mean age of 15.6. Younger participants likely have more questions about what sex feels like, because they have had less sexual contact themselves. On the other hand, older participants who potentially have more information about or more experience with sex were more likely to have questions about specific prevention methods (e.g., birth control, withdrawal) and more specific details about sex (e.g., body/hygiene, "Why do you have to pee after sex?"). Participants may seek more specific information about topics like contraception and sexual hygiene once they have become or are thinking of becoming sexually active themselves.

Implications

Ultimately, the current research summarizes several domains of sexual information that middle and high school students have heard or are unsure about. Sex educators should prioritize young people's perspectives while promoting social justice through sexuality education [11,31]. CSE is one of the most effective ways to reduce unintended consequences of sexual activity, such as unwanted pregnancy and STIs [8]. However, CSE should go

beyond its current focus on sexual and reproductive health to include other key topics of interest for adolescents [51]. In particular, sex education should move beyond risk reduction to encourage the development of a positive sexuality [47]. Particularly for young girls, sex education should prioritize the portrayal of positive sexuality which includes conversations about sexual pleasure [44–47].

Sex education should also actively push back against social inequalities, including gendered sexual inequity and stigma against LGBTQ+ individuals. In one study, fewer than 30% of young adult high school alumni recalled sufficient coverage of LGBTQ+ topics in sexuality education [52]. Inclusion of these topics can increase feelings of safety and support in schools [53], while sex education that is exclusive to gender and sexual minorities can increase shame and stigma [54]. Sexual shame is also an integral part of the cultural sexual regulation of girls and women [55,56]. Participants' suggestions for sexuality education can reflect dominant discourses about sexuality that they are familiar with, which can reinforce social inequalities [31]. Thus, future applications of this work should take an intentional social equity perspective on issues of gender and sexual identity to avoid shame and other harmful outcomes.

Respondents in the current research had specific questions about topics that are not always covered in depth or with transparency in sex education, such as withdrawal, effectiveness of condoms and other contraception, anal and oral sex, correct use of contraception, the body and sexual hygiene, how pregnancy works (e.g., Can pregnancy occur during menstruation?), and how STIs are transmitted. Young people deserve thorough, transparent information about sex that is inclusive to all identities and which recognizes and validates the reality of young people's sexual experiences and choices. Young people should be trusted and empowered to make their own sexual choices using a sex-positive approach as opposed to a fear- or avoidance-based approach.

Limitations and future directions

Due to the nature of the question ("What's something you've heard about sex but are unsure if it's true?"), readers should interpret findings carefully, as it can be difficult to understand intention and nuance in participants' responses. Because of the prompt, all responses should be framed as questions; for example, "Sex leads to pregnancy" should read "Does sex lead to pregnancy?" because it reflects something that the respondent is uncertain about. Many participants chose to respond to the prompt with anonymous questions of their own (e.g., "Can you get an STI from having sex just one time with a person?"). Thus, as discussed previously, we cannot definitively determine whether responses reflect common discourses around sex or participants' own gaps in knowledge and desired sex education content. Despite this difficulty, the current project provides an informative overview of topic areas in which young people have heard and have questions about sex using valuable, field-based data directly from sex education classrooms. Future research should continue to assess teens' perspective on sex education by asking them to directly indicate gaps in their current sex education programming.

The current sample is not nationally representative, as it only includes the perspectives of young people from three counties in New York State. This geographic range limits the generalizability of these findings. However, the sample is racially and ethnically

diverse, and, though there was no measure of socioeconomic status included in participant demographics, PPHP prioritizes lower income districts in its distribution of free sex education programming. Thus, the current sample reaches demographic groups that are typically underrepresented, even in nationally representative surveys which are majority White [4,5]. Future research should continue to investigate the trends found in our data with geographically diverse samples.

Conclusion

The current research provides a comprehensive overview of young people's sex education questions and uncertainties. We find that the majority of sexuality discourse for middle and high school students centers around pregnancy, STIs, and preventing these outcomes. However, participants want more detailed and transparent information on these topics (e.g., effectiveness, use of methods, withdrawal). Importantly, gender nuances the discussion of sex education discourse, with girls being more likely to reference pain and boys more likely to reference pleasure. This finding reinforces the need for positive sex education which discusses pleasure, particularly women's pleasure. Boys and girls are also more likely to reference the contraceptive methods that they themselves may be responsible for using. Sex education should continue to respond directly to the needs of its communities and work to expand beyond dominant discourses in order to dismantle social inequities.

Data statement

Due to the secondary nature of this analysis, the data in this project are confidential.

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Supplementary Data

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