



MONTCLAIR STATE
UNIVERSITY

Montclair State University
**Montclair State University Digital
Commons**

Department of Public Health Scholarship and
Creative Works

Department of Public Health

Fall 10-12-2020

Three Decades of Research: The Case for Comprehensive Sex Education

Eva Goldfarb

Montclair State University, goldfarbe@montclair.edu

Lisa D. Lieberman

Montclair State University, liebermanl@montclair.edu

Follow this and additional works at: <https://digitalcommons.montclair.edu/public-health-facpubs>



Part of the [Clinical Epidemiology Commons](#), [Community Health and Preventive Medicine Commons](#), [Curriculum and Social Inquiry Commons](#), [Environmental Public Health Commons](#), [Epidemiology Commons](#), [Health Services Administration Commons](#), [Medical Education Commons](#), [Other Education Commons](#), [Other Public Health Commons](#), [Patient Safety Commons](#), [Psychiatry and Psychology Commons](#), [Psychology Commons](#), and the [Public Health Education and Promotion Commons](#)

MSU Digital Commons Citation

Goldfarb, Eva and Lieberman, Lisa D., "Three Decades of Research: The Case for Comprehensive Sex Education" (2020). *Department of Public Health Scholarship and Creative Works*. 144.
<https://digitalcommons.montclair.edu/public-health-facpubs/144>

This Article is brought to you for free and open access by the Department of Public Health at Montclair State University Digital Commons. It has been accepted for inclusion in Department of Public Health Scholarship and Creative Works by an authorized administrator of Montclair State University Digital Commons. For more information, please contact digitalcommons@montclair.edu.



Review article

Three Decades of Research: The Case for Comprehensive Sex Education

Eva S. Goldfarb, Ph.D. *, and Lisa D. Lieberman, Ph.D.

Department of Public Health, Montclair State University, Montclair, New Jersey
Article history: Received February 3, 2020; Accepted July 22, 2020

Keywords: Sex education; Sexuality education; National Sex Education Standards; National Sexuality Education Standards; CSE; comprehensive sex education; Systematic Literature Review; K-12


 See Related Editorial on p.7

A B S T R A C T

Purpose: School-based sex education plays a vital role in the sexual health and well-being of young people. Little is known, however, about the effectiveness of efforts beyond pregnancy and sexually transmitted disease prevention. The authors conducted a systematic literature review of three decades of research on school-based programs to find evidence for the effectiveness of comprehensive sex education.

Methods: Researchers searched the ERIC, PsycINFO, and MEDLINE. The research team identified papers meeting the systematic literature review criteria. Of 8,058 relevant articles, 218 met specific review criteria. More than 80% focused solely on pregnancy and disease prevention and were excluded, leaving 39. In the next phase, researchers expanded criteria to studies outside the U.S. to identify evidence reflecting the full range of topic areas. Eighty articles constituted the final review.

Results: Outcomes include appreciation of sexual diversity, dating and intimate partner violence prevention, development of healthy relationships, prevention of child sex abuse, improved social/emotional learning, and increased media literacy. Substantial evidence supports sex education beginning in elementary school, that is scaffolded and of longer duration, as well as LGBTQ-inclusive education across the school curriculum and a social justice approach to healthy sexuality.

Conclusions: Review of the literature of the past three decades provides strong support for comprehensive sex education across a range of topics and grade levels. Results provide evidence for the effectiveness of approaches that address a broad definition of sexual health and take positive, affirming, inclusive approaches to human sexuality. Findings strengthen justification for the widespread adoption of the *National Sex Education Standards*.

© 2020 Society for Adolescent Health and Medicine. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

IMPLICATIONS AND CONTRIBUTION

Attention to the full range of sexual health topics, scaffolded across grades, embedded in supportive school environments and across subject areas, has the potential to improve sexual, social, and emotional health and academic outcomes for young people.

Public health practitioners and policy-makers have long considered school-based sex education to play a vital role in the sexual health and well-being of young people. Likewise, surveys

of the public over several decades have consistently shown strong support for comprehensive sex education (CSE; also known as comprehensive sexuality education) [1]. Nevertheless,

Conflicts of interest: Funding for this project was provided by the Grove Foundation. The sponsor was not involved in the study design, collection or analysis of data, or writing of the report, but funded the project with the intention of a systematic literature review for publication. The authors worked directly with the Future of Sex Education to identify the scope of the study.

Future of Sex Education reviewed an earlier draft of the article for the purpose of assuring accuracy related to discussion of the National Sex Education Standards.

* Address correspondence to: Eva Goldfarb, Ph.D., Department of Public Health, Montclair State University, 1 Normal Avenue, University Hall Room 4175, Montclair, NJ 07043.

E-mail address: goldfarbe@montclair.edu (E.S. Goldfarb).

except for evaluations of sexually transmitted infection (STI) and pregnancy prevention programs, not enough is known about the effectiveness of sex education efforts, which have the potential to influence adolescent health in a variety of ways. This paper describes the results of a literature review of three decades of research on the effectiveness of school-based programs, from both the U.S. and around the world, that focus on a range of outcomes associated with CSE.

Background

Sex education has long been characterized by competing definitions, goals, and philosophies, which has muddied efforts to understand and gauge its effectiveness [2]. When it comes to measuring impact and outcomes, research has been dominated by interest in prevention programs aimed at reducing STI and pregnancy rates [3–9]. These prevention programs put emphasis on sexual behaviors and behavior change as the main focus of analysis [10]. What has remained largely unstudied, however, are approaches with a broader and more comprehensive focus on human sexuality, defined by SIECUS as:

“...the sexual knowledge, beliefs, attitudes, values, and behaviors of individuals. Its various dimensions involve the anatomy, physiology, and biochemistry of the sexual response system; identity, orientation, roles, and personality; and thoughts, feelings, and relationships” [11].

In 2012, the Future of Sex Education, a partnership among three leading national sex education organizations, Advocates for Youth, Answer, and SIECUS, released the *National Sexuality Education Standards* (NSES) [12]. These were updated in 2020, as the *National Sex Education Standards, Second Edition* [13]. The goal of the NSES is to provide school districts with “clear, consistent, and straightforward guidance on the essential, minimum, core content, and skills needed for sex education that is age-appropriate for students in Grades K-12 to be effective” [13]. It consists of the following seven topic areas: *Consent and Healthy Relationships, Anatomy and Physiology, Puberty & Adolescent Sexual Development, Gender Identity and Expression, Sexual Orientation and Identity, Sexual Health, and Interpersonal Violence* [13].

Since the initial publication of the NSES, school districts across the country have been relying on these standards to develop and implement CSE, with recent data suggesting that more than 40% of districts in the U.S. have adopted the NSES [14]. Along with increasing dependence on the NSES has come growing and renewed interest in the evidence that supports their use.

Methods

The authors conducted a Systematic Literature Review (SLR) dating back to 1990 to find evidence for the effectiveness of CSE. The year 1990 represents a fundamental shift in the field of sex education as evidenced by the publication in 1991 of the *SIECUS Guidelines for Comprehensive Sexuality Education Kindergarten through 12th Grade* [15]. The *Guidelines* provided the first national framework for the concepts, topics, and skills that should be taught to young people at different ages and grade levels. As such, they were the precursor to the NSES and can justifiably be seen as representing the beginning of the “modern era” of CSE.

The SLR was designed to cast a wide and inclusive net to assure that all aspects of CSE were included. The criteria for the initial search were as follows: (1) qualitative or quantitative

studies evaluating outcomes of school-based, K-12 educational approaches; (2) both within sex education and across the curriculum; and (3) that were U.S. based.

In consultation with the research team, an information specialist, experienced in SLR searches, developed and tested the strategy using an iterative process. ERIC and PsycINFO were searched on the Ebsco platform, as well as MEDLINE on Web of Science. All searches were performed on December 14, 2017. Strategies used a combination of controlled vocabulary (e.g., “Sex Education,” “Schools,” and “Sexual Health”) and keywords (e.g., “curriculum,” “K-12,” and “LGBTQ”); the search terms included both common acronyms [e.g., LGBTQ and STI] as well as the individual words [e.g., LGBTQ, sexually transmitted infections, etc.]. The initial list of terms was derived from the 2012 NSES. The research team added terms they deemed important based on their expertise in the field of sex education, and then the entire list was reviewed independently by an outside group of sex education experts for accuracy and thoroughness. Vocabulary and syntax were adjusted across the selected databases. All searches were limited to the English language.

A team of four graduate research assistants and the authors reviewed the first 1,500 records to develop and refine the coding strategy. Using article title and abstract, a coding scheme was developed: (1) articles that met the specified criteria for the SLR; (2) articles that needed further review to determine eligibility (and then recoded accordingly); (3) articles that were completely unrelated to the subject and eliminated. With an eye toward potential expansion of the review, two additional categories were coded: (4) articles that were non-U.S. based, but otherwise met the inclusion criteria; and (5) articles that were related to the topic of sex education, but did not meet the specified criteria.

Next, in teams of two, research assistants coded the remaining records. After scoring them independently, partners met to compare codes. Interrater reliability for papers coded 1 or 2 was calculated after review of 25% of the records, with 96% agreement for both of the teams. The lead researchers were called on to reconcile differences.

The search results are summarized in the PRISMA diagram [16] (Figure 1). Because the search intentionally identified material that broadly met the concepts of CSE, the initial result included more than 46,000 records, deduplicated to 42,447. After eliminating articles that were completely unrelated to the topic, 8,058 papers remained. Among those, 481 met the initial criteria for the SLR, 2,094 were non-U.S. based, and 5,483 were related to sex education, but were not school-based evaluations. These 481 papers, plus 50 additional articles from review of references, were read in full text, resulting in 218 remaining in the “1” category. Among those, 179 focused solely on pregnancy and disease prevention approaches, and 39 focused on other CSE topics delineated in the NSES. Given the breadth and sheer number of studies, and in the interest of drawing conclusions about the broader impact of CSE, the researchers decided to exclude studies focused only on pregnancy and disease prevention programs. The ample literature reflecting the effectiveness of sex education in helping young people lower their risk of unplanned pregnancy, STIs, and HIV is the subject of another article.

In the next phase of the review, the team expanded the criteria to include evaluation studies that were coded as 4 (non-U.S.) or 5 (related to CSE, such as school-wide initiatives) and also met review criteria as evaluation studies of school-based programs. After completion of this process, two research assistants

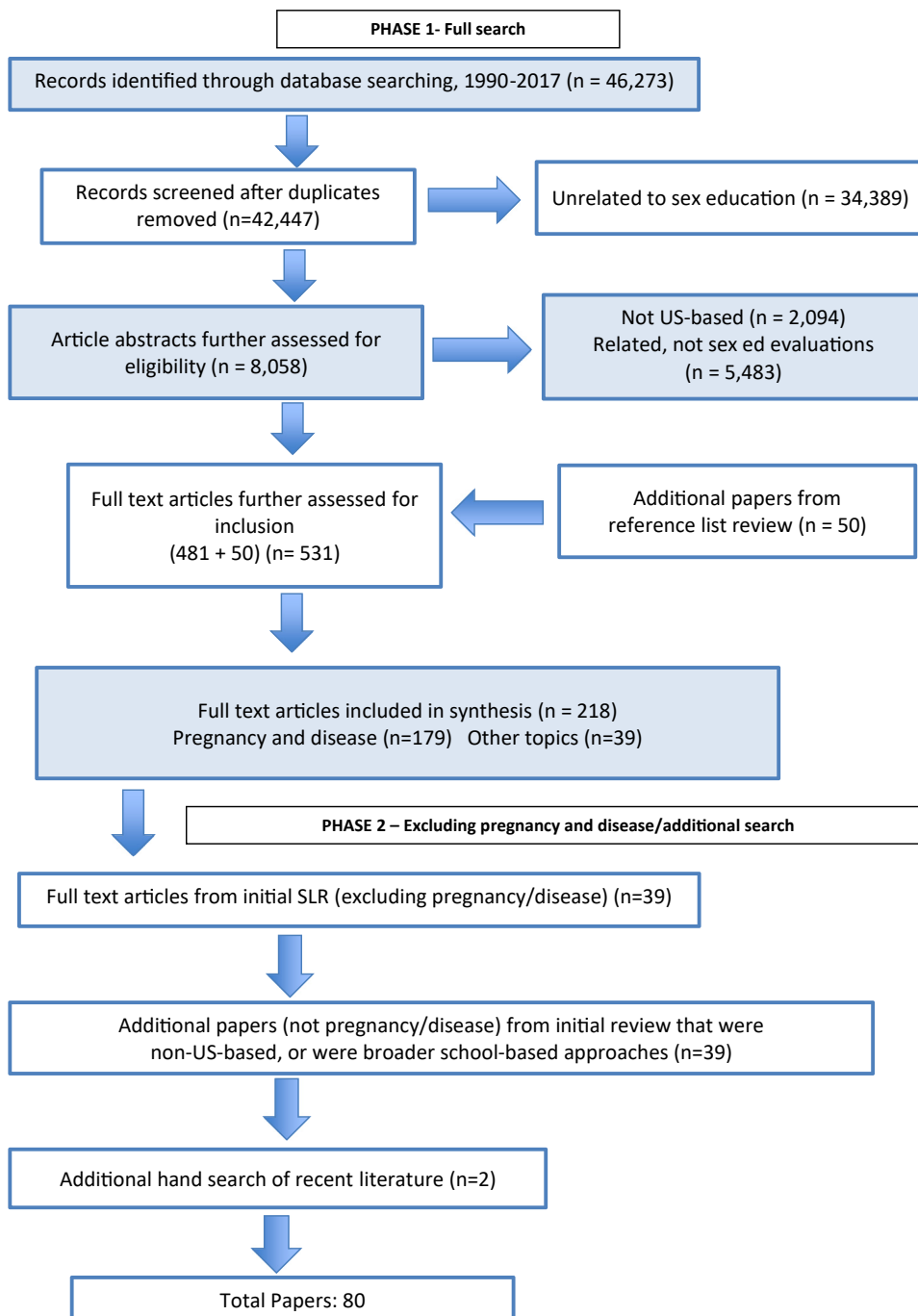


Figure 1. PRISMA diagram of the literature search.

conducted a targeted online search of the literature, excluding pregnancy and STI prevention studies, for research published after the initial search was conducted through November 2019. A total of 80 articles constitute the final set for this review.

The researchers identified the outcomes in each study and then sorted those outcomes into several overarching categories based on commonly identified aims of CSE. These were identified as appreciation of sexual diversity, dating and intimate partner violence (IPV) prevention, development of healthy relationships, and prevention of child sex abuse. Within these overarching

categories, several subtopics emerged that correspond with widely recognized goals of CSE [10,11,13,15]. Figure 2 identifies the number of outcomes reported for each overarching category. Several studies were counted in more than one category.

Results

The studies that form the basis of this review vary widely in their size, rigor of analysis, and generalizability of findings. They include methodologically strong studies, using quasi-experimental

or experimental designs, as well as meta-analyses and SLRs. They also include a substantial number of studies with less rigorous designs, smaller samples, and/or more qualitatively based approaches that when taken together lead to strong evidence of outcomes. Table 1 provides details for the outcome studies reviewed here including methodology and alignment of outcomes with the NSES topic areas [13].

A notable update in the NSES Second Edition is a prominent focus on social justice and equity, as well as intersectionality. Some of the findings of this SLR reflect this broader conceptual focus and are reported as such here.

Appreciation of sexual diversity

Studies discussed in this section report on outcomes that together represent appreciation of sexual diversity. Classroom approaches ranged from preschool through grade 12, were found throughout the curriculum (not just in health or sex education), and included, in many cases, the use of literature to address gender and sexual orientation issues. Research on LGBTQ-inclusive curricula across topics and grade levels are reviewed, as well as approaches aimed specifically at reducing homophobia, homophobic bullying and harassment, and other outcomes related to appreciation of sexual diversity.

Lower homophobia. Curricula designed specifically to reduce homophobia have been found to be successful across grade levels using a variety of approaches both formally within sexuality education and throughout other areas of the curriculum [17–27]. Programs that brought in guest speakers from the LGB community to share personal stories resulted in reduced homophobic attitudes [18,19]. A Quebec study using immediate post-tests and 3-month follow-ups, as well as participant interviews and focus groups, reported on 227 high school (HS) students who participated in a program in which a gay man and a lesbian spoke in their classrooms. Students exhibited increased normalization of lesbian and gay people, a reduction in stereotyping about gender expression and norms for lesbian and gay women and men, empathy for those who come out, an appreciation for the positive

aspects of being lesbian and gay, a recognition that sexual orientation does not have to correlate with sexual behavior, and lower use of homophobic slurs [19]. Strategies that use literature featuring gay and lesbian characters have also resulted in lowered homophobia and homophobic behaviors both at the elementary school level [17] and in high school [20,22,23].

Reduced homophobic bullying. In addition to reduced homophobic attitudes, research demonstrates that curricula that are inclusive of all sexual orientations, gender identities, and expressions, across areas of study, and most strongly within CSE, reduce homophobic bullying and harassment, and increase safety for LGBTQ students [19,28,29].

A 2015 survey of 1,232 gay and straight middle and high school students from 154 schools in California found that inclusive curricula were associated with higher reports of safety at both the individual and school levels and lower levels of bullying at the school level. LGBTQ-supportive curricula were also related to students feeling safer at school and more aware of bullying at both the school and individual levels. Although these outcomes resulted from inclusiveness throughout the curriculum, the study found that having sex education and health classes that were LGBTQ inclusive had the greatest impact on school climate [28].

A rigorous, three-wave longitudinal study examined an LGBTQ-inclusive curriculum in six Dutch high schools provided to 601 tenth- to twelfth-grade students. Researchers found that, along with covering a variety of topics, inclusion of sexual orientation and gender identity that was extensive in both content and frequency predicted decreased name-calling and, among girls, increased willingness to intervene when witnessing name-calling by others, leading to an improved school climate [29]. Other methodologically strong studies have found that LGBTQ-inclusive sex education is related to lower reports of adverse mental health (suicidal thoughts and suicide plans) among all youth and of experiences of bullying among sexual minority youth [30]. As well, they are related to better health outcomes among gay, lesbian, and bisexual students, including fewer sex partners, less use of drugs or alcohol before sex, less pregnancy, and better school attendance [31].

Expanded understanding of gender/gender norms. Although research suggests that narrow views of gender and the reinforcement of gender stereotypes in young children can lead to gender-based harassment [32], little evaluation research has looked at efforts to counteract these views. A few smaller studies, including qualitative/ethnographic research and studies looking at short-term or single-dose programs, taken together, suggest that focused efforts to increase acceptance of transgender and gender-nonconforming people can be effective [19,33,34]. Qualitative studies of efforts to expand understanding of gender and gender norms, all at the elementary school level (third to fifth grades), suggest that making children's literature that challenges gender stereotypes available and accessible to students may not be enough. Using that literature to engage students in discussions, relating gender-based bullying and harassment to harassment and oppression of other marginalized populations, and using a critical literacy approach [97] engaged students in different ways of thinking about and expressing the messages from these books and other media. They also helped young children to expand their views of gender, gender expression, and gender norms and created an environment that

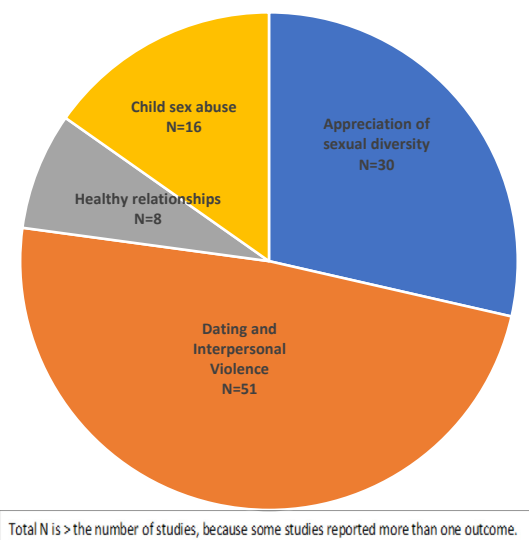


Figure 2. Outcomes in each major topic area.

Table 1
Details about outcome studies identified in the review

| Authors and References | Year | Country | Study population and size | Study design | Outcome sub-topics ^a | Corresponding NSES topic |
|--------------------------------|------|-----------------|---|--|---------------------------------|--------------------------|
| Schall and Kauffmann [17] | 2003 | USA | 29; 4th and 5th graders | Qualitative, class discussion | 1, 3 | SO |
| Eick et al. [18] | 2016 | Israel | 272; 9th to 11th graders and three high schools | Nonexperimental, paired pre- and post-test | 1, 3 | SO |
| Richard et al. [19] | 2015 | Canada | 277; 9th to 12th graders | Nonexperimental, paired pre- and post-tests | 1, 2, 13 | SO, GI |
| Athanases [20] | 1996 | USA | 21; 10th graders | Qualitative, class discussion, and interviews | 1, 3, 5, 13 | SO |
| Van de Ven [21] | 1995 | Australia | 130; 9th graders | Nonexperimental, pre- and post-test with 3-month follow-up | 1 | SO |
| Helmer [22] | 2015 | USA | 24; 11th and 12th graders | Qualitative, student questionnaires and interviews | 1, 3, 5 | SO, GI |
| Helmer [23] | 2016 | USA | 24; 11th and 12th graders | Qualitative, ethnographic student and teacher interviews, observations and artifacts | 1, 3, 5 | SO, GI |
| Alan and Miriam [24] | 2011 | USA | 1,613 students and 19 staff members, middle schools | Mixed methods, nonexperimental student surveys, staff focus groups | 3 | SO |
| Bentley and Souto-Manning [25] | 2016 | USA | 1 preschool class | Qualitative, class discussion | 3, 4, 5 | SO |
| Lucassen and Burford [26] | 2015 | New Zealand | 229; 9th and 10th graders (aged 12–15 years) | Nonexperimental, paired pre- and post-tests | 3, 13 | SO |
| Brown et al. [27] | 1991 | USA | 2,709; 7th to 12th graders | Experimental, pre- and post-test | 3, 4 | SO |
| Snapp et al. [28] | 2015 | USA | 1,232 high school and middle school students (aged 12–18 years) | Qualitative survey | 2 | SO |
| Baams et al. [29] | 2017 | The Netherlands | 601; 10th to 12th graders | Quasi-experimental, longitudinal, surveys | 2 | SO, GI |
| Proulx et al. [30] | 2019 | USA | 47,000; 9th to 12th graders, from 11 states | Multilevel modeling of YRBS and School Health Profiles | 2 | SO |
| Blake et al. [31] | 2001 | USA | 3,647; 9th to 12th graders | Multistage cluster sample from 63 schools, YRBS data | 2 | SO |
| Hill and Kearl [32] | 2011 | USA | 1,965; 7th to 12th graders | Qualitative, survey | 4 | GI |
| Ramirez-Valles et al. [33] | 2014 | USA | 44; 9th to 12th graders | Nonexperimental, paired pre- and post-tests | 3, 4 | SO, GI |
| Ryan et al. [34] | 2013 | USA | 1; 3rd grade class, 1 teacher | Qualitative; class discussions, informal interviews | 3, 5 | SO, GI |
| Rice [35] | 2002 | USA | 24; 3rd graders | Qualitative, class discussion | 4 | GI |
| Dutro [36] | 2002 | USA | 24; 5th graders | Qualitative, class discussion | 4 | GI |
| Hermann-Wilmarth et al. [37] | 2017 | USA | 15; 4th to 5th graders | Qualitative, class discussion | 4, 5 | SO, GI |
| Knotts and Gregorio [38] | 2011 | USA | 101; 9th to 12th graders | Nonexperimental, paired pre- and post-test. Class discussion | 5 | SO, GI |
| Matthews et al. [39] | 1998 | USA | 22; 5th graders | Qualitative, class discussion | 5 | GI |
| Smylie et al. [40] | 2008 | Canada | 240; 9th graders, 6 schools | Quasi-experimental, pre- and post-test surveys | 5 | GI, CHR, AP |
| Constantine et al. [41] | 2015 | USA | 1,750; 9th graders, 10 high schools | Experimental, pre- and post-test | 5, 13 | GI, CHR |
| Rohrbach et al. [42] | 2015 | USA | 1,447; 9th graders, 10 high schools | Experimental, pre, post, and 1-year follow-up | 5 | GI, CHR |
| Barker et al. [43] | 2010 | USA | Varied | Systematic literature review of 58 evaluation studies | 5 | GI |
| Baiocchi et al. [44] | 2017 | Kenya | 6,356 girls aged 10–16 years, 30 primary schools | Experimental, pre- and post-test | 5, 7 | GI, CHR |
| Miller et al. [45] | 2012 | USA | 1,798; 9th to 12th grade boys, 16 high schools | Experimental, pre and 3-month follow-up post-test | 5, 8 | GI, IV |
| Haberland [46] | 2015 | USA | Varied | Systematic literature review of 22 evaluation studies | 5 | IV, GI, SH |
| Ting [47] | 2009 | USA and Canada | 13 middle and high schools | Meta-analysis of knowledge and attitudes | 6, 7 | IV |
| Foshee et al. [48] | 2004 | USA | 460; 8th graders | Experimental, pre, post, and long-term follow-up | 7 | IV |
| Foshee et al. [49] | 1998 | USA | 1886; 8th to 9th graders, 14 schools | Experimental, pre-, post-test, 1-month follow-up | 6, 7, 13 | IV |
| Crooks et al. [50] | 2015 | Canada | 1,012; 7th and 8th graders, 57 schools | Experimental, pre-, post-test (1 month after program) | 6, 7 | IV |
| Foshee et al. [51] | 2000 | USA | 1886; 9th to 9th graders, 14 schools | Experimental, pre, post, 1-year follow-up | 6, 7, 13 | IV, CHR |
| Kervin and Obinna [52] | 2010 | USA | 49 HS students | Nonexperimental, pre and post-tests | 6, 7, 8 | IV, GI |

(continued on next page)

Table 1
Continued

| Authors and References | Year | Country | Study population and size | Study design | Outcome sub-topics ^a | Corresponding NSES topic |
|---|------|-----------------|--|---|---------------------------------|--------------------------|
| Wolfe et al. [53] | 2012 | Canada | 196; 9th grade girls | Experimental, observational post-test substudy of students in a larger randomized trial | 10 | CHR |
| Peskin et al. [54] | 2014 | USA | 766; 7th to 9th graders, 10 middle schools | Experimental, pre- and post-test | 7 | IV |
| Rice et al. [55] | 2017 | USA | 3,658; 9th to 12th graders, 30 high schools | Nonexperimental repeated measure surveys | 8, 9, 13 | CHR |
| Taylor et al. [56] | 2010 | USA | 1,639; 6th to 7th graders, 3 middle schools | Experimental, pre- and post-test with 5–6 month follow-up | 6, 7 | IV |
| Pacifici et al. [57] | 2001 | USA | 457; 9th to 12th graders, 2 high schools | Experimental, pre and 10-day follow-up post-test | 7 | IV |
| De La Rue et al. [58] | 2014 | USA | Grades 4–12 | Systematic literature review, 23 programs | 6, 7 | IV |
| Smith and Welchans [59] | 2000 | USA | 253; 10th to 12th graders | Nonexperimental, unpaired pre- and post-test | 6 | IV |
| Sosa-Rubi et al. [60] | 2017 | Mexico | 885; 9th to 12th graders, 2 high schools | Quasi-experimental, matched pairs, pre- and post-tests | 5, 6 | IV |
| Baker et al. [61] | 2014 | USA | 136; 9th to 12th graders, 2 high schools | Quasi-experimental, unpaired pre- and post-test with 1-month follow-up | 6, 8 | IV |
| Macgowan [62] | 1997 | USA | 440; 6th to 8th graders | Experimental, pre- and post-test | 6 | IV |
| Meyer and Stein [63] | 2004 | USA | Varied, 6th to 12th graders | Literature review of five programs | 6, 7 | IV |
| Weisz and Black [64] | 2001 | USA | 66 African-American 7th graders | Quasi-experimental, unpaired pre- and post-test with 6-month follow-up | 6 | IV |
| McLeod et al. [65] | 2015 | USA | 291; 9th graders, 3 high schools | Nonexperimental, unpaired pre- and post-test | 6, 9 | IV, CHR |
| Adler-Baeder et al. [66] | 2007 | USA | 340; 9th to 12th graders, 9 high schools | Quasi-experimental, paired pre- and post-test | 6, 7 | IV |
| Jaycox et al. [67] | 2006 | USA | 2,540; 9th graders, 10 high schools | Experimental, pre- and post-test with 6-month follow-up | 6 | IV |
| de Lijster et al. [68] | 2016 | The Netherlands | 815; students, aged 12–16 years, 25 schools | Experimental, pre- and post-test with 6-month follow-up | 6 | IV |
| Roscoe et al. [69] | 1994 | USA | 561; 7th and 8th graders | Nonexperimental, pre and post-tests | 6 | IV |
| Kernsmith and Hernandez-Jozefowicz [70] | 2011 | USA | 343; 9th to 12th graders | Nonexperimental, unpaired pre- and post-test with 3-month follow-up | 6 | IV |
| Wolfe et al. [71] | 2009 | Canada | 1,722; 9th graders, 20 high schools | Experimental, pretest with 2.5 year follow-up | 7 | IV |
| Mathews et al. [72] | 2016 | South Africa | 3,451; 8th graders, 42 schools | Experimental, pretest with 6-month and 12-month follow-up | 7 | IV |
| Bates [73] | 2006 | USA | 97; 7th graders | Nonexperimental comparison of pre-during, and post discipline referrals | 7 | IV |
| Ketry et al. [74] | 2017 | USA | 27 studies, five were HS | Meta-analysis of experimental and quasi-experimental studies, Grades 7–12 and college | 8 | IV |
| Miller et al. [75] | 2013 | USA | 1,798; 9th to 12th grade boys, 16 high schools | Experimental, pre and 3-month follow-up post-test | 5, 8 | GI, IV |
| Pick et al. [76] | 2007 | Mexico | 1,581; 4th graders, 45 elementary schools | Experimental pre- and post-test | 10, 13 | CHR |
| Buote and Berglund [77] | 2010 | Canada | 1,748; 7th to 10th graders, 31 schools | Nonexperimental, unpaired pre- and post-test | 10, 13 | CHR |
| Lamb and Randazzo [78] | 2016 | USA | 79; 9th graders | Nonexperimental, unpaired pre- and post-test | 10 | CHR |
| Scull et al. [79] | 2014 | USA | 56; 8th graders | Nonexperimental, unpaired pre- and post-test | 10, 14 | CHR, SH |
| Davis and Gidycz [80] | 2000 | USA | 27 studies | Meta-analysis of experimental and quasi-experimental studies, aged 3–13 years | 11, 12 | CHR |
| Kenny et al. [81] | 2008 | USA and Canada | Age 3–12 years | Systematic literature review, 21 articles focused on five different programs | 11, 12, 13 | CHR |
| Macintyre and Carr [82] | 1999 | Ireland | 727; 2nd and 5th graders across 5 schools | Experimental, randomized by school, pre, post, follow-up | 11, 12, 13 | CHR, SH |

(continued on next page)

Table 1
Continued

| Authors and References | Year | Country | Study population and size | Study design | Outcome sub-topics ^a | Corresponding NSES topic |
|-------------------------|------|--|---|--|---------------------------------|--------------------------|
| Walsh et al. [83] | 2018 | USA, Canada, China, Germany, Spain, Taiwan, Turkey | 5,802 K-5 students across 24 studies | Systematic literature review | 10, 11 | CHR |
| Topping and Barron [84] | 2009 | USA, Canada, UK, Ireland, Holland | Varied, K-6 | Systematic literature review of 22 studies | 11, 13 | CHR, SH |
| Pulido et al. [85] | 2015 | USA | 492; 2nd and 3rd graders across 6 schools | Experimental, pre- and post-test | 11 | CHR |
| Baker et al. [86] | 2012 | USA | 80; 3rd and 4th graders across 3 schools | Quasi-experimental, pre- and post-test | 11 | CHR |
| Hazzard et al. [87] | 1991 | USA | 399; 3rd and 4th graders across 6 schools | Experimental, randomized by school | 11 | CHR |
| Brown [88] | 2016 | USA | 1,169; K students across 54 classrooms in four school districts | Nonexperimental, unpaired and paired pre- and post-test | 11 | CHR |
| Kenny et al. [89] | 2012 | USA | 123; PreK students aged 3–5 years | Quasi-experimental unpaired pre, post, and 3-month follow-up | 11 | CHR |
| Jin et al. [90] | 2017 | China | 484; 1st to 5th graders in one primary school | Experimental, pre, post and 12-week follow-up | 12 | CHR |
| Kim and Kang [91] | 2017 | South Korea | 89; 5th graders across 3 schools | Quasi-experimental with pre- and post-test | 12 | CHR |
| Kater et al. [92] | 2002 | USA | 415; 4th to 6th graders across 5 schools | Quasi-experimental pre- and post-test | 13 | SH |
| Halliwell et al. [93] | 2016 | UK | 144; students aged 9–10 years across 4 schools | Quasi-experimental pre and post-test with 3-month follow-up | 13 | SH |
| Dunstan et al. [94] | 2017 | Australia | 200; 7th grade girls | Quasi-experimental pre and post-test with 6-month follow-up | 13 | SH |
| McCabe et al. [95] | 2010 | Australia | 421; 7th to 9th grade boys aged 11–15 years across 5 schools | Quasi-experimental pre and post-test with 3, 6, and 12-month follow-up | 13 | SH |
| Berman and White [96] | 2013 | Australia | 48; 8th graders across 3 schools | Nonexperimental, pre- and post-test | 13, 14 | CHR, SH |

CHR = consent and healthy relationships; AP = anatomy and physiology; PD = puberty and adolescent sexual development; GI = gender identity and expression; SO = sexual orientation and identity; SH = sexual health; IV = interpersonal violence; YRBS = Youth Risk Behavior Surveillance.

^a Outcome Subtopics: Appreciation of sexual diversity: 1 = lower homophobia; 2 = reduced homophobic bullying; 3 = expanded understanding of gender/gender norms; 4 = recognition of gender equity, rights, social justice. Dating and intimate partner violence: 5 = improved knowledge and attitudes about, and reporting of, sexual and intimate partner violence; 6 = decreased sexual and intimate partner violence perpetration and victimization; 7 = increased bystander intentions and behaviors. Healthy relationships: 8 = increased relationship knowledge, attitudes, and skills; 9 = improved communication skills and intentions. Child sex abuse: 10 = improved knowledge, attitudes, skills, and social-emotional outcomes related to personal safety and touch; 11 = improved disclosure skills and behaviors. Additional outcomes: 12 = social-emotional learning; 13 = media literacy.

allowed students to challenge and to cross their own stereotypical gender boundaries safely [34–37].

In one participant-observation study of a literature-based gender norms curriculum with suburban, Midwest African-American fifth graders [36], the author reported that “over time...both girls and boys felt safe in discussing and challenging one another’s assumptions about gender’s role in their reading choices” (p. 384) and concluded, “Children need safe spaces in which to experience, play with, and begin to challenge the naturalized assumptions about gender.” (p. 384). The studies noted here, as well as one of a preschool class [25], highlight that young children are, in fact, quite capable of understanding and discussing issues related to gender diversity, including gender expectations, gender nonconformity, and gender-based oppression. They also underscore that the development of such understanding requires instructional scaffolding over a period, and not just one session.

Recognition of gender equity, rights, and social justice. The use of social justice and rights-based frameworks in designing and

teaching topics related to sexuality and sexual health has increased over the past several years and has been advocated by leading sexual health organizations [13,98]. A social justice lens uses the concepts of human rights and equality through which to challenge power, privilege, and structural and systemic discrimination of marginalized communities. There is evidence to suggest that this approach is well-founded and can be applied across the curriculum and at all grade levels [20,22,37,38,99]. A number of studies report outcomes related to increased knowledge, awareness and appreciation of gender equity and sexual rights, and awareness of discrimination and oppression based on gender and sexual orientation [20,22,23,25,34,37–41].

The programs on which the research is based span preschool through high school and range from a one-shot music-based program focused on attitudinal change related to racism, classism, homophobia, and misogyny [38] to a year-long, multimedia program on gender equity for fifth graders [39], both of which reported increased understanding and awareness of these rights-based issues. One strong study using a clustered randomized trial

to evaluate a 12-session, rights-based approach to sexuality education among predominantly Hispanic and African-American HS populations in Los Angeles found that, compared with students who received more traditional sex education, students who received the rights-based curriculum demonstrated more positive attitudes about sexual relationship rights [41,42].

As well, the research supports approaches that use literature to study LGBTQ rights and break down stereotyped beliefs using a social justice lens [17,20,22,23,25,34]. One such ethnographic study of a 10th grade literature class on oppression and diversity used field notes; audiotapes and videotapes; student surveys; writing samples; interviews with teachers, students, parents, and school personnel; and a retrospective group discussion with students 2 years post-intervention [20]. Respondents reported having myths of homosexuality dispelled, emerging empathy for gays and lesbians, and a belief in rights of gay and lesbian people to be who they are. The authors noted that establishing a safe climate in which to discuss sensitive and controversial issues was essential to the positive outcomes. Despite being an older (1996) study, it nonetheless supports the use of targeted strategies to increase acceptance and understanding of the LGBTQ community. Another study examined a high school literature class that used an “anti-oppression curriculum.” Using qualitative analysis software to analyze teacher and student interviews and questionnaires, the study reported that students moved from discomfort to confidence in discussing LGBTQ issues, gained a fuller understanding of the complexities of sexuality, and became more supportive allies and advocates of the LGBTQ community [22].

Two smaller studies are worth noting for their support of teaching about sexual rights in the context of social justice to younger children. In one, fourth- and fifth-grade students exposed to LGBTQ literature, history, and current events were successful in discussing and understanding issues of social justice and equity for LGBTQ people. They had the capacity to understand LGBTQ discrimination and lack of power and how they are related to oppression based on race, religion, culture, and other identities [37]. In a qualitative study of a preschool class that used literature to discuss marriage equality and LGBT rights, 4-year-olds expressed an inclusive understanding of marriage and a social justice stance on LGBTQ rights [25].

Finally, there is support for programs that use a gender-transformative approach to promote more equitable relationships among genders. Such programs make discussions of gender in the context of power and the promotion of gender equality and women’s empowerment, central to an intervention [43]. Studies of this approach showed reduced adherence to gender norms and gender-related power structures [41,44]. Such programs also had notable positive impacts on sexual health, personal safety, and bystander intentions [41,42,45,46]. Finally, although the current literature review is not focused on disease and pregnancy prevention programs, it is important to note that a focus on gender and power has the potential to influence a broad array of important sexual health outcomes. A meta-analysis that reviewed 22 sexuality and HIV curricula, across multiple age groups, found that programs addressing gender and power in relationships were five times more likely to be effective in reducing STI and pregnancy rates than those that did not address these topics. Specifically, 80% of such curricula versus 12% of curricula that did not address these topics were associated with lower STI and pregnancy rates [46].

Dating and intimate partner violence prevention

Strong evaluations demonstrate a range of positive outcomes for programs that focus on prevention of dating violence (DV) and intimate partner violence (IPV) among both middle school and high school youth. The terms DV and IPV are used interchangeably in some studies, while others, particularly those that are earlier, tend to use only the term DV.) School-based efforts have the potential to play an important role in reducing DV and, in many cases, have shown positive long-term outcomes [47,48]. Outside of pregnancy and disease prevention, this has been the most extensively evaluated aspect of school-based sex education efforts. There is strong evidence that programs can increase knowledge, change attitudes, and improve skills to reduce DV and IPV and can actually reduce the incidence of both DV and IPV.

The most promising approaches to addressing DV and IPV for school-aged youth have focused on social justice [49,50], shifting norms around DV [47,51] and/or gender roles [52], and conflict management skills [47,50]. Programs in this category have used a variety of educational methods, including instruction that supports social-emotional learning (SEL) [50,53], role-plays [49], multiple sessions and/or grade levels [47,53–55], theater [47], peer education [50], and enhanced building-level interventions [56], and have focused on sexual coercion, such as pressure, date rape, and exploitation [57,100].

Improved knowledge and attitudes about, and reporting of, DV and IPV. There is extensive evidence that school-based programs have resulted in improved knowledge and attitudes related to DV and IPV, including reduction in rape myths, victim blaming, and sexist attitudes [56,58–62], and increased knowledge and attitudes about IPV [50–52,58,62–66]. Strong evaluations have demonstrated improved communication skills and handling feelings of anger [49,51], increased awareness of laws and victim services [49,51,67], and reduced acceptance of sexual coercion [57]. Programs have resulted in increased intentions to reduce coercion [68] and have demonstrated increased self-efficacy [68] and adherence to social norms [69] to reject sexual harassment. In one study, significant change in HS students’ attitudes about DV at post-test and follow-up was greater for students who had reported higher school connectedness at pretest [70]. This finding suggests that efforts to help connect youth to school more generally may have the potential to influence longer term outcomes beyond school performance.

Decreased DV and IPV perpetration and victimization. Several large, rigorous studies are notable for strong behavioral outcomes in the area of DV and IPV prevention. These include a randomized evaluation of *The Fourth R* [50], a meta-analysis of 23 DV and IPV program evaluations in Grades 4 to 12 [58], a review of multiple studies on five different 6th- to 12th-grade programs [63] and a randomized, longitudinal study of *Safe Dates* [49,51]. These and other school-based programs have led to reductions in DV and IPV perpetration [48,49,52,63,71], victimization [44,48,54,56,58,71,72], emotional violence perpetration [47,60], verbal aggression [66], and referrals for harassment [73]. Some outcomes were found to have persisted for up to 4 years post-intervention [48,54,71].

Notably, several programs that took place in the eighth grade or earlier showed important long-term outcomes. The *Fourth R: Skills for Youth Relationships*, initially developed for ninth graders, stands out for its sequential version in Grades 7 and 8,

demonstrating decreases in both physical and emotional DV among boys at ninth-grade follow-up [71]. *Safe Dates*, in the eighth grade, with evaluation differentiating a range of violence-related outcomes, demonstrated reduction of sexual violence perpetration at immediate post-test [49], as well as reduced perpetration and victimization of physical violence at the 4-year follow-up. Compared with controls, treatment schools reported 25% less psychological abuse perpetration, 60% less sexual violence perpetration, and 60% less physical violence perpetration with a current dating partner [48].

Increased bystander intentions and behaviors. Research on school-based bystander intervention programs has demonstrated increases in reported positive bystander behaviors [45,52]. As well, several studies have demonstrated increases in bystander self-efficacy [61], skills [52], and intentions [29,45]. A systematic review of 7th- to 12th-grade bystander intervention programs suggests beneficial effects on bystander behaviors up to 4 months following the programs [74]. An IPV prevention program in an alternative HS showed strong improvements in bystander skills, gender-equitable attitudes, and bystander interventions, leading to improved overall school climate and improvement in the external reputation of the school [52]. A strong randomized study of a coach-led intervention in 16 high schools increased intentions to intervene, improved gender-equitable attitudes, and improved bystander actions among male athletes, both at post-test and 1-year follow-up [45,75].

Healthy Relationships

Programs specifically designed to reduce dating and interpersonal violence often had broader healthy relationship concepts among their measured outcomes. This section, however, reviews healthy relationship outcomes outside the specific context of DV or IPV prevention programs. These efforts focused on healthy relationships as a foundation for adolescent sexual health [54] and emphasized communication skills [47,55,76,77], ethics and social justice [29,41,77,78], and social-emotional learning [73,76].

Increased knowledge, attitudes, and skills. Two important studies demonstrated improvements in knowledge and attitudes related to healthy relationships. In a one-group, repeated-measures design with 3,658 ninth graders, the *Relationship Smarts* curriculum demonstrated significant improvements in healthy relationship knowledge and dating skills, as well as improved relationship skills for parent-adolescent relationships, both at post-test and 1-year follow-up [55]. Notably, knowledge about healthy relationships at baseline predicted improvements in parent-adolescent relationship scores at post-test, suggesting that knowledge in one relationship context has the potential to translate to other types of relationships. In addition, a peer-facilitated, five-session healthy relationship program for academically at-risk adolescents, adapted for cultural relevance in three metropolitan areas of Southeastern U.S., demonstrated strong improvements among ninth graders on knowledge and attitudes about healthy relationships [65].

Improved communication skills and intentions. Curricula that addressed communication within relationships resulted in improved communication skills and intentions, including increased intentions to discuss relationships and/or sex within

relationships [53,55,76,78], and with parents and medical providers [79]. A longitudinal study of 1,600 Mexican fourth graders, in the *Yo Quiero Yo Puede* program, which focused on the importance of talking about taboo and difficult subjects, demonstrated improved communication skills in these subjects and increased self-efficacy and intentions to discuss difficult subjects, including romance, sexuality, and threatening or unpleasant topics [76]. Rigorous evaluations found significant increases in communication skills for both the *Respectful Relationships* 6th to 10th grade sequential curriculum [77], and the *Fourth R*, for ninth graders [53].

Child sex abuse prevention

This review found strong evidence for the effectiveness of child sex abuse prevention efforts in elementary school. Such programs typically use behavioral practice and role-play [80] and encourage parental involvement [81,82]. They teach about body ownership and children's right to control their bodies [82] and about communication and self-protection [81,82]. A strong meta-analysis of 27 preschool through Grade 5 programs [80] and a systematic review of 24 K-5 programs [83] demonstrate significant effects on a wide range of outcomes, including behaviors in simulated at-risk situations. Another large systematic review concluded that, in general, parental involvement, opportunities for practice, repeated exposure, and sensitivity to developmental level were key characteristics of effective child sex abuse programs [81].

Improved knowledge, attitudes, skills and social-emotional outcomes related to personal safety and touch. A systematic review of 22 North American and UK curricula for K-6 children found significant increases in knowledge across programs, improved self-protective skills, particularly among older elementary students, and emotional gains in self-esteem, self-efficacy, and feelings of safety, in approximately one third of the programs. Gains in knowledge and some social-emotional outcomes remained at 3- to 5-month follow-up [84]. In a rigorous cluster randomized study of six New York City elementary schools, *Safe Touches* for second and third graders showed significant improvement in knowledge of safe touch [85]. Notably, intervention-control group differences were larger when "stranger danger" items were removed, suggesting that this curriculum was able to address inappropriate touch in a more nuanced way. *Stay Safe* primary prevention, for 7- and 10-year-olds in Ireland, demonstrated gains in knowledge, skills, and self-esteem, maintained at 3-month follow-up. Notably, gains were greatest for the younger students [82].

Child abuse prevention programs for second to fourth graders demonstrated significant increases in knowledge of appropriate and inappropriate touch, what to do in an inappropriate situation [86], and increased knowledge and skill to identify unsafe situations [87]. A strong randomized study in 21 urban U.S. schools found gains were maintained at 1 year, with no increase in anxiety, concluding that it is safe to discuss sensitive subjects with young children, and demonstrating the value of early education [87]. A kindergarten program showed significant improvement in knowledge of unsafe secrets and distinguishing between tattling and reporting [88], and another program conducted with 123 Latinx preschoolers demonstrated increased knowledge and skills at post-test and 3-month follow-up [89]. Studies in the U.S. and Canada [81] reported positive effects on

sense of control and safety felt by children, including, in one, more positive feelings about their genitals (e.g., it's okay to touch one's own private parts).

Improved disclosure skills and behaviors. Several studies have demonstrated improvements in young children's skills and behaviors specifically related to disclosure [80–82,90,91]. Evaluation of an early elementary sexual abuse prevention program in China focused on “no, go, and tell,” using random assignment by classroom to intervention and non-intervention groups, found significant increases for important skills related to reporting [90]. Fifth graders in *Child Sexual Abuse Prevention Education* in South Korea [91] showed significant improvement in self-protective behaviors. A systematic review of childhood sex abuse curricula in the U.S. and Canada concluded that one of the most common effects was increased knowledge of a resource person to whom children would report abuse [81]. More important, behavioral outcomes included increased parent–child communication about child sex abuse, and when implemented with a group of children known to have been abused, increased disclosure.

Additional outcomes

Social–emotional learning. Although not identified as a goal of sex education per se, the incorporation of social-emotional learning into sex education has been explored in the literature [101]. Studies identified here demonstrate a range of important social–emotional outcomes, across grade levels, resulting from sex education in the classroom, including increased empathy [19,20], respect for others [26], improved communication [41,51,76,77,81], managing feelings [49], positive self-image (including body image) [82,84,92–96], increased sense of self-control and safety [81], and establishing and maintaining positive relationships [55]. For example, evaluation of *Respectful Relationships*, a sequential, 4-year social justice program in Canada, with 1,748 6th to 10th graders, demonstrated significant growth in empathy, self-esteem, ability to speak one's opinion, belief in equal rights for all, and “seeing people for who they are on the inside.” In addition, the program demonstrated increased nonviolent conflict resolution among girls, and among boys, increased discomfort in seeing others being picked on [77].

Media literacy. Similarly, media literacy is not commonly included in discussions about sex education outcomes, although it is recognized as an important life skill for young people. Two studies reviewed here, however, suggest that media literacy may be particularly important as an outcome within sex education. Two eighth grade programs using a media literacy approach [79,96] demonstrated increased media deconstruction skills, understanding of how media affects both sense of self and perceptions of teen norms, and, most notably, intentions for communication with parents, partners, and medical providers about sex.

Discussion

The purpose of this review was to understand whether achieving certain CSE goals is possible. The SLR aimed to triangulate findings from a wide range of peer-reviewed studies to identify evidence that supports educational approaches to improving adolescent sexual health and provides theoretical

guidance for the broad goals of CSE. As such, we did not seek to identify or recommend specific programs or educational methodologies. Different settings, cultures, and local practices will dictate what specific approaches will ultimately be most effective and appropriate.

There is ample evidence that the physical and emotional health of young people is related to their academic achievement, as healthier students are more likely to stay in school and achieve higher grades, whereas health-related problems may contribute to academic struggles including higher absenteeism and dropping out [102–107]. Evidence reviewed here highlights this point with respect to sexual health. That is, if students are able to avoid early pregnancy, STIs, sexual abuse, and interpersonal violence and harassment, while feeling safe and supported within their school environment, they are more likely to experience academic success, a foundation for future stability.

This systematic review of the literature on sexual health outcomes from the past 30 years, provides encouraging documentation for the field of CSE. By setting aside studies looking strictly at pregnancy and STI prevention efforts, we were able to put a spotlight on critical CSE goals that often get lost in discussions about the impact of sex education on adolescent health. The findings reported here highlight important topics and approaches that show evidence of success, as well as areas of CSE that remain understudied. What this review found is that school-based CSE can lower homophobia and homophobic-related bullying, can increase understanding of gender and gender norms, can improve knowledge and skills that support healthy relationships, can build child sex abuse prevention skills, and can reduce dating and intimate partner violence.

Support for early, scaffolded, and multigrade approaches

This review offers substantial evidence that sexuality education is most effective when begun early and before sexual activity begins [76,80,82,83,92,93,108–110]. As well, several studies, including some strong systematic reviews and meta-analyses, provide ample support for teaching that builds on previous lessons and/or grades and for programs of longer duration [25,34–37,39–41,47,50,74,77,81,111,112]. As with all other areas of the curriculum, building an early foundation and scaffolding learning with developmentally appropriate content and teaching are key to long-term development of knowledge, attitudes, and skills that support healthy sexuality.

CSE is designed to include all grade levels, K-12, and in the early grades, even in preschool, there seems to be little controversy or discomfort around discussions in the context of child sex abuse prevention. The literature on sexual abuse prevention efforts in early grades reviewed here shows strong evidence that young children can develop self-protective knowledge, skills, and intentions, including an increased likelihood of reporting sexual abuse and knowing how to respond in a dangerous situation, all without increasing anxiety. Other than in this area, though, there are only limited examples of sexuality-related content in the K-5 curriculum [113], many topics being deemed traumatizing, inappropriate, or premature for young children and thus remaining controversial [114,115]. The data, however, strongly indicate that such topics are developmentally appropriate and produce positive outcomes, while providing a foundation for future learning. This review suggests that not only are younger children able to discuss sexuality-related issues but that the early grades may, in fact, be the best time to introduce topics related to

sexual orientation, gender identity and expression, gender equality, and social justice related to the LGBTQ community before hetero- and cisnormative values and assumptions become more deeply ingrained and less mutable. Children learn gender role attitudes at an early age from observing the people in their families [116]. As they progress through school, these attitudes are further shaped by classmates and peers, as well as by the biases of teachers, the design of the curriculum, and the school environment [117,118]. Given the influence of this early socialization and learning, it is important to introduce concepts that would disrupt stereotypical and harmful biases related to gender and sexual orientation, during this formative time.

Tackling homophobia, transphobia, and hostile school environments

Particularly at-risk, LGBTQ students continue to face a hostile environment in school, routinely hearing anti-LGBTQ language and experiencing victimization and discrimination at school [119]. These students have “worse educational outcomes and poorer psychological well-being,” experiencing lower self-esteem and higher rates of depression [119]. Efforts to reduce homophobic bullying and harassment and to increase appreciation for sexual diversity can improve the school climate for all students, and, as this review found, create a safer environment that is more conducive to learning, and to better mental health for sexual minority students. Evidence of success was found from individual classroom efforts, as well as from inclusivity across the curriculum, in promoting a more accepting and welcoming environment for sexual minority youth.

Social justice pedagogy

The literature highlights both the efficacy and importance of addressing gender and sexual orientation within the context of human rights and equality [120–124]. Helping young people to challenge the social structures and systems that lead to discrimination and oppression based on gender and sexual orientation is critical to their sexual, emotional, and social development. The evidence reviewed here suggests that expanding social justice pedagogy within the sex education curriculum beyond the topics of gender and sexual orientation makes sense as well, and that research on such efforts is much needed.

Importance of social-emotional learning

SEL has been found to improve academic outcomes and behaviors that confer real-life benefits among students from kindergarten through high school including improved classroom behavior, increased ability to manage challenging emotions, and better attitudes about themselves, others, and school [125–127]. The findings from this review suggest that CSE represents a critical component of SEL and outcomes. Given that, it is essential that core SEL competencies be proactively integrated into school-based sex education efforts [128], and measured in any assessments.

Sex education across the curriculum

It is worth noting that in this review, many of the positive outcomes and promising approaches that worked toward

creating affirming, inclusive school environments occurred not in traditional health or sex education classes, but in social studies, English, physical education, mathematics, music, and art. In particular, the vast majority of successful approaches to LGBTQ and gender norm topics in the elementary school grades used literature with students as the entry point for learning and discussion, most with the goal of increasing appreciation and acceptance of sexual and gender diversity [17,25,34–37]. The fact that topics falling within sex education can be addressed successfully across the curriculum is encouraging and offers much needed flexibility to schools, both in terms of available time and talented teachers to tackle difficult and important topics. It also provides an opportunity to explore sexuality-related issues in different contexts and by applying a variety of lenses. Given that most schools have limited time allotted to health or sex education [129], a coordinated and concerted effort to teach and reinforce important sexual health concepts throughout other areas of the curriculum is a promising strategy.

Unmet needs

Several areas of focus are notably absent from the evaluation literature. Two topics often excluded from curricula, and therefore not included in outcome evaluations, are pleasure and desire [130,131]; most sex education is focused on sex as a problem behavior. The literature suggests that there is a need for, but little evidence of, teaching that views teen sex as normative, rather than pathological [132–134]. Furthermore, a few studies have concluded that it is not sexual behavior, per se, but the lack of a relationship context when it occurs, that is predictive of poor school outcomes [135,136]. Yet, the focus on sexual behavior as problematic itself eliminates the opportunity for young people to explore and experience normal, healthy, safe, and pleasurable sexual activity.

It is important to note that much of the dating violence and IPV prevention literature focuses on programs that are traditionally gendered, that is, most do not address IPV specific to sexual minority youth. As schools begin to demonstrate greater acknowledgment of nonbinary gender identities, hopefully this change will be reflected in future research. Some studies have demonstrated that mixed gender interventions have stronger outcomes than interventions conducted in single-gender groups [57,137]. Thus, more research on programs with expansive gender paradigms is needed, given that single-gender and gender-binary interventions have the potential to further victimize gender-nonconforming, nonbinary youth.

Two studies specifically noted that children with disabilities were excluded from analyses [84] or that outcomes were weaker for schools that had a higher proportion of classified students [85]. Although there has been increasing focus on this diverse population, with curricula and guidance for teaching young people with disabilities [138], there is limited literature that has attempted to evaluate the effectiveness of such approaches. Yet, young people with intellectual or physical disabilities may be at greater risk for poor sexual health including sexual abuse and exploitation, pregnancy and STIs, and difficulty forging and maintaining healthy relationships [139–141]. The findings of this review suggest a strong need for evaluations focused on sex education efforts with these learners.

The updated NSES [13] stress that sex education must be taught within the larger context of intersectionality, that is, the fact that young people cross a variety of sexual orientation,

gender identity, racial, ethnic/cultural, and other groups. Sex education researchers have also raised this important point [120–124]. The only educational approaches reviewed here that specifically addressed intersectionality [19,20,37,38] were those with an explicit social justice aim. To realize the full potential of CSE, considerations of race, class, culture, ability, SES, and other important characteristics need to be more deliberately woven into curricula, teaching, and evaluation. Further, this review suggests the need for a broader social justice approach within sex education – one that examines sexual orientation and gender together with race, culture, and other identities, in the context of systemic oppression and its impact on marginalized communities. This approach is consistent with the guidance offered by the updated NSES and suggests that additional research on the outcomes of such efforts is much needed.

Limitations

Despite a systematic approach, this review is not exhaustive and may not have yielded the full range of evidence. Because the search focused on keywords and databases that reflect the peer-reviewed sex education and sexual health literature, some of the research published outside of this literature may not have been fully represented. In addition, the inclusion only of English-language papers limited our ability to assess all the existing literature on this topic. Thus, it is likely that some effective approaches were not included. As well, most of the studies on sexual orientation and related outcomes focus on LGB concepts as a summary term, but reports of reduced homophobia, for example, may not have specifically measured reduction in “biphobia.” This lack of clarity may reduce the ability to generalize outcomes reported here to include bisexuality.

It is also of note that the vast majority of studies identifying positive outcomes related to puberty, and anatomy and physiology, tend to be within the context of pregnancy and disease prevention programs. Thus, they are not reviewed in this article.

Finally, the initial search was based on the language of the NSES First Edition [12]; thus some important terms may have been underrepresented in the results. For example, one of the strongest findings was related to the use of a social justice framework to teach about sexuality. Had the NSES Second Edition [13], which address this issue more thoroughly, been used in the original search, it is possible there would have been even more evidence in this area. Nevertheless, this review provides extensive support for a broad and comprehensive treatment of sex education and the effectiveness of such an approach.

Support for comprehensive sex education

A review of the literature of the past three decades offers strong support for comprehensive sex education. The findings provide evidence for the effectiveness of approaches that address a broad definition of sexual health and well-being and take positive, affirming, and inclusive approaches to human sexuality, across multiple grade levels. Notably, they reinforce the guidance to public schools provided by the *National Sex Education Standards* and further strengthen the justification for their widespread adoption.

The implications of this work for school communities are important. In short, attention to the full range of sexual health topics, scaffolded across grades, embedded in supportive school environments and across subject areas, has the potential to

improve sexual, social, and emotional health, and academic outcomes for young people.

Acknowledgments

The authors acknowledge, with great thanks: The Grove Foundation, which funded this project; FoSE (the Future of Sex Education), for guidance and vision in the scope of this work; Alejandra Kaplan, M.P.H.; Jacqueline Bavaro, M.P.H.; Emma Ophof, M.P.H.; Natalie Strucinski, M.P.H.; Katharine Mauro, M.P.H. and Rachel Wilkins, M.P.H. candidate, for their tireless work on this project.

References

- [1] Planned Parenthood Federation of America. Sex education: A national survey on support among likely voters. 2018. Available at: https://www.plannedparenthood.org/uploads/filer_public/7a/ac/7aacf0ad-fd1c-4dcc-b65f-47e3c3754e0d/sex_education_-_a_national_survey_on_support_among_likely_voters_logo.pdf. Accessed June 1, 2020.
- [2] Goldfarb ES. A crisis of identity in sexuality education in America: How did we get here and where are we going?. In: Schroeder Elizabeth, Kuriansky Judy, eds. Sexuality education: Past, present, and future, vol. 1. New York, NY: Praeger; 2009:8–30.
- [3] Trenholm C, Devaney B, Fortson K, et al. Impacts of abstinence education on teen sexual activity, risk of pregnancy, and risk of sexually transmitted diseases. *J Policy Anal Manage* 2008;27:255–76.
- [4] Kirby D. Emerging answers: Research findings on programs to reduce teen pregnancy (summary). *Am J Health Educ* 2001;32:348–55.
- [5] Sales JM, Milhausen RR, DiClemente RJ. A decade in review: Building on the experiences of past adolescent STI/HIV interventions to optimise future prevention efforts. *Sex Transm Infect* 2006;82:431–6.
- [6] DiClemente RJ, Crittenden CP, Rose E, et al. Psychosocial predictors of HIV-associated sexual behaviors and the efficacy of prevention interventions in adolescents at-risk for HIV infection: What works and what doesn't work? *Psychosom Med* 2008;70:598–605.
- [7] Card JJ, Lessard L, Benner T. PASHA: Facilitating the replication and use of effective adolescent pregnancy and STI/HIV prevention programs. *J Adolesc Health* 2007;40:275.e1–275.e14.
- [8] Robin L, Dittus P, Whitaker D, et al. Behavioral interventions to reduce incidence of HIV, STD, and pregnancy among adolescents: A decade in review. *J Adolesc Health* 2004;34:3–26.
- [9] Guse K, Levine D, Martins S, et al. Interventions using new digital media to improve adolescent sexual health: A systematic review. *J Adolesc Health* 2012;51:535–43.
- [10] Goldfarb ES, Constantine NA. Sexuality education. In: Bradford Brown B, Prinstein M, eds. *Encyclopedia of adolescence*, vol. 2. Amsterdam, Netherlands: Elsevier, Inc.; 2011:322–31.
- [11] SIECUS. Position statements. [PDF]. 2018. Washington DC: Sexuality Information and Education Council of the United States; 2018. Available at: <https://siecus.org/wp-content/uploads/2018/07/Position-Statements-2018.pdf>. Accessed June 1, 2020.
- [12] Future of Sex Education Initiative. National sexuality education standards: Core content and skills, K-12 [a special publication of the Journal of School Health]. Bethesda, MD: American School Health Association; 2012.
- [13] Future of Sex Education Initiative. National sex education standards: Core content and skills, K-12. 2nd ed. Washington, DC: American School Health Association; 2020.
- [14] Centers for Disease Control and Prevention. Results from the school health policies and practices study 2016. US Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Available at: https://www.cdc.gov/healthyyouth/data/shpps/pdf/shpps-results_2016.pdf. Accessed June 1, 2020.
- [15] SIECUS. Guidelines for comprehensive sexuality education: Kindergarten–12th grade. Washington, DC: Sexuality Information and Education Council of the United States; 1991.
- [16] Liberati A, Altman DG, Tetzlaff J, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLoS Med* 2009;6:e1000100.
- [17] Schall J, Kauffmann G. Exploring literature with gay and lesbian characters in the elementary school. *J Children's Lit* 2003;29:36–45.
- [18] Eick U, Rubinstein T, Hertz S, Slater A. Changing attitudes of high school students in Israel toward homosexuality. *J LGBT Youth* 2016;13:192–206.
- [19] Richard G, Vallerand O, Petit MP, Charbonneau A. Discussing sexual orientation and gender in classrooms: A testimonial-based approach to fighting homophobia in schools. *Educ Forum* 2015;79:421–35.

- [20] Athanases SZ. A gay-themed lesson in an ethnic literature curriculum: Tenth graders' responses to 'Dear Anita'. *Harv Educ Rev* 1996;66:231.
- [21] Van de Ven P. Effects on high school students of a teaching module for reducing homophobia. *Basic Appl Social Psychol* 1995;17:153–72.
- [22] Helmer K. "Everyone needs a class like this": High school students' perspectives on a gay and lesbian literature course. *Educ Forum* 2015;79:408–20.
- [23] Helmer K. Gay and lesbian literature disrupting the heteronormative space of the high school English classroom. *Sex Educ Sex Soc Learn* 2016;16:35–48.
- [24] Alan H, Miriam I. LGBTQ youth in american schools: Moving to the middle. *Middle Sch J* 2011;42:32.
- [25] Bentley DF, Souto-Manning M. Toward inclusive understandings of marriage in an early childhood classroom: Negotiating (un)readiness, community, and vulnerability through a critical reading of "King and King". *Early Years: An Int J Res Dev* 2016;36:195–206.
- [26] Lucassen MF, Burford J. Educating for diversity: An evaluation of a sexuality diversity workshop to address secondary school bullying. *Australas Psychiatry* 2015;23:544–9.
- [27] Brown LK, Barone VJ, Fritz GK, et al. AIDS education: The Rhode Island experience. *Health Educ Q* 1991;18:195–206.
- [28] Snapp SD, McGuire JK, Sinclair KO, et al. LGBTQ-inclusive curricula: Why supportive curricula matter. *Sex Educ Sex Soc Learn* 2015;15:580–96.
- [29] Baams L, Dubas J, van Aken M. Comprehensive sexuality education as a longitudinal predictor of LGBTQ name-calling and perceived willingness to intervene in school. *J Youth Adolesc* 2017;46:931–42.
- [30] Proulx CN, Coulter RW, Egan JE, et al. Associations of lesbian, gay, bisexual, transgender, and questioning-inclusive sex education with mental health outcomes and school-based victimization in U.S. high school students. *J Adolesc Health* 2019;64:608–14.
- [31] Blake SM, Ledsky R, Lehman T, et al. Preventing sexual risk behaviors among gay, lesbian, and bisexual adolescents: The benefits of gay-sensitive HIV instruction in schools. *Am J Public Health* 2001;91:940–6.
- [32] Hill CA, Kearl H. Crossing the line: Sexual harassment at school. AAUW; 2011. Available at: <http://files.eric.ed.gov/fulltext/ED525785.pdf>. Accessed June 1, 2020.
- [33] Ramirez-Valles J, Kuhns LM, Manjarrez D. Tal Como Somos/Just as We Are: An educational film to reduce stigma toward gay and bisexual men, transgender individuals, and persons living with HIV/AIDS. *J Health Commun* 2014;19:478–92.
- [34] Ryan CL, Patraw JM, Bednar M. Discussing princess boys and pregnant men: Teaching about gender diversity and transgender experiences within an elementary school curriculum. *J LGBT Youth* 2013;10:83–105.
- [35] Rice PS. Creating spaces for boys and girls to expand their definitions of masculinity and femininity through children's literature. *J Children's Lit* 2002;28:33–42.
- [36] Dutro E. "But That's a Girls' Book!" Exploring gender boundaries in children's reading practices. *Reading Teach* 2001;55:376–84.
- [37] Hermann-Wilmarth JM, Lannen R, Ryan CL. Critical literacy and transgender topics in an upper elementary classroom: A portrait of possibility. *J Lang Literacy Educ* 2017;13:15–27.
- [38] Knotts G, Gregorio D. Confronting homophobia at school: High school students and the gay men's chorus of Los Angeles. *J LGBT Youth* 2011;8:66–83.
- [39] Matthews CE, Binkley W, Crisp A, Gregg K. Challenging gender bias in fifth grade. *Educ Leadersh* 1998;55:54–7.
- [40] Smylie L, Maticka-Tyndale E, Boyd D. Evaluation of a school-based sex education programme delivered to grade nine students in Canada. *Sex Educ Sex Soc Learn* 2008;8:25–46.
- [41] Constantine NA, Jerman P, Berglas NF, et al. Short-term effects of a rights-based sexuality education curriculum for high-school students: A cluster-randomized trial. *BMC Public Health* 2015;15:293.
- [42] Rohrbach LA, Berglas NF, Jerman P, et al. A rights-based sexuality education curriculum for adolescents: 1-year outcomes from a cluster-randomized trial. *J Adolesc Health* 2015;57:399–406.
- [43] Barker G, Ricardo C, Nascimento M, et al. Questioning gender norms with men to improve health outcomes: Evidence of impact. *Glob Public Health* 2010;5:539–53.
- [44] Baiocchi M, Omondi B, Langat N, et al. A behavior-based intervention that prevents sexual assault: The results of a matched-pairs, cluster-randomized study in Nairobi, Kenya. *Prev Sci Official J Soc Prev Res* 2017;18:818–27.
- [45] Miller E, Tancredi DJ, McCauley HL, et al. Coaching boys into men: A cluster-randomized controlled trial of a dating violence prevention program. *J Adolesc Health* 2012;51:431–8.
- [46] Haberland NA. The case for addressing gender and power in sexuality and HIV education: A comprehensive review of evaluation studies. *Int Perspect Sex Reprod Health* 2015;41:31–42.
- [47] Ting S. Meta-analysis on dating violence prevention among middle and high schools. *J Sch Violence* 2009;8:328–37.
- [48] Foshee VA, Bauman KE, Ennett ST, et al. Assessing the long-term effects of the safe dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *Am J Public Health* 2004;94:619–24.
- [49] Foshee V, Bauman KE, Arriaga XB, et al. An evaluation of safe dates, an adolescent dating violence prevention program. *Am J Public Health* 1998;88:45–50.
- [50] Crooks CV, Scott KL, Broll R, et al. Does an evidence-based healthy relationships program for 9th graders show similar effects for 7th and 8th graders? Results from 57 schools randomized to intervention. *Health Educ Res* 2015;30:513–9.
- [51] Foshee VA, Bauman KE, Greene WF, et al. The safe dates program: 1-year follow-up results. *Am J Public Health* 2000;90:1619–22.
- [52] Kervin D, Obinna J. Youth action strategies in the primary prevention of teen dating violence. *J Fam Social Work* 2010;13:362–74.
- [53] Wolfe DA, Crooks CV, Chiodo D, et al. Observations of adolescent peer resistance skills following a classroom-based healthy relationship program: A post-intervention comparison. *Prev Sci* 2012;13:196–205.
- [54] Peskin MF, Markham CM, Shegog R, et al. Effects of the it's your game... keep it real program on dating violence in ethnic-minority middle school youths: A group randomized trial. *Am J Public Health* 2014;104:1471–7.
- [55] Rice TM, McGill J, Adler-Baeder F. Relationship education for youth in high school: Preliminary evidence from a non-controlled study on dating behavior and parent-adolescent relationships. *Child Youth Care Forum* 2017;46:51–68.
- [56] Taylor B, Stein N, Burden F. The effects of gender violence/harassment prevention programming in middle schools: A randomized experimental evaluation. *Violence Vict* 2010;25:202–23.
- [57] Pacifici C, Stoolmiller M, Nelson C. Evaluating a prevention program for teenagers on sexual coercion: A differential effectiveness approach. *J Consulting Clin Psychol* 2001;69:552–9.
- [58] De La Rue L, Polanin JR, Espelage DL, et al. School-based interventions to reduce dating and sexual violence: A systematic review. *Campbell Syst Rev* 2014;10:1–110.
- [59] Smith P, Welchans S. Peer education: Does focusing on male responsibility change sexual assault attitudes? *Violence Against Women* 2000;6:1255–68.
- [60] Sosa-Rubi SG, Saavedra-Avendano B, Piras C, et al. True love: Effectiveness of a school-based program to reduce dating violence among adolescents in Mexico City. *Prev Sci* 2017;18:804–17.
- [61] Baker CK, Naai R, Mitchell J, Trecker C. Utilizing a train-the-trainer model for sexual violence prevention: Findings from a pilot study with high school students of Asian and Pacific Islander descent in Hawai'i. *Asian Am J Psychol* 2014;5:106–15.
- [62] Macgowan MJ. An evaluation of a dating violence prevention program for middle school students. *Violence Vict* 1997;12:223–35.
- [63] Meyer H, Stein N. Relationship violence prevention education in schools: What's working, what's getting in the way, and what are some future directions. *Am J Health Educ* 2004;35:198–204.
- [64] Weisz AN, Black BM. Evaluating a sexual assault and dating violence prevention program for urban youth. *Social Work Res* 2001;25:89–100.
- [65] McLeod DA, Jones R, Cramer EP. An evaluation of a school-based, peer-facilitated, healthy relationship program for at-risk adolescents. *Child Schools* 2015;37:108–16.
- [66] Adler-Baeder F, Kerpelman JL, Schramm DG, et al. The impact of relationship education on adolescents of diverse backgrounds. *Fam Relations* 2007;56:291–303.
- [67] Jaycox LH, McCaffrey D, Eisman B, et al. Impact of a school-based dating violence prevention program among Latino teens: Randomized controlled effectiveness trial. *J Adolesc Health* 2006;39:694–704.
- [68] de Lijster GPA, Felten H, Kok G, Kocken PL. Effects of an interactive school-based program for preventing adolescent sexual harassment: A cluster-randomized controlled evaluation study. *J Youth Adolesc* 2016;45:874–86.
- [69] Roscoe B, Strouse JS, Goodwin MP, et al. Sexual harassment: An educational program for middle school students. *Elem Sch Guidance Couns* 1994;29:110–20.
- [70] Kernsmith PD, Hernandez-Jozefowicz DM. A gender-sensitive peer education program for sexual assault prevention in the schools. *Child Schools* 2011;33:146–57.
- [71] Wolfe DA, Crooks C, Jaffe P, et al. A school-based program to prevent adolescent dating violence: A cluster randomized trial. *Arch Pediatr Adolesc Med* 2009;163:692–9.
- [72] Mathews C, Eggers SM, Townsend L, et al. Effects of PREPARE, a multi-component, school-based HIV and intimate partner violence (IPV) prevention programme on adolescent sexual risk behaviour and IPV: Cluster randomised controlled trial. *AIDS Behav* 2016;20:1821–40.
- [73] Bates RC. An action research study: Using classroom guidance lessons to teach middle school students about sexual harassment. *Ga Sch Counselors Assoc J* 2006;13:7–13.

- [74] Kettry HH, Marx R, Tanner-Smith E. Effects of bystander programs on the prevention of sexual assault among adolescents and college students: A systematic review. *Campbell Syst Rev* 2019;15:e1013.
- [75] Miller E, Tancredi DJ, McCauley HL, et al. One-year follow-up of a coach-delivered dating violence prevention program: A cluster randomized controlled trial. *Am J Prev Med* 2013;45:108–12.
- [76] Pick S, Givaudan M, Sirkin J, Ortega I. Communication as a protective factor: Evaluation of a life skills HIV/AIDS prevention program for Mexican elementary-school students. *AIDS Educ Prev* 2007;19:408–21.
- [77] Buote D, Berglund P. Promoting social justice through building healthy relationships: Evaluation of SWOVA's "Respectful Relationships" program. *Educ Citizsh Soc Justice* 2010;5:207–20.
- [78] Lamb S, Randazzo R. An examination of the effectiveness of a sexual ethics curriculum. *J Moral Educ* 2016;45:16–30.
- [79] Scull TM, Malik CV, Kupersmidt JB. A media literacy education approach to teaching adolescents comprehensive sexual health education. *J Media Lit Educ* 2014;6:1–14.
- [80] Davis MK, Gidycz CA. Child sexual abuse prevention programs: A meta-analysis. *J Clin Child Psychol* 2000;29:257–65.
- [81] Kenny MC, Capri V, Thakkar-Kolar R, et al. Child sexual abuse: From prevention to self-protection. *Child Abuse Rev* 2008;17:36–54.
- [82] Macintyre D, Carr A. Evaluation of the effectiveness of the stay safe primary prevention programme for child sexual abuse. *Child Abuse Neglect* 1999;23:1307.
- [83] Walsh K, Zwi K, Woolfenden S, Shlonsky A. School-based education programs for the prevention of child sexual abuse: A cochrane systematic review and meta-analysis. *Res Social Work Pract* 2018;28:33–55.
- [84] Topping KJ, Barron IG. School-based child sexual abuse prevention programs: A review of effectiveness. *Rev Educ Res* 2009;79:431–63.
- [85] Pulido ML, Dauber S, Tully BA, et al. Knowledge gains following a child sexual abuse prevention program among urban students: A cluster-randomized evaluation. *Am J Public Health* 2015;105:1344–50.
- [86] Baker CK, Gleason K, Naai R, et al. Increasing knowledge of sexual abuse: A study with elementary school children in Hawai'i. *Res Social Work Pract* 2013;23:167–78.
- [87] Hazzard A, Webb C, Kleemeier C, et al. Child sexual abuse prevention: Evaluation and one-year follow-up. *Child Abuse Negl* 1991;15:123–38.
- [88] Brown DM. Evaluation of Safer, Smarter Kids: Child sexual abuse prevention curriculum for kindergartners. *Child Adolesc Social Work J* 2017;34:213–22.
- [89] Kenny MC, Wurtele SK, Alonso L. Evaluation of a personal safety program with Latino preschoolers. *J Child Sex Abuse* 2012;21:368–85.
- [90] Jin Y, Chen J, Jiang Y, Yu B. Evaluation of a sexual abuse prevention education program for school-age children in China: A comparison of teachers and parents as instructors. *Health Educ Res* 2017;32:364–73.
- [91] Kim S-J, Kang K-A. Effects of the child sexual abuse prevention education (C-SAPE) program on South Korean fifth-grade students' competence in terms of knowledge and self-protective behaviors. *J Sch Nurs* 2017;33:123–32.
- [92] Kater KJ, Rohwer J, Londre K. Evaluation of an upper elementary school program to prevent body image, eating, and weight concerns. *J Sch Health* 2002;72:199–204.
- [93] Halliwell E, Yager Z, Paraskeva N, et al. Body image in primary schools: A pilot evaluation of a primary school intervention program designed by teachers to improve children's body satisfaction. *Body Image* 2016;19:133–41.
- [94] Dunstan CJ, Paxton SJ, McLean SA. An evaluation of a body image intervention in adolescent girls delivered in single-sex versus co-educational classroom settings. *Eat Behaviors* 2017;25:23–31.
- [95] McCabe MP, Ricciardelli LA, Karantzias G. Impact of a healthy body image program among adolescent boys on body image, negative affect, and body change strategies. *Body Image* 2010;7:117–23.
- [96] Berman N, White A. Refusing the Stereotype: Decoding negative gender imagery through a school-based digital media literacy program. *Youth Stud Aust* 2013;32:38–47.
- [97] Shor I. What is critical literacy? *J Pedagogy Pluralism Pract* 1999;1:2.
- [98] Fund UNP. International technical guidance on sexuality education: An evidence-informed approach. UNESCO; 2018.
- [99] Rands K. Supporting transgender and gender-nonconforming youth through teaching mathematics for social justice. *J LGBT Youth* 2013;10:106–26.
- [100] Beyer CE, Ogletree RJ. Sexual coercion content in 21 sexuality education curricula. *J Sch Health* 1998;68:370–5.
- [101] Cahill H, Kern ML, Dadvand B, et al. An integrative approach to evaluating the implementation of social and emotional learning and gender-based violence prevention education. *Int J Emot Educ* 2019;11:135–52.
- [102] Basch CE. Healthier students are better learners: A missing link in school reforms to close the achievement gap. Equity matters. Research review No. 6. New York: Teachers College of Columbia University; 2010.
- [103] Townsend L, Flisher AJ, King G. A systematic review of the relationship between high school dropout and substance abuse. *Clin Child Fam Psychol* 2007;10:295–317.
- [104] CDC. Sexual risk behaviors and academic achievement. Atlanta, GA: CDC; 2010. Available at: http://www.cdc.gov/HealthyYouth/health_and_academics/pdf/sexual_risk_behaviors.pdf. Accessed June 1, 2020.
- [105] CDC. Health-risk behaviors and academic achievement. Atlanta, GA: CDC; 2010. Available at: http://www.cdc.gov/HealthyYouth/health_and_academics/pdf/health_risk_behaviors.pdf. Accessed June 1, 2020.
- [106] CDC. School connectedness: Strategies for increasing protective factors among youth. 2009. Atlanta, GA. Available at: <https://www.cdc.gov/healthyyouth/protective/pdf/connectedness.pdf>. Accessed June 1, 2020.
- [107] Dilley J. Research review: School-based health interventions and academic achievement. Washington State Board of Health; 2009. Available at: <https://www.doh.wa.gov/Portals/1/Documents/8300/130-083-HealthAcademic-en-L.pdf>. Accessed June 1, 2020.
- [108] Gaskins SW, Beard SR, Wang MQ. An HIV/AIDS education program for children in grades K-5. *J HIV/AIDS Prev Educ Adolesc Child* 2002;5:31–43.
- [109] Mueller TE, Gavin LE, Kulkarni A. The association between sex education and youth's engagement in sexual intercourse, age at first intercourse, and birth control use at first sex. *J Adolesc Health* 2008;42:89–96.
- [110] Reading R, Bissell S, Goldhagen J, et al. Promotion of children's rights and prevention of child maltreatment. *Lancet* 2009;373:332–43.
- [111] Dinaj-Koci V, Lunn S, Deveaux L, et al. Adolescent age at time of receipt of one or more sexual risk reduction interventions. *J Adolesc Health* 2014;55:228–34.
- [112] Mirzazadeh A, Biggs MA, Viitanen A, et al. Do school-based programs prevent HIV and other sexually transmitted infections in adolescents? A systematic review and meta-analysis. *Prev Sci* 2018;19:490–506.
- [113] Centers for Disease Control and Prevention. Results from the school health policies and practices study 2014. US Department of Health and Human Services, Centers for Disease Control and Prevention; 2015:21–8. Available at: https://www.cdc.gov/healthyyouth/data/shpps/pdf/shpps-508-final_101315.pdf. Accessed June 1, 2020.
- [114] Shalby C. Controversial sex education framework for California approved despite protest. Los Angeles Times May 10, 2019. Available at: <https://www.latimes.com/local/lanow/la-me-sex-education-california-20190510-story.html>. Accessed May 25, 2020.
- [115] The Associated Press. Sex-education bill passes Washington House after fierce debate over its content, timing. Seattle Times March 5, 2020. Available at: <https://www.seattletimes.com/seattle-news/sex-education-bill-passes-washington-house-after-fierce-debate-over-its-content-timing/>. Accessed May 25, 2020.
- [116] Bronstein P. The family environment: Where gender role socialization begins. In: Worell J, Goodheart CD, eds. *Oxford Series in Clinical Psychology. Handbook of Girls' and Women's Psychological Health: Gender and Well-Being across the Lifespan*. Oxford, UK: Oxford University Press; 2006:262–71.
- [117] Blakemore JEO, Berenbaum SA, Liben LS. *Gender development*. New York: Taylor & Francis; 2009.
- [118] Leaper C, Bigler RS. Gender. In: Underwood MK, Rosen LH, eds. *Social Development: Relationships in Infancy, Childhood, and Adolescence*. New York: Guilford Press; 2011.
- [119] Kosciw JG, Greytak EA, Zongrone AD, et al. *The 2017 National School Climate Survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools*. New York: GLSEN; 2018.
- [120] Flowers SC. Enacting our multidimensional power: Black women sex educators demonstrate the value of an intersectional sexuality education framework. *Meridians* 2008;16:308–25.
- [121] Berglas NF, Constantine NA, Ozer EJ. A rights-based approach to sexuality education: Conceptualization, clarification and challenges. *Perspect Sex Reprod Health* 2014;46:63–72.
- [122] Schalet AT, Santelli JS, Russell ST, et al. Invited commentary: Broadening the evidence for adolescent sexual and reproductive health and education in the United States. *J Youth Adolesc* 2014;43:1595–610.
- [123] Garcia L, Fields J. Renewed commitments in a time of vigilance: Sexuality education in the USA. *Sex Educ* 2017;17:471–81.
- [124] Flores G. Best not forget lesbian, gay, bisexual, and transgender themed children's literature: A teacher's reflections of a more inclusive multicultural education and literature program. *Am J Sex Educ* 2016;11:1–17.
- [125] Durlak JA, Weissberg RP, Dymnicki AB, et al. The impact of enhancing students' social and emotional learning: A meta-analysis of school based universal interventions. *Child Dev* 2011;82:405–32.
- [126] Weissberg RP. Promoting the social and emotional learning of millions of school children. *Perspect Psychol Sci* 2019;14:65–9.
- [127] Mahoney JL, Durlak JA, Weissberg RP. An update on social and emotional learning outcome research. *Phi Delta Kappan* 2018;100:18–23.
- [128] Collaborative for Academic, Social, and Emotional Learning (CASEL). *Core SEL competencies*. Available at: <https://casel.org/core-competencies/>. Accessed June 1, 2020.
- [129] CDC. Profiles results. 2019. Available at: <https://www.cdc.gov/healthy youth/data/profiles/results.htm>. Accessed June 1, 2020.
- [130] Lamb S, Lustig K, Graling K. The use and misuse of pleasure in sex education curricula. *Sex Educ Sex Soc Learn* 2013;13:305–18.

- [131] Jolly S. Positive approaches to sexuality and new normative frames: Strands of research and action in China and the USA. *Sex Educ Sex Soc Learn* 2016;16:294–307.
- [132] Laina BC. The Trouble of Teen: Sex the construction of adolescent sexuality through school-based sexuality education. *Sex Educ* 2003;3:62–74.
- [133] Schalet A. Beyond abstinence and risk: A new paradigm for adolescent sexual health. *Women's Health Issues* 2011;21(3 Suppl):S5–7.
- [134] Michaud P-A. Adolescents and risks: Why not change our paradigm? *J Adolesc Health* 2006;38:481–3.
- [135] Shoveller JA, Johnson JL, Langille DB, Mitchell T. Socio-cultural influences on young people's sexual development. *Soc Sci Med* 2004;59:473–87.
- [136] Bill M, Eric G. Sex and school: Adolescent sexual intercourse and education. *Social Probl* 2011;58:213.
- [137] Clinton-Sherrod AM, Morgan-Lopez AA, Gibbs D, et al. Factors contributing to the effectiveness of four school-based sexual violence interventions. *Health Promot Pract* 2009;10:19S–28S.
- [138] Respect Ability. Sexual education resources. Available at: <https://www.respectability.org/resources/sexual-education-resources/>. Accessed June 1, 2020.
- [139] Treacy AC, Taylor SS, Abernathy TV. Sexual health education for individuals with disabilities: A call to action. *Am J Sex Educ* 2018;13:65–93.
- [140] Schaafsma D, Kok G, Stoffelen JM, Curfs LM. Identifying effective methods for teaching sex education to individuals with intellectual disabilities: A systematic review. *J Sex Res* 2015;52:412–32.
- [141] Alriksson-Schmidt AI, Armour BS, Thibadeau JK. Are adolescent girls with a physical disability at increased risk for sexual violence? *J Sch Health* 2010;80:361–7.