

REVIEW ARTICLE

Contents, Methods, and Outcomes of Adolescent Sexual Health Promotion in School Environments: A Scoping Review

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ABSTRACT

BACKGROUND: Schools play a significant role in adolescent sexual health (SH) promotion. Although adolescents' SH has improved, growing challenges still exist in some areas. Previous studies have noted a lack of knowledge about SH promotion implementation in school environments. The purpose of this review is to describe the contents, methods, and outcomes of adolescent SH promotion in school environments.

METHODS: Three databases (Cinahl, ERIC, Medline) were searched for peer-reviewed articles published in 2011 to 2022, to identify SH promotion in school environments for adolescents aged 12 to 19 years old. After critical appraisal, inductive content analysis was conducted.

RESULTS: After screening, 25 studies from 8 countries were included. Sexually transmitted diseases and contraception were emphasized in the contents of the methods. Five SH promotion methods were identified: traditional, virtual, interactive, practical skills supporting, and creative. The outcomes were advancement in SH abilities, changes in sexual behavior, and the strengthening of sexual identity.

CONCLUSIONS: The contents mostly considered negative consequences of sexual behavior, whereas positive aspects were less discussed. Traditional methods were emphasized, yet positive outcomes were identified regardless of the method. SH promotion should aim to better support adolescents' sexual identity reinforcement.

Keywords: adolescent; sexual health promotion; school environment; scoping review.

Citation: Jämiä L, Piispanen N, Kylmä J, Haavisto E, Harju E. Contents, methods, and outcomes of adolescent sexual health promotion in school environments: a scoping review. *J Sch Health*. 2023; DOI: 10.1111/josh.13393

Received on November 11, 2022

Accepted on August 29, 2023

Sexual health (SH) is an important part of the health and well-being of individuals, couples, and families. It is a state of physical, mental, emotional, and social well-being in relation to sexuality. In addition to the absence of disease, dysfunction, or infirmity it also includes positive aspects.¹ Ideal SH requires a respectful and positive approach to sexual relationships and sexuality, as well as the opportunity to have safe sexual experiences free of forcing, discrimination,

violence, or abuse.^{1,2} Cultural factors and social norms related to sexuality could also be affecting how ideal SH is being perceived,¹ but in the end, everyone has the right to make their personal choices.² Individuals need accurate information to achieve and maintain good SH and to be empowered to make their own choices.²

Adolescents learn about sexuality through various sources, such as peers, pornography, and the internet.

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The review was partly funded by Cancer Foundation Finland.

Furthermore, school remains an essential source of reliable information for adolescents.³⁻⁵ SH education is included in almost every secondary school curriculum, and it plays an important role in enhancing adolescent health and well-being.^{3,6,7} School-based SH education offers age-appropriate and up-to-date knowledge, as well as the skills required to develop healthy relationships during adolescence and later on in adulthood.³ The main goal is to develop adolescents' knowledges, behaviors, and attitudes towards SH and ensure the appropriate level of knowledge and skills to improve it.⁸ Safer sexual behavior and the prevention of sexually transmitted diseases (STDs) potentially reduce morbidity and mortality in the long term.^{8,9}

SH education often focuses on the negative consequences, such as STDs, unintended pregnancy, abortion, sexual dysfunction, and sexual violence.¹ The positive aspects, such as sexual pleasure and safety, are often ignored.^{1,4} The main content of SH education, such as STDs, pregnancy, and contraception, seems to be coherent worldwide, but the methods used are not standardized, and their performance is still being evaluated.¹⁰ Numerous promising interventions have been introduced, but the evaluation of such implementation processes and their main outcomes is not systematic enough. Only a few SH promotion interventions have been shown to have a reliable impact on short-term adolescent SH outcomes.¹⁰⁻¹² Despite the difficulties faced when measuring the outcomes accurately, an improvement in SH is generally observed regardless of the intervention selected.^{6-8,13}

The main outcomes of SH promotion programs have included abstinence, increased condom use,^{6,11,13} and a decrease in the number of sexual partners, pregnancies, and STDs.^{6,13} Changes in intentions, knowledge, and self-efficacy have also been observed.^{6,7,13} Other outcomes reported include increased knowledge, improved attitudes and behavioral intentions, changes in beliefs, and improved self-efficacy and communication skills.^{6-8,14} These outcomes are related to the decreased incidence of STDs among adolescents in the short term.⁸ Despite promotion and education, adolescents are still at high risk of STDs and unintended pregnancies due to the lack of appropriate knowledge regarding safe sexual behavior.^{6,9,15} For example, in the United States, withdrawal was frequently used among adolescents as their only birth control method in 2017.¹⁶

To reduce the negative consequences, adolescents require SH education based on evidence.^{3,13} SH promotion should meet the adolescents' requirements and identify the most essential content. SH goals cannot be achieved through STD- and pregnancy-concentrated content, yet these topics are often highlighted the most during sex education. The

content should include information about dating, sexual rights, and equality, along with social and emotional aspects,^{4,17} as well as sexual and gender diversity, safe relationships, and intimate partner violence.¹⁸ Education should be transformed to respond to present phenomena.¹⁹ The content, methods, and outcomes should be studied further to discover the most effective approach.^{6,8} The purpose of this review was to describe the contents, methods, and outcomes of adolescent SH promotion in school environments.

METHODS

Design

A scoping review was chosen as the study design to gather information about adolescent SH in school environments based on existing research. A scoping review is a tool used to determine the literature coverage of a specific topic²⁰ and to address and identify gaps in the existing knowledge.²¹

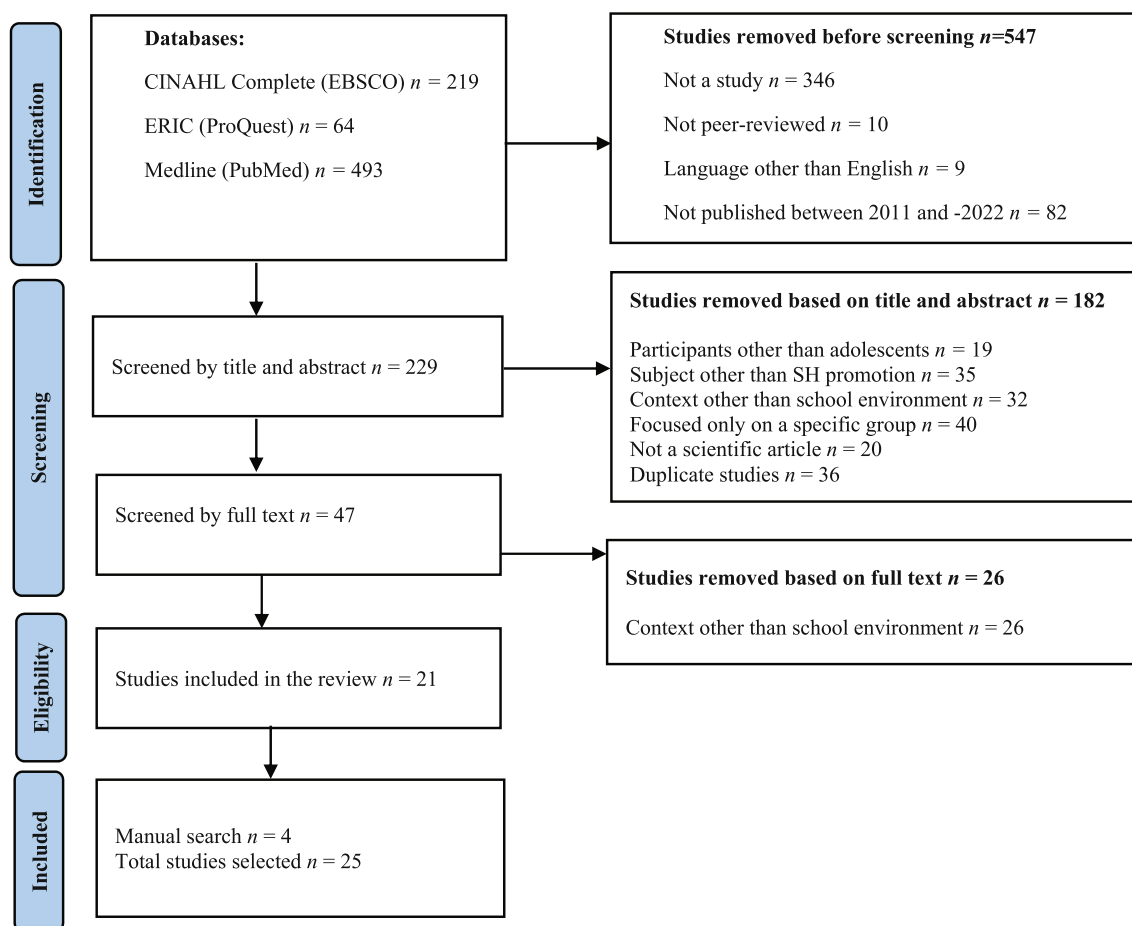
Search Strategy

The search was conducted in May 2022 using three databases: Cinahl, Eric, and Medline. The databases were searched using the following terms in consultation with academic health science librarians²¹: sexual health education, sexual health promotion, adolescent, teenager, young adult, youth, school, and school environment. Medical Subject Heading (MeSH)-terms were utilized in the search. The articles had to be peer-reviewed original articles and published in Finnish or English between January 2011 and May 2022. The selected articles had to meet the following inclusion criteria: (1) they needed to analyze the promotion of 12 to 19-year-old adolescents' SH in school environments and (2) the articles needed to consider promotion programs focused on all the adolescents in school environments. The exclusion criteria were as follows: (1) participants other than adolescents (aged 12-19 years old), (2) subjects other than SH promotion, (3) contexts other than school environments, and (4) promotion methods that were only focused on a specific group of adolescents. The search process is shown in Figure 1.

Retrieval of the Studies

The retrieval of the studies included four steps. Of the 776 citations identified, and 547 studies were removed before screening. The authors (L.J and N.P) screened 229 selected articles by their titles, abstracts, and full texts according to the eligibility criteria.^{23,24} A total of 182 studies was removed based on their titles or abstracts. Of those remaining, 26 were removed based on their full texts, leaving 21 articles that

FIGURE 1. Flow Diagram of the Search Process²²



met the inclusion criteria and were included in this review. A manual search in Google Scholar was also conducted with the same eligibility criteria,²⁵ and four additional articles were included. The whole selection process was conducted by two reviewers (L.J and N.P).²⁶

Critical Appraisal

The appraisal was conducted using the Joanna Briggs Institute critical appraisal tools²⁷: randomized controlled trials (RCTs) (n = 11), qualitative research (n = 7), case series (n = 5), and quasi-experimental studies (n = 2). It was conducted by two authors independently (L.J and N.P), and subsequently the reviewers discussed the results together.²⁶ Differences were negotiated to reach agreement. The use of the appraisal tools resulted in the following scores: RCTs 10 to 11/13, qualitative research 7 to 10/10, case series 6 to 10/10, and quasi-experimental studies 8 to 9/9. A point was given for each criterion statement to which the answer was “yes,” and no point was awarded, if the answer was “no.”

Analysis

Inductive content analysis was used to analyze the data. The whole analysis process was conducted by two authors (L.J and N.P). First, all the research material was read to form an overall picture of the material. The authors started by searching and underlining original phrases that answered the research questions. The original phrases were gathered, coded, and then reduced. The reduced phrases were compared to others to find similarities and differences between them.^{28,29} Reductions similar in content were merged into sub-categories, categories, and main categories and were named according to their content.²⁸ The analysis was conducted separately for each research question. The contents were also quantified based on how many studies they were included in.³⁰

RESULTS

Description of the Studies

The total number of studies included was 25 (Table 1). The selected studies were conducted in

TABLE 1. Description of the Contents, Methods, and Outcomes of Adolescent SH Promotion in School Environments

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Aragão et al. 2018. ⁵³ Brazil.	To explore and understand adolescent students' perception of Facebook as part of their sexual and reproductive health education.	Qualitative research, descriptive study. Online forums and interviews.	96	STDs Pregnancy and contraception Safe sex and relationships Sex and sexuality Gender and gender roles	Online group conversations Face-to-face meetings	The participants' knowledge of STDs and condom use increased. The online environment decreased shame and shyness. Adolescents also described how it was easier to get in touch with health care professionals.	8/10 ^b
Chou et al. 2020. ⁴⁵ China.	To evaluate the effectiveness of an adolescent SH promotion intervention.	Quantitative research, pre-post study. Pre- and post-tests before and after the intervention.	1407	STDs Sex and sexuality Sexual self-esteem and self-efficacy Sexual harassment and violence Puberty Love and emotions	Lectures Quizzes and questionnaires Mailbox for questions Web-based platform Roleplay and animations	The participants knowledge of SH increased. Also, their attitudes towards sexuality improved after the intervention.	10/10 ^c
Chu et al. 2015. ⁴⁶ China.	To describe the effectiveness of an application in SH education and to help establish healthy attitudes in handling relationships.	Quantitative research, pre-post study. Pre- and post-test questionnaires and interviews before and after the intervention.	788	STDs Pregnancy and contraception Decision-making and communication skills Sex and sexuality Sexual self-esteem and self-efficacy Love and emotions	Application Computer games Simulation	Knowledge of SH topics improved after using the application. Attitudes towards sex and relationships improved.	6/10 ^c
Coyle et al. 2021. ³¹ USA	To evaluate the effectiveness of a school-based comprehensive sexual health curriculum (FLASH) on high-school students' sexual behavior and related outcomes.	Quantitative research, RCT. Baseline and follow-up surveys were administered at 3 and 12 months.	1734	STDs Pregnancy and contraception Decision-making and communication skills Sex and sexuality Reproductive organ anatomy Media literacy Gender and gender roles Safe sex and relationships Sexual harassment and violence Postponing sexual activity	Lectures	Students showed a statistically significant protective impact at the 3-month follow-up on vaginal sex without a condom or birth control. There were also gains in psychosocial outcomes, such as refusal and condom use self-efficacy, attitudes towards birth control and condoms, and perceived norms.	11/13 ^a

TABLE 1. Continued

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Cygan et al. 2018, ³² USA	To describe and evaluate public health nursing students' training integration as part of SH education and promotion.	Mixed methods research. Questionnaire before and after the intervention and open feedback.	2112	STDs Pregnancy and contraception Postponing sexual activity	Lectures Interactive teaching Roleplays Conversations Video presentations	The participants' knowledge of different SH themes improved. Communication skills also improved after the intervention.	7/10 ^b
de Lijster et al. 2016, ⁴⁷ Netherlands.	To evaluate the effectiveness and influence of peer-led SH education regarding sexual harassment and risky sexual behavior.	Quantitative research, RCT. Questionnaire before and after the intervention.	747	Sexual self-esteem and self-efficacy Sexual harassment and violence Gender and gender roles Media literacy	Drama Skills lectures Peer-led group conversations Lectures	The intervention decreased adolescents' sexual harassment behavior. Students found it easier to reject sexual harassment.	11/13 ^a
Decker et al. 2021, ³³ USA	To learn about adolescents' experiences with SH education and their perceptions of barriers to and facilitators of clinical care.	Qualitative research. Group conversations and surveys.	69	Sex and sexuality	Handout and filer distribution Lectures Health clinic tour	The participants described receiving relevant information about clinical services and had positive impressions of local services. Several participants described how the information increased the probability of them accessing the services.	9/10 ^b
Duh et al. 2017, ³⁴ USA	To describe a new method of medical school students participating in SH education in secondary schools.	Quantitative research, pre-post study. Surveys before and after the intervention.	120	Pregnancy and contraception Decision-making and communication skills Safe sex and relationships Sexual harassment and violence Puberty Reproductive organ anatomy	Small group teaching Lectures	The SH knowledge questionnaire scores were higher after the intervention. Adolescents' scores mostly improved with regard to the categories of anatomy, STDs, safe sex, and sexual decision making.	10/10 ^c
Espada et al. 2017, ⁴⁹ Spain.	To evaluate the effects of the COMPAS program and compare them with those of an evidence-based program and control group.	Quantitative research, RCT. Surveys before and after the intervention.	1563	STDs Pregnancy and contraception Decision-making and communication skills Sexual self-esteem and self-efficacy Postponing sexual activity	Lectures Practical skills lessons Group conversations Videos Condom distribution	COMPAS increased the level of knowledge about STDs and adolescents' attitudes towards people with HIV improved.	11/13 ^a

TABLE 1. Continued

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Heibekmo et al. ⁵⁴ 2021, Norway	To examine adolescents' experiences of participating in an SH education program named "Week 6".	Qualitative research. Group interviews.	31	STDs Pregnancy and contraception Decision-making and communication skills Sexual self-esteem and self-efficacy Gender and gender roles Love and emotions Reproductive organ anatomy Porn Cultural factors	Lectures Multiple external educators Various exercises	The participants liked the program, but they had been expecting more from it. Many students felt that they had gained more knowledge.	10/10 ^b
Houck et al. 2018. ³⁵ USA	To examine the efficacy of a health intervention program focused on emotion regulation skills in terms of reducing sexual risk behaviors.	Quantitative research, RCT. Surveys	420	STDs Pregnancy and contraception Decision-making and communication skills Sex and sexuality Postponing sexual activity Puberty Love and emotions	Interactive games Roleplay Lectures Videos Workbooks Small group exercises	The participants postponed starting intercourse. The participants also had less unprotected sex, and the number of sexual acts decreased.	10/13 ^a
Hussain et al. 2019. ³⁵ United Kingdom.	To examine adolescents' perceptions of their parenting skills and their attitudes towards experiential learning using baby simulators.	Mixed methods research. Surveys and diary notes.	40	STDs Pregnancy and contraception Postponing sexual activity	Baby doll simulation	The participants learned baby nursing skills, became more responsible, and improved their knowledge about the challenges of parenthood. The participants considered contraception to be more important following the simulation.	9/10 ^b
Layzer et al. 2017. ³⁶ USA	To examine and to understand adolescents' observations regarding the efficacy of the intervention.	Mixed methods research. Surveys and observations.	1527	STDs Pregnancy and contraception Decision-making and communication skills Postponing sexual activity Sex and substance use	Peer educators Skits Workshops Interactive group activities	The participants were more likely to use condoms or some other contraceptives. The participants felt that peer education was useful.	7/10 ^b

TABLE 1. Continued

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Lightfoot et al. ³⁷ 2015, USA	To evaluate the efficacy of an intervention regarding ninth grader participants.	Quantitative research, quasi-experimental study. Surveys before and after the intervention.	317	STDs Decision-making and communication skills Safe sex and relationships	Drama Workshops Condom use demonstration Interactive presentations	The participants had better knowledge about HIV and positive changes in attitudes towards HIV, condom use, and communicating with a sexual partner.	9/10 ^a
Marikham et al. ³⁸ 2014, USA	To examine if positive outcomes found in earlier research could be extended to the tenth grade.	Quantitative research, RCT. Surveys.	1187	Postponing sexual activity	Lectures Online assignments	The participants postponed having anal sex. Unprotected vaginal intercourse also decreased. There were positive outcomes in psychosocial areas in both groups.	10/13 ^a
Morales et al. 2016, ⁵⁰ Spain.	To compare the effects on adolescent SH between the COMPAS-intervention, the Cuidate-intervention and a control group.	Quantitative research, RCT. Surveys before and after the interventions.	1563	STDs Pregnancy and contraception Decision making and communication skills Safe sex and relationships Sexual self-esteem and self-efficacy Postponing sexual activity	Lectures Condom use demonstration Group conversations Videos Condom distribution Negotiation skills practice	The participants had better knowledge about STDs and condom use. Attitudes towards condom use also improved.	11/13 ^a
Pakarinen et al. ⁵¹ 2019, Finland.	To examine students' self-evaluations regarding an SH promotion intervention and its implementation in a school environment.	Quantitative research, Surveys after the intervention.	168	STDs Pregnancy and contraception Safe sex and relationships Sex and sexuality	Lectures Additional informative material Condom distribution	The participants felt they had gained new knowledge about STDs, sexuality, and safe sex.	9/10 ^c
Pakarinen et al. ⁵² 2020, Finland.	To describe adolescents' attitudes, knowledge, and sexual behaviors before and after an SH promotion intervention.	Quantitative research, RCT. Surveys before and after the intervention.	683	STDs Pregnancy and contraception Safe sex and relationships Sex and sexuality	Lectures Additional informative material Condom distribution	The participants' attitudes towards sexual behavior were more positive and their SH knowledge improved after the intervention.	10/13 ^a
Peskin et al. 2015. ³⁹ USA	To test the efficacy of a fully web-based SH promotion program.	Quantitative research, RCT. Surveys before and after the intervention.	1374	STDs Pregnancy and contraception Decision-making and communication skills Safe sex and relationships Media literacy Reproductive organ anatomy	Animated learning environment Skills practice Videos Quizzes Roleplays	Knowledge about STDs and condom use increased.	10/13 ^a

TABLE 1. Continued

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Scull et al. 2014, ⁴⁰ USA	To examine the feasibility of a comprehensive media-literacy education program to promote adolescent SH and media-literacy.	Quantitative research. Surveys before and after the intervention.	64	STDs Pregnancy and contraception Sexual harassment and violence Media literacy Sex and substance use	Web-based learning environment Lectures	The intervention had positive effects on condom use, sexual communication, and SH knowledge. Participants were also more critical regarding media.	8/10 ^c
Scull et al. 2018, ⁴¹ USA	To examine the efficacy of a classroom-based education program to promote adolescent SH.	Quantitative research, RCT. Surveys before and after the intervention.	1490	STDs Pregnancy and contraception Decision-making and communication skills Safe sex and relationships Sexual self-esteem and self-efficacy Postponing sexual activity Sexual harassment and violence Gender and gender roles Media literacy Sex and substance use	Lectures Web-based lectures	The intervention had positive effects on using contraception, self-efficacy, and communication with a partner or health care professionals. Media literacy improved.	11/13 ^a
Shegog et al. 2017, ⁴² USA	To define how much SH education is enough to postpone sexual activity in adolescents in junior high and high schools.	Quantitative research, RCT. Surveys.	3075	STDs Pregnancy and contraception Decision-making and communication skills Safe sex and relationships Sex and sexuality Sexual self-esteem and self-efficacy Postponing sexual activity	Lectures Web-based lectures	More extensive SH education postponed starting sexual activity.	10/13 ^a
Son, Draws. 2021, ⁴³ USA	To explore whether the types of SH curricula taught result in any differences in terms of adolescents' knowledge, attitudes, and perceptions about SH and development.	Quantitative research. Surveys.	260	STDs Pregnancy and contraception Decision-making and communication skills Sex and sexuality Sexual self-esteem and self-efficacy Puberty Gender and gender roles Reproductive organ anatomy	Lectures Additional informative material	The participants had higher scores on items that indicate openness and respect regarding sexual identities.	8/9 ^d

TABLE 1. Continued

Author, Year of Publication, and Country	Purpose (or aim) of the Study	Design and Data Collection Method	Participants	Contents of the Methods	SH Promotion Methods	Main Outcomes	Critical Appraisal Score ²⁷
Van Lieshout et al. 2017, ⁴⁸ Netherlands	To examine an intervention's readiness, accuracy, and implementation from adolescents' perspectives.	Qualitative research. Group interviews.	60	STDs Safe sex and relationships	Interactive practices Conversations Quizzes Videos Narratives	The participants learned about differences between genders, and attitudes towards sexual minorities improved. Knowledge about STDs and contraceptives increased. Sexual self-confidence improved.	9/10 ^b
Walsh-Buhi et al. 2016, USA	To evaluate an intervention's effects on adolescent pregnancy, sexual behavior, sexual intentions, and having risky sex.	Quantitative research, RCT. Surveys before and after the intervention.	7976	Decision-making and communication skills Sex and sexuality Puberty	Learning groups Practical skills lessons	The participants were less likely to have risky sex and to have sex within the next year.	10/13 ^a

Critical appraisal tools: (a) randomized controlled trials, (b) qualitative research, (c) case series, and (d) quasi-experimental studies.

the United States³¹⁻⁴⁴ (n = 16), China^{45,46} (n = 2), the Netherlands^{47,48} (n = 2), Spain^{49,50} (n = 2), Finland^{51,52} (n = 2), Brazil⁵³ (n = 1), Norway⁵⁴ (n = 1), and the United Kingdom⁵⁵ (n = 1). The studies were conducted between 2013 and 2021. The data were collected from surveys^{31-47,49-52,54} (n = 22), interviews^{33,46,48,53,54} (n = 5), observation³⁶ (n = 1), writings in an internet forum⁵³ (n = 1), feedback³² (n = 1), and diaries⁵⁵ (n = 1). The study design was classified as quantitative^{31,34,35,37-47,49-52} (n = 18), as qualitative^{33,48,53,54} (n = 4), and as having a mixed methods approach^{32,36,55} (n = 3), and the data were analyzed with statistical analysis^{31,32,34-47,49-52,55} (n = 21), qualitative content analysis^{32,33,36,54,55} (n = 5), thematic content analysis⁴⁸ (n = 1), and netnography⁵³ (n = 1). The study participants were aged between 11 and 19 years of age. The study sample size ranged from 31 to 7976 participants.

Most of the studies reported that the SH promotion methods observed were based on one or more of the following evidence-based theory or pedagogical models: the theory of planned behavior^{31,41,42,47,49} (n = 5), social cognitive theory^{38,39,42,49} (n = 4), social learning theory^{36,49,50} (n = 3), the reasoned action approach^{40,41,47} (n = 3), the health belief model³⁶ (n = 1), the prototype willingness model⁴⁷ (n = 1), the IMB (information, motivation, behavioral skills) model⁵⁰ (n = 1), salutogenesis theory⁵⁴ (n = 1), the participatory design approach⁴⁶ (n = 1), principles of positive youth development³⁶ (n = 1), harm reduction approach³¹ (n = 1), and the message interpretation processing model⁴¹ (n = 1). Some of the studies reported the facilitators of the interventions: health education teachers^{33,43,45,54} (n = 4), teachers^{41,51,52} (n = 3), school nurses⁵³⁻⁵⁵ (n = 3), a biology teacher⁴⁸ (n = 1), a physician³⁵ (n = 1), health care and medical students^{32,34} (n = 2), a sexologist⁵⁴ (n = 1), a priest⁵⁴ (n = 1), and other health care professionals^{33,44,49} (n = 3). Peer-educators^{36,37,47} (n = 3), trained facilitators^{31,38,40,47} (n = 4), an expert by experience³⁷ (n = 1), and an animated narrator³⁹ (n = 1) were also responsible for instructions.

SH Promotion Contents

Most of the promotion programs included contents about STDs^{31,32,35-37,39-43,45,46,48-55} and pregnancy and contraception.^{31,32,34-36,39-43,46,49-55} Decision-making and communication skills^{31,34-37,39,41-44,46,49,50,54} were also addressed in half of the programs. In turn, porn⁵⁴ and cultural factors⁵⁴ were only addressed in one program. The contents of the programs are described in Table 2.

SH Promotion Methods

Five types of SH promotion methods were identified: (1) traditional, (2) virtual, (3) interactive, (4) practical skills supporting, and (5) creative (Table 3).

TABLE 2. The Contents of Adolescent SH Promotion in School Environments

The Contents of SH Promotion Programs	Frequency (n)
Sexually transmitted diseases ^{31,32,35-37,39-43,45,46,48-55}	20
Pregnancy and contraception ^{31,32,34-36,39-43,46,49-55}	18
Decision-making and communication skills ^{31,34-37,39,41-44,46,49,50,54}	14
Safe sex and relationships ^{31,34,37,39,41,42,48,50-53}	11
Sex and sexuality ^{31,33,35,42-46,51-53}	11
Postponing sexual activity ^{31,32,35,36,38,41,42,49,50,55}	10
Sexual self-esteem and self-efficacy ^{41-43,45-47,49,50,54}	9
Sexual harassment and violence ^{31,34,40,41,45,47}	6
Gender and gender roles ^{31,41,43,47,53,54}	6
Puberty ^{34,35,43-45}	5
Media literacy ^{31,39-41,47}	5
Reproductive organ anatomy ^{31,34,39,43,54}	5
Love and emotions ^{35,45,46,54}	4
Sex and substance use ^{36,40,41}	3
Porn ⁵⁴	1
Cultural factors ⁵⁴	1

Traditional methods. Traditional methods included classroom lecturing,^{31-33,40-45,49,51,52,54} small group teaching,^{34,35,42} assignments,³⁵ videos,^{32,35,48,49} PowerPoint presentations,^{51,52} and quizzes.⁴⁵ Video presentations considered STDs,⁴⁹ and PowerPoint presentations addressed sexuality, sex, safe sex, condom use and STDs.⁵² A mailbox for questions was also used.⁴⁵ Additional informative material about SH was distributed in classrooms and corridors.^{33,43,51,52}

Virtual methods. Virtual methods included social media, game applications, and virtual learning environments. Social media was utilized in SH promotion by creating group conversation areas and enabling content sharing among adolescents.⁵³ Adolescents were able to create events on Facebook⁵³ or play a SH-related game with a mobile device or a computer.⁴⁶ Animated learning environments were also utilized,^{39,45} including an animated mall environment, where narrators guided the students forward.³⁹ Virtual teaching also included personal assignments³⁸ and the rehearsing of practical skills in virtual environments.^{39,46} Sex-related decision-making³⁸ and real-life simulations³⁹ were rehearsed online. Virtual methods also consisted of virtual lectures,^{42,43} quizzes,⁴⁸ and informative websites.^{39,51,52}

Interactive methods. Interactive methods included group conversations,^{32,35,36,38,47,49,53,54} interactive games,³⁵ and workshops.^{36,37} Conversations were peer-led⁴⁷ and implemented in the form of discussion groups,^{49,54} interactive group activities,³⁶ and separate groups of boys and girls.⁵⁴ Workshops were led by peers³⁶ and older students.³⁷ An interactive presentation and conversations led by people living with human immunodeficiency virus (HIV) were also utilized.³⁷ Reflection was used to evaluate adolescents' own performance.^{36,55} Interaction with health care professionals was performed during a health clinic tour

TABLE 3. Methods used for adolescents' SH promotion in school environments

SH promotion methods	
Traditional methods ^{31-35,40-45,48,49,51,52,54}	Classroom lecturing ^{31-33,40-45,49,51,52,54} Small group teaching ^{34,35,42} Assignments ³⁵ Video and PowerPoint presentations ^{32,35,48,49,51,52} Quizzes ⁴⁵ Mailbox for questions ⁴⁵ Additional informative material ^{33,43,51,52}
Virtual methods ^{39-42,45,46,48,51-53}	Social media ⁵³ Game application ⁴⁶ Animated learning environment ^{39,45} Virtual lectures ^{41,42} Virtual quizzes ⁴⁸ Informative websites ^{39,51,52}
Interactive methods ^{32,33,35-38,47,49,53-55}	Group conversations ^{32,35,36,38,47,49,53,54} Interactive games ³⁵ Workshops ^{36,37} Interactive presentation ³⁷ Reflection ^{36,55} Health clinic tour ³³
Practical skills supporting methods ^{37,38,47,49,51,52,54,55}	Condom use practice and distribution ^{37,38,49,51,52,54} Practical skills lessons ^{47,49,54} Babydoll simulation ⁵⁵
Creative methods ^{32,37,39,45,47}	Role-playing game ^{32,39,45} Drama ^{37,47} Skits ³⁹

to inform students about SH services, confidentiality, and how to make use of such services.³³

Practical skills supporting methods. Practical skills supporting methods were based on demonstration, simulation, and material distribution. Adolescents practiced using condoms,^{37,38,49,54} and free condoms were distributed.^{37,49,51,52,54} Condom use demonstrations were implemented in classrooms^{37,49,54} and via a virtual workshop.³⁸ Condom distribution was conducted during lessons and in school corridors.^{49,51,52} Social skills and the prevention of sexual harassment were rehearsed during practical skills lessons.^{47,54} Older students led an activity on safe sex negotiation.⁴⁹ Other exercises involved students taking a stand on regarding specific statements and finding solutions to different problems.⁵⁴ Parenting skills and the importance of contraceptives were taught with a baby doll simulation. Students took the baby doll home, and subsequently, downloadable information was obtained about its well-being and the nursing process.⁵⁵

Creative methods. Creative methods included role-playing games,^{32,39,45} drama,^{37,47} and skits.³⁹ Role-plays simulated real-life situations,³⁹ and adolescents were able to learn about their sexual rights, respecting their own bodies, sexuality and sexual harassment,

TABLE 4. Outcomes regarding adolescent SH in school environments

Main category	Category	Sub-category
Advancements in SH abilities	Increased SH knowledge ^{31-34,37-41,43,45-53,55}	Knowledge about STDs increased ^{31,32,34,37-40,43,45,46,48-51,53} Knowledge about contraception increased ^{33,38-41,43,48-52,55} Knowledge about sexual risk behavior increased ^{34,46,50,51} Knowledge about sexual harassment prevention increased ⁴⁷ Knowledge about sexuality increased ^{31,32,40,45,51,52}
	Advanced interpersonal skills ^{31-34,36,38,40,41,46,48,51,53}	Communication skills improved ^{31-33,36-38,40,41,48,51,53} Decision-making skills improved ^{31,32,34,36,40,46} Media literacy improved ^{40,41} Bringing up sexual topics got easier ^{34,40,41,48,51,53} Courage to contact health care professionals increased ^{33,53}
Changes in sexual behavior	Decreased sexual activity ^{35,36,38-40,42,44,50,54}	Intentions to abstain from sex increased ^{36,38-40} Sexual activity decreased ^{35,38,44,50,54} Sexual activity postponed ^{42,44}
	Decreased sexual risk behavior ^{35-38,40,41,49}	Unprotected sex decreased ^{35-38,40} Substance use related sex decreased ^{35,40} Other sexual risk behaviors decreased ^{37,41,49}
Strengthening of sexual identity	Positive changes in attitudes ^{31,37,38,43,45,48-50,52}	Attitudes towards STD prevention improved ^{38,48,50,52} Attitudes towards people with STDs improved ^{37,49,50} Attitudes towards birth control improved ³¹ Attitudes towards sexuality improved ^{43,45,52} Understanding of sexual minorities increased ^{43,48}
	Strengthened self-image ^{34,36,38-41,47,48,52,54}	Self-efficacy improved ^{36,38,39,41,52,54} Sexual self-esteem improved ^{40,47} Sexual individuality was clarified ^{34,48}

and refusal skills.⁴⁵ Dramas performed by peers were also used as a promotion method.^{37,47} They were based on sexuality-related real experiences of students and stories about sexuality, including sexual harassment.⁴⁷ Peers also performed skits, which simulated real-life situations by using humor as a resource.³⁶

Outcomes Regarding Adolescent SH

The main outcomes observed were advancements in SH abilities, changes in sexual behavior, and the strengthening of one’s sexual identity (Table 4).

Advancements in SH abilities. Advancements in SH abilities included increased SH knowledge and advanced interpersonal skills. Adolescents’ knowledge about STDs increased,^{31,32,34,37-40,43,45,46,48-51,53} and they described learning new information about HIV,^{32,37,38,45,49-51} gonorrhea, syphilis, genital herpes,⁵⁰ and the transmission of such STDs.^{32,48,50} Adolescents learned that hormonal contraception does not protect from STDs.³²

Knowledge about contraception in general increased,^{33,38-41,43,48-52,55} came to be perceived as more important,⁵⁵ knowledge about condom use in particular increased,^{38,39,49-52} and adolescents became more confident with using condoms.^{39,50-52} Knowledge about sexual risk behavior increased,^{34,46,50,51} and adolescents became more committed to safe

sex.⁵⁰ Knowledge about preventing sexual harassment increased, and intentions to commit sexual harassment decreased.⁴⁷

Adolescents’ communication^{32,33,36-38,40,41,48,51,53} and decision-making^{32,34,36,40,46} skills improved. Communication with one’s partner, parents or other adolescents felt easier.^{32,37,38} Social skills³⁶ and knowledge about sex-related communication increased.⁴⁰ Adolescents described feeling better prepared to make wise decisions⁴⁶ and to hesitate despite pressures.^{32,46} Adolescents’ refusal skills improved.⁴⁰ Their media literacy also increased, and they learned to relate more critically to it and to filter information coming from the media.^{40,41}

Adolescents felt that bringing up sexual and reproductive health topics got easier,^{34,40,41,48,51,53} and they gained courage to discuss^{48,53} and share information^{40,41,51,53} and their experiences.^{34,53} Virtual environments, in particular, improved communication.⁵³ School nurse participation in SH promotion helped students to bond with, trust in, and be more willing to contact health care professionals.^{33,53} Shyness and embarrassment in relation to sex-related conversations decreased.^{48,53}

Changes in sexual behavior. Changes in sexual behavior included decreased sexual activity and decreased sexual risk behavior. Intentions to abstain

from sex increased.^{36,38-40} Adolescent were more positive about the idea of abstaining from sex until marriage^{38,39} or further into the future.³⁶ All in all, sexual activity decreased.^{35,38,44,50,54} The number of sexual partners³⁵ and amount of vaginal intercourse^{35,50} decreased. The quantity of anal sex decreased,^{35,38} and adolescents postponed having oral sex.^{50,54} Overall, adolescents postponed starting sexual activity,^{42,44} and this was especially true for those who were sexually unexperienced in the beginning.⁴⁴

Unprotected sex,^{35-38,40} substance use-related sex,^{35,40} and other sexual risk behavior^{37,41,49} decreased. Adolescents' condom use,^{35-38,40} and other contraceptive use increased.³⁶ Substance use before sex decreased,³⁵ and adolescents learned new information about the risks of substances.⁴⁰ Adolescents were more committed to safe sex,⁵⁰ and the probability of them having risky sex decreased.³⁵ Their number of sexual partners also decreased.³⁵

The strengthening of sexual identity. Positive changes in attitudes and a strengthened self-image were included in the strengthening of sexual identity. Attitudes towards preventing STDs improved.^{31,38,48,50,52} Attitudes towards condom use were more positive, even if there were difficulties associated with their use.^{38,50} Adolescents felt that condom use was considered socially acceptable.^{31,52} Attitudes towards testing^{31,48} and treating STDs improved,⁴⁸ and students sought STD testing more often.⁵² Attitudes towards people with STDs improved.^{37,49,50} Adolescents learned to be more positive about people living with STDs^{49,50} and understood how STDs affect different life areas.³⁷ Attitudes towards birth control and pregnancy prevention improved.³¹ Adolescents had more positive beliefs about hormonal birth control and believed that condoms prevent pregnancy.³¹ Attitudes towards sexual behavior improved,^{43,45,52} and understanding of sexual minorities increased.^{43,48} Adolescents became more emphatic towards sexual minorities.^{43,48}

Adolescents' self-efficacy improved,^{31,36,38,39,41,52,54} particularly in terms of condom use^{31,38,39} and condom use negotiation.³⁸ Self-efficacy also improved with regard to setting personal goals,³⁶ communication,^{31,41,52} refusing sex,^{31,38} and using other contraception.⁴¹ Sexual self-esteem improved.^{40,47} Self-respect improved adolescents' sexual self-esteem,⁴⁰ and they had better overall self-esteem.⁴⁷ Adolescents learned more about sexual individuality,^{34,48} reproductive systems, the differences between genders,³⁴ and gender-related differences in relationships.⁴⁸

DISCUSSION

The purpose of this scoping review was to explore adolescent SH promotion in school environments. The

contents of the promotion methods observed in this review were STDs, STD prevention, pregnancy, and contraception. Masturbation and sexual pleasure were not covered at all. According to previous studies, other aspects of sexuality, such as pleasure and safety, should be highlighted more in the future, because sexuality is not just related to the lack of illness or an unintended pregnancy. Sexuality should be introduced as a normal part of humanity, and the content included in SH promotion should be positive to minimize feelings of shame and guilt.^{4,5} According to UNESCO,¹⁸ the content of SH education should be more comprehensive, including safe relationships, intimate partner violence, and sexual and gender diversity. In this review, safe sex and relationships were included in many programs whereas sexual and gender diversity and intimate partner violence were less represented.

Masturbation can be a sensitive topic and difficult to discuss with parents or peers.³ Sexual pleasure should be discussed because from adolescents' perspective, sex education concentrates excessively on sexual intercourse from heterosexual and reproductive perspectives and excludes sexual diversity and pleasure.^{4,5} In this review, reproductive organ anatomy, puberty, and its effects on adolescents' bodies were only introduced as main topics in a few studies. The previous studies indicate that knowledge of anatomy and physiology is essential to a better understanding of SH, but adolescents find it frustrating that sex is often introduced as reproductive biology, and emotions are not addressed enough.³⁻⁵ Major global SH challenges such as STDs and unintended pregnancies were highlighted in the SH promotion methods. Other aspects of sexuality seem to be too often dismissed in adolescent SH promotion. Future SH promotion should be more focused on adolescents' needs and the positive aspects of sexuality.

According to this review, traditional methods represented the majority of the interventions, whereas virtual, creative, interactive, and practical skills supporting methods were less utilized. These findings support those of previous studies, which found that a single method does not necessarily promote SH in all sectors and that rather, combining different methods gives better results. The content itself is important, but the selected teaching method should also be suitable for the context.³ Besides lessons, adolescents seek information from various sources, such as the internet, peers, and pornography, which underlines the importance of guiding them and helping them select reliable information. Instead of passive learning, youths should be activated to participate in the learning process to improve their learning and motivation.^{3,4} Interactive, practical skills supporting, and creative methods should be more actively implemented compared to traditional and virtual methods.

Traditional methods, where the teacher acts as a mediator of information, were highlighted in the promotion methods of this review. According to previous studies, teachers play an essential role in SH promotion in schools, but they may find the topic uncomfortable or require more training.⁷ The classroom atmosphere affects how the information is perceived and improves social acceptance and decreases stigmatization. Adolescents describe the way the information is delivered as just as essential as the content itself.^{3,4} According to this review, other facilitators, such as peer-educators, school nurses, other health professionals and health care students, were also utilized to cover the key content from different perspectives. Previous studies indicate that SH education has better outcomes when it is delivered by a multi-professional team, including school nurses or public health nurses.⁷ Teachers seem to be the main SH educators in schools, and the way the education is delivered is emphasized as important. Up-to-date and appropriate in-service training for SH educators is required to maintain the quality of the education.

The findings of this review demonstrate how one of the outcomes of SH interventions has been advancements in SH abilities regarding STDs and contraception. A previous study indicated how advancements in knowledge and skills do not necessarily affect actual behavior. School-based promotion seems to positively affect an adolescent's intentions to avoid risky sexual behavior and make better decisions. Improving adolescents' knowledge as well as reinforcing their skills and self-efficacy might lead to actual behavioral changes.⁶ According to this review, abstinence until marriage or further into the future was only highlighted in a few studies. However, the promotion of abstinence until marriage has no significant influence on adolescent behavior compared to focusing on risk reduction.^{13,19} Adolescents require education that concentrates on healthy sexual behavior rather than one that urges them to avoid sexual activity.⁴ The outcomes of this review also indicate that sexual identity was strengthened, and sexual self-efficacy was improved. These are extremely important components to include in SH promotion besides knowledge and skills training or advancements, which still seem to be the main contents and outcomes of the promotion methods. To use these skills, adolescents require good self-efficacy. Gaining the ability to make wise decisions is significant for SH promotion and for the prevention of unwanted outcomes.⁴

In summary, SH promotion in school environments seems to be quite traditional. It is usually conducted through traditional methods, such as lectures, although virtual methods are also utilized, and such promotion is usually led by a teacher. Contents of the promotion methods seem to be focused on the risks of and changes in sexual behavior and advanced

knowledge and skills are emphasized in the outcomes resulting from the methods. However, according to previous studies, modifications in terms of schools' SH promotion are warranted.

Limitations

This review has some limitations. First, the search was limited to three databases. The use of other databases could have generated some new references. However, the chosen databases are commonly used in health and educational sciences. Second, this review did not include studies in languages other than English, so the findings may not represent other language areas as well as they could have. Third, studies that were focused on a specific group of adolescents were excluded. It is possible that relevant articles concerning SH promotion in school environments from gender or minority perspectives were overlooked. The authors made this decision to form a general perspective of adolescent SH promotion and not to highlight methods targeted on specific groups of adolescents. Finally, only articles published between the years 2011 and –2022 were eligible for this review. It is possible that some relevant articles from previous years were disregarded. The year limitation was set to identify modern teaching methods as technology is continuously being developed, and social media has become an important part of school environments and teaching.

Conclusions

The ultimate goal of this review was to increase school professionals' knowledge of current school-based SH promotion, while identifying any possible flaws to help such individuals develop more comprehensive SH education. In summary, the results of the review contribute to information on adolescent SH promotion contents, methods, and outcomes in school environments. The information can be used to implement future adolescent SH promotion.

The contents of adolescent SH promotion in school environments are focused on the major global SH challenges, whereas cultural factors and pornography are less discussed, and pleasure and masturbation are not discussed at all as contents. Traditional methods play an important role in adolescent SH promotion in schools. Virtual, interactive, practical skills supporting, and creative methods are less utilized. In some promotion programs, different kinds of methods are combined.

SH promotion in school environments seems to produce positive outcomes regardless of the method used. Positive outcomes indicate that school environments and professionals play a significant role in promoting adolescent SH. The outcomes seem to be focused on increased competence and changes in attitudes, and outcomes concerning sexual identity or self-efficacy are less obvious.

Further research is needed to find out if SH promotion in schools meets adolescents' needs and to study what kinds of abilities SH professionals in schools have and what kind of education they need. It is also important to focus research on sexual orientation and gender diversity, minorities and family or cultural backgrounds.

IMPLICATIONS FOR SCHOOL HEALTH

The following implications may help school professionals and educators to develop more comprehensive SH education:

- Masturbation, pleasure, pornography, and cultural factors should be more actively implemented as content of adolescent SH promotion in the future.
- Interactive, practical skills supporting, and creative methods should be more utilized in adolescent SH promotion in schools. Different methods should be combined to a greater extent.
- Teachers need additional training to utilize different promotion methods and to improve their technological competence.
- Adolescent SH promotion should aim to support adolescents' psychological growth and sexual identity reinforcement, rather than urging adolescents to avoid or postpone sexual activity.
- SH promotion in school environments should head in more innovative and diverse directions to fulfill adolescents' needs and to offer interesting, comprehensive, and effective education.

Human Subjects Approval Statement

This review did not include data collection from human subjects.

Conflict of Interest

The authors have no conflicts of interest to disclose.

REFERENCES

- *Studies included in this scoping review.
1. World Health Organization. *Sexual Health and its Linkages to Reproductive Health: An Operational Approach*. Geneva, Switzerland: World Health Organization; 2017.
 2. United Nations Population Fund. Sexual and reproductive health. 2022. <https://www.unfpa.org/sexual-reproductive-health#readmore-expand>. Accessed July 15, 2022.
 3. Laverty E, Noble S, Pucci A, MacLean R. Let's talk about sexual health education: youth perspectives on their learning experiences in Canada. *Can J Hum Sex*. 2021;30(1):22-38. <https://doi.org/10.3138/CJHS.2020-0051>.
 4. Unis B, Sällström C. Adolescents' conceptions of learning and education about sex and relationships. *Am J Sex Educ*. 2020;15(1):25-52. <https://doi.org/10.1080/15546128.2019.1617816>.
 5. Walters L, Laverty E. Sexual health education and different learning experiences reported by youth across Canada. *Can J Hum Sex*. 2022;31(1):18-31. <https://doi.org/10.3138/cjhs.2021-0060>.
 6. Evans R, Widman L, Stokes M, Javidi H, Hope E, Brasileiro J. Association of sexual health interventions with sexual health outcomes in black adolescents: a systematic review and meta-analysis. *Arch Pediatr Adolesc Med*. 2020;174(7):676-689. <https://doi.org/10.1001/jamapediatrics.2020.0382>.
 7. Vincent R, Krishnakumar K. School-based interventions for promoting sexual and reproductive health of adolescents in India: a review. *J Psychosex Health*. 2022;4(2):102-110. <https://doi.org/10.1177/2631831822108962>.
 8. Shepherd J, Harden A, Barnett-Page E, et al. Using process data to understand outcomes in sexual health promotion: an example from a review of school-based programmes to prevent sexually transmitted infections. *Health Educ Res*. 2014;29(4):566-582. <https://doi.org/10.1093/her/cyt155>.
 9. Boyer C, Agénor M, Willoughby J, et al. A renewed call to action for addressing the alarming rising rates of sexually transmitted infections in U.S adolescents and young adults. *J Adolesc Health*. 2021;69(2):189-191. <https://doi.org/10.1016/j.jadohealth.2021.05.00215>.
 10. Berglas N, Jerman P, Rohrbach L, Angulo-Olaiz F, Chou CP, Constantine N. An implementation and outcome evaluation of a multicomponent sexuality education programme for high school students. *Sex Educ*. 2016;16(5):549-567. <https://doi.org/10.1080/14681811.2015.1133408>.
 11. Marseille E, Mirzazadeh A, Biggs M, et al. Effectiveness of school-based teen pregnancy prevention programs in the USA: a systematic review and meta-analysis. *Prev Sci*. 2018;19(4):468-489. <https://doi.org/10.1007/s11121-017-0861-6>.
 12. Peterson A, Donze M, Allen E, Bonnell C. Effects of interventions addressing school environments or educational assets on adolescent sexual health: systematic review and meta-analysis. *Perspect Sex and Reprod Health*. 2019;51(2):91-107. <https://doi.org/10.1363/psrh.12102>.
 13. Harris L, Cheney M. Positive youth development interventions impacting the sexual health of young minority adolescents: a systematic review. *J Early Adolesc*. 2018;38(1):74-117. <https://doi.org/10.1177/0272431615578693>.
 14. Lauricella M, Valdez J, Okamoto S, Helm S, Zarella C. Culturally grounded prevention for minority youth populations: a systematic review of the literature. *J Prim Prev*. 2016;37(1):11-32. <https://doi.org/10.1007/s10935-015-0414-3>.
 15. Denford S, Abraham C, Campell R, Busse H. A comprehensive review of reviews of school-based interventions to improve sexual health. *Health Psychol Rev*. 2016;11(1):33-52. <https://doi.org/10.1080/17437199.2016.1240625>.
 16. Laris B, Barrett M, Anderson P, et al. Uncovering withdrawal use among sexually active US adolescents: high prevalence rates suggest the need for a sexual health harm reduction approach. *Sex Educ*. 2021;21(2):208-220. <https://doi.org/10.1080/14681811.2020.1768524>.
 17. Szucs L, Barrios L, Young E, Robin L, Hunt P, Jayne P. The CDC's division of adolescent and school health approach to sexual health education in schools: 3 decades in review. *J Sch Health*. 2022;92(2):223-234. <https://doi.org/10.1111/josh.13115>.
 18. United Nations Educational, Scientific and Cultural Organization. Evidence gaps and research needs in comprehensive sexuality education. *Technical brief UNESCO*. 2022:10-11.
 19. Santelli J, Kantor L, Grilo S, et al. Abstinence-only-until-marriage: an updated review of U.S. policies and programs and their impact. *J Adolesc Health*. 2017;61(3):273-280. <https://doi.org/10.1016/j.jadohealth.2017.05.031>.
 20. Munn Z, Peters M, Stern C, et al. Systematic review or scoping review? Guidance for authors when choosing between

- a systematic or scoping review approach. *BMC Med Res Methodol*. 2018;18(1):143. <https://doi.org/10.1186/s12874-018-0611-x>.
21. Peters M, Marnie C, Tricco A, et al. Updated methodological guidance for the conduct of scoping reviews. *JBI Evid Synth*. 2020;18(10):2119-2126. <https://doi.org/10.11124/JBIES-20-00167>.
 22. Page M, McKenzie J, Bossuyt P, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Syst Rev*. 2021;10(89):71. <https://doi.org/10.1136/bmj.n71>.
 23. Pussell E, McCrae N, eds. *How to Perform a Systematic Literature Review: A Guide for Healthcare Researchers, Practitioners, and Students*. Cham, Switzerland: Springer; 2020.
 24. Salmond S, Cooper A. Steps in the systematic review process. In: Holly C, Salmond S, Saimbert M, eds. *Comprehensive Systematic Review for Advanced Practice Nursing*. New York, NY: Springer Publishing Company; 2017:17-38.
 25. Halevi G, Moed H, Bar-Ilan J. Suitability of Google scholar as a source of scientific information and a source of data for scientific evaluation - review of the literature. *J Informet*. 2017;11(3): 823-834. <https://doi.org/10.1016/j.joi.2017.06.005>.
 26. Bettany-Saltikov J. *How to Do a Systematic Review in Nursing: A Step by- Step Guide*. Berkshire, UK: McGraw-Hill Education; 2012.
 27. Joanna Briggs Institute. Critical Appraisal Tools. <https://jbi.global/critical-appraisal-tools>. Accessed May 15, 2022.
 28. Holloway I, Galvin K. *Qualitative Research in Nursing and Healthcare*. Chichester, UK: Wiley Blackwell; 2017.
 29. Kyngäs H. Inductive content analysis. In: Kyngäs H, Mikkonen K, Kääriäinen M, eds. *The Application of Content Analysis in Nursing Science Research*. Cham: Springer International Publishing; 2019:13-21.
 30. Boeije H. *Analysis in Qualitative Research*. Los Angeles, CA: Sage Publications LTD; 2010.
 31. *Coyle K, Anderson P, Laris B, Barret M, Unti T, Baumler E. A group randomized trial evaluating high school FLASH, a comprehensive sexual health curriculum. *J Adolesc Health*. 2021;68(4):686-695. <https://doi.org/10.1016/j.jadohealth.2020.12.005>.
 32. *Cygan H, McNaughton D, Reising V, Reid B. An academic practice partnership: building capacity to meet sexual health education policy requirements of a public school system. *Public Health Nurs*. 2018;35(5):414-419. <https://doi.org/10.1111/phn.12527>.
 33. *Decker M, Dandekar S, Gutmann-Gonzalez A, Brindis C. Bridging the gap between sexual health education and clinical services: adolescent perspectives and recommendations. *J Sch Health*. 2021;91(11):928-935. <https://doi.org/10.1111/josh.13084>.
 34. *Duh E, Medina S, Coppersmith N, Adjei N, Roberts M, Magee S. Sex ed by brown med: a student-run curriculum and its impact on sexual health knowledge. *Fam Med*. 2017;49(10): 785-788.
 35. *Houck C, Barker D, Hadley W, Menefee M, Brown L. Sexual risk outcomes of an emotion regulation intervention for at-risk early adolescents. *Pediatr*. 2018;141(6):1-9. <https://doi.org/10.1542/peds.2017-2525>.
 36. *Layzer C, Rosapep L, Barr S. Student voices: perspectives on peer-to-peer sexual health education. *J Sch Health*. 2017;87(7):513-523. <https://doi.org/10.1111/josh.12519>.
 37. *Lightfoot A, Taboada A, Taggart T, Tran T, Burtaine A. 'I learned to be okay with talking about sex and safety': assessing the efficacy of a theatre-based HIV prevention approach for adolescents in North Carolina. *Sex Educ*. 2015;15(4):348-363. <https://doi.org/10.1080/14681811.2015.1025947>.
 38. *Markham C, Peskin M, Shegog R, et al. Behavioral and psychosocial effects of two middle school sexual health education programs at tenth-grade follow-up. *J Adolesc Health*. 2014;54(2):151-159. <https://doi.org/10.1016/j.jadohealth.2013.10.204>.
 39. *Peskin M, Shegog R, Markham C, et al. Efficacy of It's your game-tech: a computer-based sexual health education program for middle school youth. *J Adolesc Health*. 2015;56(5):515-521. <https://doi.org/10.1016/j.jadohealth.2015.01.001>.
 40. *Scull T, Malik C, Kupersmidt J. A media literacy education approach to teaching adolescents comprehensive sexual health education. *J Media Lit Educ*. 2014;6(1):1-14.
 41. *Scull T, Kupersmidt J, Malik C, Morgan-Lopez A. Using media literacy education for adolescent sexual health promotion in middle school: randomized control trial of media aware. *J Health Commun*. 2018;23(12):1051-1063. <https://doi.org/10.1080/10810730.2018.1548669>.
 42. *Shegog R, Baumler E, Addy R, et al. Sexual health education for behavior change: how much is enough? *J Appl Res Child*. 2017;8(1):1-13.
 43. *Son J, Draws C. A post-hoc comparison of two sexual health curricula on sexual health knowledge, perception, and attitudes. *Am J Sex Educ*. 2021;16(1):86-106. <https://doi.org/10.1080/15546128.2020.1856743>.
 44. *Walsh-Buhi E, Marhefka S, Wang W, et al. The impact of the teen outreach program on sexual intentions and behaviors. *J Adolesc Health*. 2016;59(3):283-290. <https://doi.org/10.1016/j.jadohealth.2016.05.007>.
 45. *Chou L, Shen I, Chu T, Chen M. Effectiveness of a school-based social marketing intervention to promote adolescent sexual health. *Health Educ J*. 2020;79(1):34-45. <https://doi.org/10.1177/0017896919862597>.
 46. *Chu S, Kwan A, Reynolds R, et al. Promoting sex education among teenagers through an interactive game: reasons for success and implications. *Games Health*. 2015;4(3):168-174. <https://doi.org/10.1089/g4h.2014.0059>.
 47. *de Lijster G, Felten H, Kok G, Kocken P. Effects of an interactive school-based program for preventing adolescent sexual harassment: a cluster-randomized controlled evaluation study. *J Youth Adolesc*. 2016;45(5):874-886. <https://doi.org/10.1007/s10964-016-0471-9>.
 48. *Van Lieshout S, Mevissen F, De Waal E, Kok G. Long live love+: evaluation of the implementation of an online school-based sexuality education program in The Netherlands. *Health Educ Res*. 2017;32(3):244-257. <https://doi.org/10.1093/her/cyx041>.
 49. *Espada J, Escribano S, Morales A, Orgilés M. Two-year follow-up of a sexual health promotion program for Spanish adolescents. *Eval Health Prof*. 2017;40(4):483-504. <https://doi.org/10.1177/0163278716652217>.
 50. *Morales A, Espada J, Orgilés M. A 1-year follow-up evaluation of a sexual health education program for Spanish adolescents compared with a well-established program. *Eur J Public Health*. 2016;26(1):35-41. <https://doi.org/10.1093/eurpub/ckv074>.
 51. *Pakarinen M, Kylmä J, Helminen M, Suominen T. Vocational school students' self-evaluations of a sexual health promotion intervention. *Scand J Caring Sci*. 2019;33(4):857. <https://doi.org/10.1111/scs.12682>.
 52. *Pakarinen M, Kylmä J, Helminen M, Suominen T. Attitudes, knowledge and sexual behavior among Finnish adolescents before and after an intervention. *Health Promot Int*. 2020;35(4):821-830. <https://doi.org/10.1093/heapro/daz074>.
 53. *Aragão J, Gubert F, Torres R, Silva A, Vieira N. The use of Facebook in health education: perceptions of adolescent students. *Rev Bras Enfer*. 2018;71(2):265-271. <https://doi.org/10.1590/0034-7167-2016-0604>.
 54. *Helbekkmo E, Tempero H, Sollesnes R, Langeland E. 'We expected more about sex in the sex week'—a qualitative study

about students' experiences with a sexual health education programme, from a health-promotion perspective. *Int J Qual Stud on Health Well-being*. 2021;16(1):1963035. <https://doi.org/10.1080/17482631.2021.1963035>.

55. *Hussain H, Jomeen J, Hayter M, Tweheyo R. Implications for school nurses using simulator dolls to manage unplanned teen pregnancy. *Br J Sch Nurs*. 2019;14(4):177-188. <https://doi.org/10.12968/bjsn.2019.14.4.177>.