



ELSEVIER

 JOURNAL OF
 ADOLESCENT
 HEALTH

www.jahonline.org

Original article

Overwhelming Support for Sexual Health Education in U.S. Schools: A Meta-Analysis of 23 Surveys Conducted Between 2000 and 2016


 Leigh E. Szucs, Ph.D., CHES^{a,*}, Christopher R. Harper, Ph.D.^b, Jack Andrzejewski, M.P.H.^c,
 Lisa C. Barrios, ScM, DrPH^a, Leah Robin, Ph.D.^a, and Pete Hunt, M.P.H., M.E.d.^a
^a The Centers for Disease Control and Prevention, Division of Adolescent and School Health, Atlanta, Georgia^b The Centers for Disease Control and Prevention, Division of Violence Prevention, Atlanta, Georgia^c San Diego State University—University of California, San Diego Joint Doctoral Program in Public Health, Health Behavior Track, La Jolla, California

Article history: Received June 2, 2020; Accepted May 4, 2021

Keywords: Sexual health education; Sex education; Adolescents; Parents; Public support; Public opinion; Survey

 See Related Editorial on p.521

A B S T R A C T

Purpose: Surveys suggest that the general public (i.e., adults or parents) supports sexual health education in schools. However, the number of schools providing sex education continues to decline in the United States. The purpose of this study is to conduct a meta-analysis of U.S.-based representative surveys to provide a pooled estimate of public support for sexual health education delivered in schools.

Methods: A systematic search of three databases (Medline, PsycInfo, and ERIC) was conducted to identify survey measuring adult and parent attitudes toward sexual health education in school between 2000 and 2016. Meta-analyses were conducted in OpenMetaAnalyst via the metaphor package in R using a DerSimonian-Laird random effect models to account for heterogeneity between surveys.

Results: A total of 23 citations met study inclusion and exclusion criteria, representing 15 unique probability surveys conducted with the public. Among the included surveys, 14 were nationwide and 11 included parents or an overrepresentation of parents. Across all survey findings, 88.7% (95% confidence interval = 86.2–91.2) of respondents supported sexual health education. Among surveys that only included parents or oversampled for parents, 90.0% (95% confidence interval = 86.5–93.4) supported sexual health education, and among nationally representative surveys, 87.7% (95% confidence interval = 85.1–90.6) of respondents supported sexual health education.

Conclusion: These findings demonstrate overwhelming support for sexual health education delivered in schools. Additional research is needed to determine individual differences in support for specific sexual health education topics and skills delivered through classroom-based instruction.

Published by Elsevier Inc. on behalf of Society for Adolescent Health and Medicine. 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

Implementation of school-based sexual health education remains variant and declining across the United States, despite favorable support from the adults and parents in the general public. These meta-analytic results document overwhelming support for sexual health education in school by U.S. adults and parents. Such innovation strengthens the evidence base on supporting and implementing sexual health education in schools.

Conflicts of interest: The authors have no conflicts of interest to disclose.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the authors' affiliated institutions.

* Address correspondence to: Leigh E. Szucs, Ph.D., CHES, The Centers for Disease Control and Prevention, Division of Adolescent and School Health, 1600 Clifton Rd, NE, US8-1, Atlanta, GA 30329-4027.

E-mail address: lszucs@cdc.gov (L.E. Szucs).

School-based sexual health education has been linked with delayed sexual initiation, increased condom and contraceptive use, and increased self-esteem, self-efficacy, and decision-making among adolescents [1–3]. Unfortunately, the number of schools implementing sexual health education continues to decline across the United States (US). Nationally representative data from the School Health Policies and Practices Survey (2014)

suggest that the percentage of schools requiring students to receive sexual and reproductive health instruction has declined over the last two decades. For example, between 2000 and 2014, the percentage of schools requiring instruction on sexually transmitted diseases (STD) prevention decreased from 48.6% to 38.2%. Likewise, the percentage of schools requiring instruction on HIV prevention also decreased significantly from 64.0% to 41.1% during the time period [4]. Moreover, in 2014, only 47.7% and 76.5% of middle and high schools required students receive instruction on pregnancy prevention education, respectively [4].

At the same time, variation in adolescent sexual health outcomes, including risk and protective behaviors, is well-documented. For example, improvements include delayed sexual initiation, reductions in the number of lifetime sex partners, drug or alcohol use before last sex, and sexual activity during the past three months [5]. However, between 2009 and 2017, condom use at the last sex among sexually active high school students decreased from 62.8%–53.8% [5]. Between 2017 and 2018, STD rates rose for all mandatory reported STD, including the most common infections among teens, chlamydia and gonorrhea [6]. In addition, lifetime HIV testing among high school students decreased from 12.7% in 2009 to 9.4% in 2019 [5]. These findings underscore the importance of providing educational interventions that address adolescent sexual and reproductive health and suggest additional research is needed to understand barriers and facilitators to school-based delivery of sexual health education.

Commonly cited barriers to implementing sexual health education include insufficient funding, prescriptive policies around sex education, lack of training for educators, and resistance from school administrators, parents, and the general public [7–9]. Perceived resistance to sexual health content, commonly including STD/HIV and pregnancy prevention related topics, has spurred periodic surveying as part of nationally representative, federally funded surveys (i.e., the General Social Survey [GSS]) and intermittent polling by for-profit and nonprofit groups to assess public attitudes on the issue [10,11]. Analyses of these surveys generally reach the same conclusion: US adults or parents support school-based sexual health education by a wide margin. For example, the GSS found that nationwide support for sexual education in public schools increased from 79.4% in 1974 to 89.3% in 2012 [11]. In addition, surveys that focus on areas typically considered to be more conservative such as small rural communities and large southern states find that most adults and parents support delivery of sexual health education in schools [11,12]. Consistent findings of support for sexual health education suggests that perceived negative adult and parental resistance to sexual health education may not accurately reflect real support and opposition; however, no research has comprehensively examined the collection of surveys or polls of adult attitudes toward sexual health education. In this study, using a meta-analytic approach, we examine published studies of US adults and parents conducted since 2000 to derive an overall estimate of support for school-based sexual health education.

Methods

Survey selection

We first conducted a systematic literature search for citations representing unique survey data collections to measure adult and parent attitudes toward sexual health education that were

administered between 2000 and 2016. The review focused on adult and parent attitudes across the last two decades, an era marked with significant shifts in the school-based sexual health landscape given funding and programmatic priorities across the US [13]. In consultation with study investigators, a Centers for Disease Control and Prevention librarian conducted a systematic search of MEDLINE, PsycInfo, and ERIC using key words for *type of education* (i.e., sex education; sex; or HIV); *location or recipient of education* (i.e., schools or students); *opinion toward education* (i.e., attitude, belief, perception); and *data collection method* (i.e., surveys, questionnaires, polls, or public opinion) with results limited to the US or a state within the US. Simultaneously, searches were conducted by the study investigators to identify citations reporting representative polls or surveys that were not peer-reviewed, using both Internet search engines (e.g., Google) and data repositories, including the Roper Center for Public Opinion Research at Cornell University and the Interuniversity Consortium for Political and Social Research at the University of Michigan. The initial results from the Centers for Disease Control and Prevention library yielded 419 citations with abstracts for screening. Independent searches through Internet search engines and data repositories yielded 10 additional citations for screening consideration (Figure 1).

Each abstract was reviewed by two study investigators (CH and JA) based on explicit inclusion and exclusion criteria. To be included in the study, citation title and abstracts must have met the following criteria: (1) polls and surveys of adult or parent support for sexual health/HIV education in US schools, not other school-based programs (i.e., condom availability program, counseling or school based sexual-health services), (2) data collected since 2000, (3) report by US nonincarcerated adult populations, aged 18 years or older, and (4) survey results independent of a controlled trial, intervention, or evaluation study. Only citations that used surveys measuring attitudes and opinions toward broad delivery of school-based sexual health education, regardless of specific content or topic area, were included. Citations were excluded if surveys only measured adult or parent preferences pertaining to a singular type of sexual health education (e.g., only asked about comprehensive or asks about misconceptions related to abstinence-only-until marriage), inclusion of specific content or topic areas exclusively (e.g., condoms, sexuality), or acceptability of sexual health education within certain grade ranges (e.g., middle or high school). Authors excluded citations focused solely on report of attitudes toward sexual health topics among specific subpopulations (e.g., college students, school personnel, and unique racial/ethnic groups).

The eligibility screening of title and abstracts yielded 46 citations for full-text assessment, representing 44 unique survey instruments. Next, study investigators reviewed each complete survey instrument. Discrepancies between coders were resolved through group discussion until a consensus was reached. Table 1 includes question wording from each of the surveys included in the analysis and describes how each question was operationalized to the binary outcome of support for sexual health education in schools. Some questions asked about direct support for sexual health education broadly (e.g., Would you be for or against sex education in the public schools? Response options: favor, oppose, do not know), whereas other items asked about adult or parent attitudes toward the type of sexual health education delivered in schools, including a range of responses options (e.g., Would you rather your child be educated in the classroom in Comprehensive Sex Education course, or in Abstinence Education course?

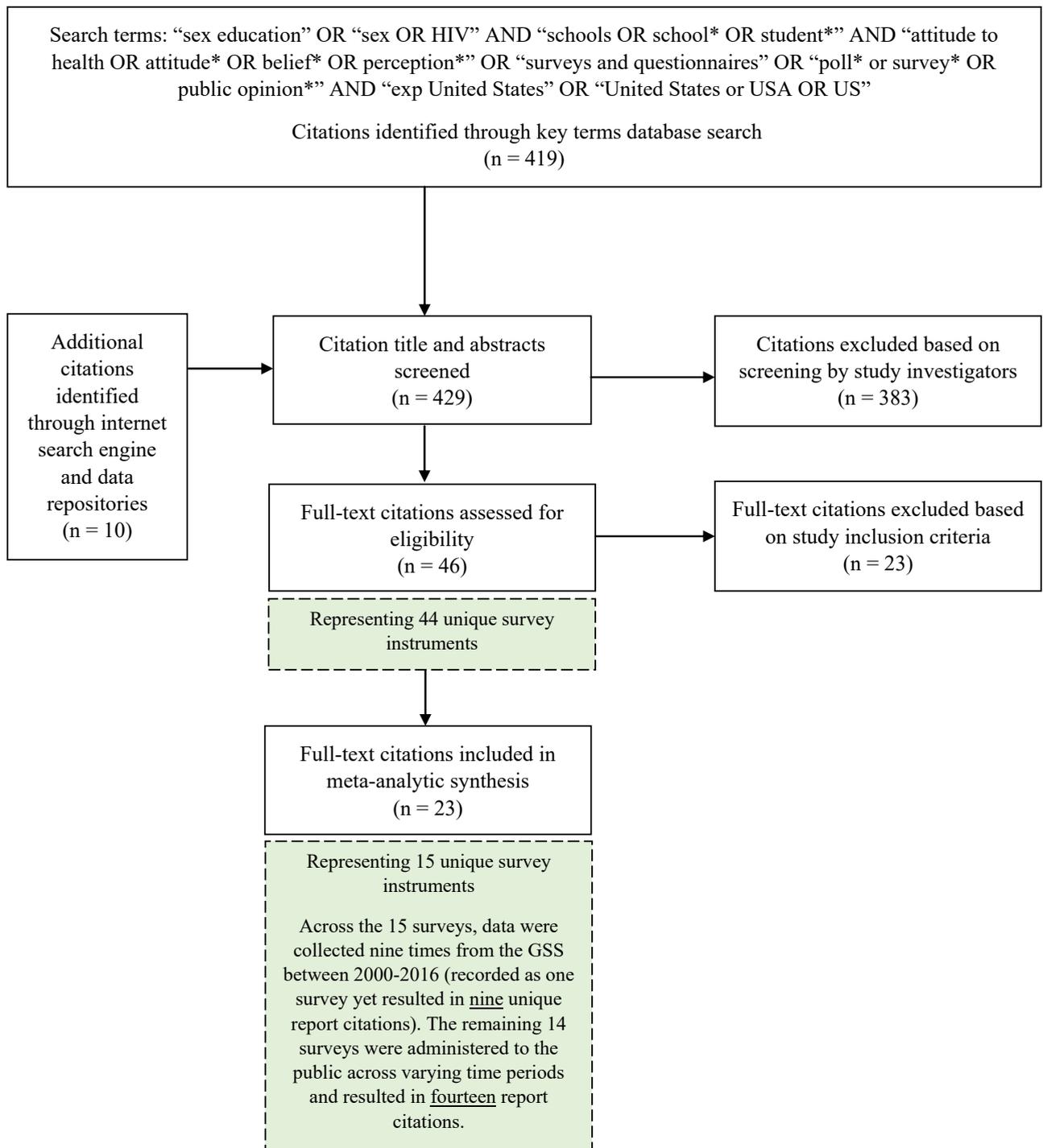


Figure 1. Selection flow for identifying citations eligible for meta-analysis investigating support for sexual health education in schools.

Response options: Comprehensive Sex Education, Abstinence Education, Neither, Not sure). In each case, questions were recoded to represent the percent in support of sexual health education in schools.

Included citations had to use a representative sampling method (e.g., random-digit dialing, stratified random sampling) to ensure findings were generalizable to the target

population of Interest; convenience samples were excluded for the analysis. Figure 2 illustrates the selection flow for citations included in the study. After application of study inclusion and exclusion criteria to the 46 eligible citations, 23 citations were selected for meta-analytic synthesis. Reported across the 23 citations was representation from 15 unique survey instruments used with adults to measure attitudes

Table 1
Question wording from surveys included in analysis

Citation	Question (response options)	Acceptability calculated by
Smith & Son, 2013 (GSS) [11]	Would you be for or against sex education in the public schools? (<i>Favor, oppose, do not know</i>)	Favor versus oppose (exclude do not know)
NPR, Kaiser, & Kennedy, 2004 [14]	How important do you think it is to have sex education as part of the school curriculum? (<i>Very important, somewhat important, not too important, or do you think sex education should not be taught at all in schools, do not know, refused</i>)	Very important, somewhat important, not too important versus not taught at all (exclude do not know)
Ito et al., 2006 [10] Xia et al., 2006 [15]	Should sex ed be taught in NC public schools? (<i>Yes, No</i>) What kind of sex education would you prefer for teenagers in public schools? [Abstinence-only education teaches that young people should refrain from engaging in sexual behavior before marriage. Abstinence-plus education teaches abstinence plus it provides information about how to protect against sexually transmitted disease and unplanned pregnancies]. Do you think that public schools should teach abstinence-only, abstinence-plus, or do not teach sex education at all? (<i>Abstinence only, abstinence plus, no sex education at all, other, do not know, refused</i>)	Yes versus no Abstinence-only and abstinence-plus versus no sex education at all (exclude other, do not know, or refused)
Howard-Barr et al., 2011 [16]	How important do you think it is to have sex education as part of the school curriculum? (<i>Very important, somewhat important, not too important, or do you think sex education should not be taught at all in schools, do not know, refused</i>)	Very important, somewhat important, not too important versus not taught at all (exclude do not know)
Eisenberg et al., 2008 [17]	...Teenagers should be taught: a) <i>only about abstinence: that is not having sex until marriage; b) about both abstinence and how to prevent pregnancies and sexually transmitted infections; or c) sex education should not be taught in schools at all</i>	(a) and (b) versus (c)
Zogby International, 2007 [18]	Would you rather your child be educated in the classroom in Comprehensive Sex Education course, or in Abstinence Education course? (<i>Comprehensive Sex Education, Abstinence Education, Neither, Not sure</i>)	Comprehensive Sex Education and Abstinence Education versus Neither (exclude not sure)
Kalsbeek et al., 2009 [19]	In your opinion should [sex education includes classes referring to sexual behavior and sexual health, which includes human development, relationships, and communication skills] be taught in the North Carolina Public School System? (<i>Yes, No, do not know, refused to answer</i>)	Yes versus no (exclude do not know or refused to answer)
Fox News, 2009 [20]	In general, do you think sex education should be taught in schools or should it be left to the parents to teach (<i>Taught in school, Left to the parents; Both; Don't know</i>)	Taught in school & both versus left to the parents (exclude do not know)
Barr et al., 2014 [21]	"...whether respondents would allow their children to participate in grade level-appropriate human sexuality education at his or her school." (<i>Yes, No</i>)	Yes versus No
Tortolero et al., 2011 [22]	Which of the following most closely matches your view on sexual health education in public schools? (<i>It should only teach young people to wait to have sex until marriage, it should teach young people to wait to have sex but also provide them with medically accurate information on condoms and contraception, it should not be taught in schools at all, not sure</i>)	All other options versus it should not be taught (exclude not sure)
Dake et al., 2014 [23]	When do you think the following [reproductive systems, abstinence and refusal skills, birth control and condom use] topics should be covered? (<i>Grades K-2, 3-5, 6-8, 9-12, Not at all</i>)	All options other than not at all versus not at all
Millner et al., 2015 [12]	In your opinion should [sex education includes classes referring to sexual behavior and sexual health, which includes human development, relationships, and communication skills] be taught in the Mobile County Public School System? (<i>Yes, No, Don't know, Refused to answer</i>)	Yes versus No (exclude do not know or refused to answer)
Moore et al., 2016 [24]	How do you feel about sex ed in schools? (<i>Should not be taught, only abstinence, abstinence + birth control/safer sex</i>)	All other options versus should not be taught
C.S. Mott Children's Hospital, 2016 [25]	Which of these topics should be covered in schools for your child's grade: Sex education/pregnancy prevention? (<i>Definitely cover in school, maybe cover in school, do not cover in school</i>)	Definitely be covered versus other options

toward school-based sexual health education. The 15 surveys included the GSS (recorded as one survey; inclusive data collection years between 2000 and 2016) and 14 additional surveys of adults in the general public. Data collected by the biennial GSS were reported in nine independent citations (GSS 2000; 2002; 2004; 2006; 2008; 2010; 2012; 2014; 2016), whereas data collected from the remaining 14 surveys were each reported in a single citation across respective years. Most citations were identified from peer reviewed sources, and the majority reported an estimate of sampling error (Table 2).

Data preparation

Where possible, authors obtained the original data and analyzed the prevalence of support for sexual health education [11,14,15] using complex survey procedures in IBM SPSS Statistics for Windows, version 21 [26], accounting for survey sampling methods used. When necessary, data custodians from a particular survey or study were contacted to reanalyze data [12,17,21,24]. If reanalysis was not possible either by obtaining original data or corresponding with data custodians, authors used estimates presented in the published findings.

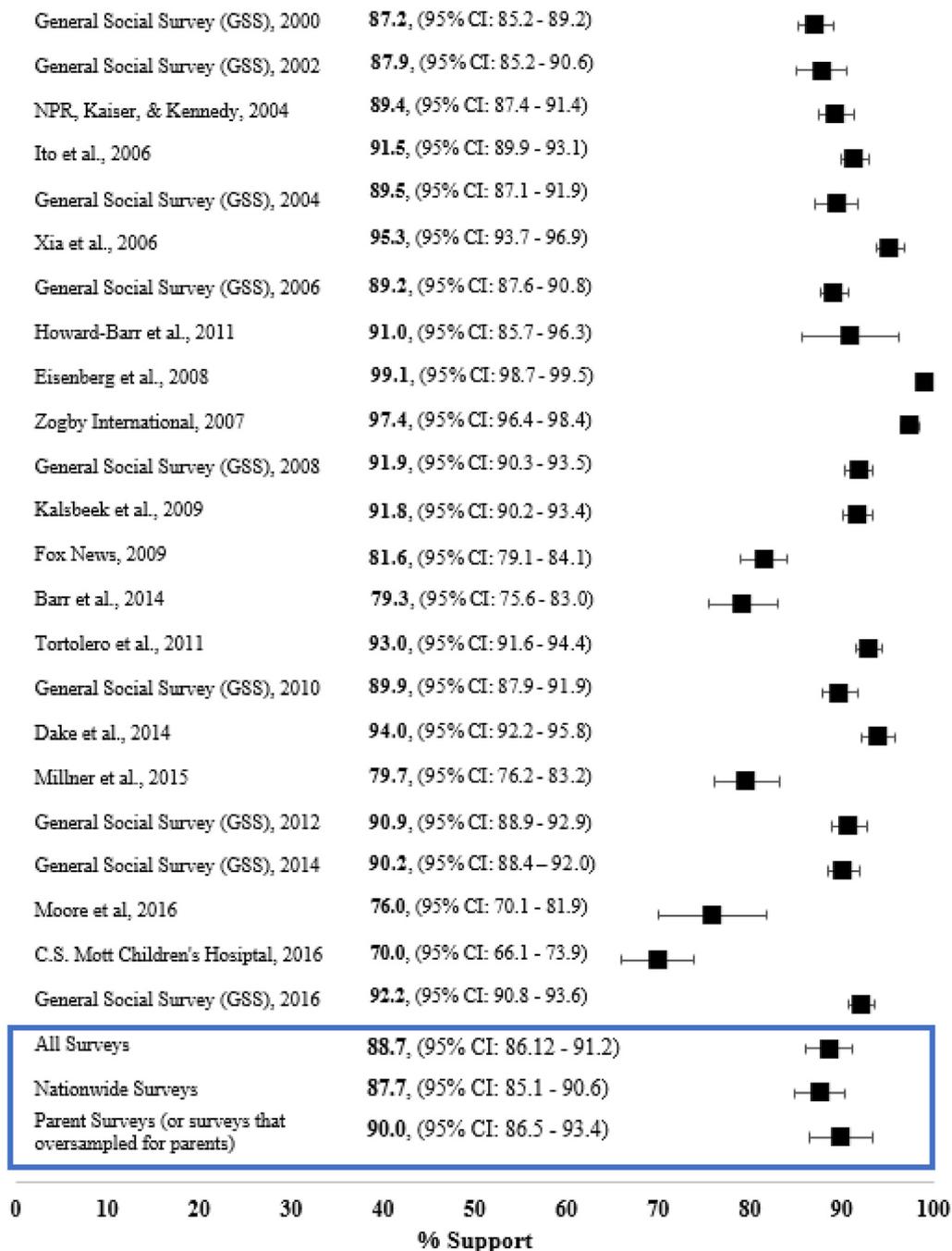


Figure 2. Prevalence of Support for Sexual Health Education in Schools^a. ^aSurveys in the Figure 2 are displayed based on year of data collection with the public. Across the 15 surveys included in this analysis, data were collected from the public between 2000 and 2016.

For studies that did not report variance estimates and for which authors could not obtain data for reanalysis, standard errors under the assumption of simple random sampling were calculated.

Meta-analysis procedures

Pooled estimates were obtained using OpenMetaAnalyst which is a meta-analysis utility that provided a graphical user

interface for conducting meta-analyses in R [27]. Authors used a DerSimonian-Laird random effect method that adjusts the variances for study-level differences [28]. Results were confirmed using the Rao methods for meta-analysis of survey data using Excel [29]. Authors conducted three separate meta-analyses using different groups of surveys: (1) all surveys, (2) only nationwide surveys, and (3) surveys that only included or oversampled for parents. In addition, authors conducted a sensitivity analysis of the effect of assuming a subset of studies was conducted using

Table 2
Survey poll characteristics displayed by year of data collection

Citation	Data collection year(s)	Recruitment method	Survey method	Population of interest	N	Peer review	% margin of error
Smith & Son, 2013 (GSS)	2000–2016 ^a	Household	Face-to-face	Nationally representative adults aged 18+	886–1654	No	±2.2–3.1
NPR, Kaiser, & Kennedy, 2004	2003	Telephone	Telephone	Nationally representative adults aged 18+ years with oversampling of parents with children in grades 7–12	1,759	No	±6.0
Ito et al., 2006	2003	Telephone	Telephone	English-speaking parents or legal guardians of North Carolina K-12 students	1,306	Yes	None reported
Xia et al., 2006	2005	Telephone	Telephone	English and Spanish speaking adults in California	993	No	±4.0
Howard-Barr et al., 2011	2006	Telephone	Telephone	Full-time residents of St. Lucie County, Florida age 18+ years with oversample of adults with children attending local schools	1,092	Yes	±3.1–4.9
Eisenberg et al., 2008	2006–2007	Telephone	Telephone	Parents of school age children in Minnesota	1,605	Yes	None reported
Zogby International, 2007	2007	Telephone	Telephone	Nationwide survey of parents of children age 10-16	1,002	No	±3.2
Kalsbeek et al., 2009	2008–2009	Telephone	Telephone	Parents of current North Carolina public school students, K-12	1,201	Yes	None reported
Fox News, 2009	2009	Telephone	Telephone	Registered voters nationwide	900	No	±3.0
Barr et al., 2014	2009–2010	Telephone	Telephone	Adults aged 18+ years	1,715	Yes	None reported
Tortolero et al., 2011	2010	Telephone	Telephone	Parents of child age 18 years or younger in Harris County, Texas	1,201	Yes	±2.8
Dake et al., 2014	2011	Mail	Mail	Parents of children ages 6 to 11 in three Midwestern counties	712	Yes	±5.0
Millner et al., 2015	2011	Telephone	Telephone	Parents of children in the Mobile Co. Public School System	522	Yes	None reported
Moore et al., 2016	2014	Telephone	Telephone	Residents of a large county in southeastern United States	311	Yes	±5.6
C.S. Mott Children's Hospital, 2016	2016	Phone/Address-Based ^b	Internet	Nationwide parents of child in middle or high school	2,100	No	±3.0–4.0

^a Data were based on analyses from General Social Survey (GSS), but study findings were re-analyzed to include data from 2014 to 2016 and exclude participants who reported “do not know”.

^b Data were collected through the GfK Knowledge Panel.

simple random sampling on the final estimates. The final estimates did not vary considerably once these studies were eliminated from the analysis.

Authors examined two measures of heterogeneity for each of the prevalence estimates: the Q statistic and Higgins I^2 [28,29]. The Q statistic includes a significance test for heterogeneity, and Higgins I^2 ranges from 0 to 100 with higher scores indicating greater heterogeneity [28,29]. Finally, sensitivity analyses were conducted by eliminating each survey individually for each of the three meta-analyses and examining the heterogeneity measures for signs that a particular study was having an undue influence.

Results

As can be seen in Table 2, the included surveys spanned the entire interval from 2000 to 2016. There were 12 telephone-based surveys [10,12,14–22,24], one face-to-face household survey [11], one survey conducted via mail [23], and one survey conducted via the Internet using GfK's Knowledge Panel (formerly *Gesellschaft für Konsumforschung*) proprietary address and telephone-based recruitment methodology [25,30]. The GfK panel is the largest probability-based panel of adults in the US. There were six nationwide surveys; four state-based surveys; and five surveys conducted in localities. Sample sizes ranged from a low of 311 participants in a survey of parents in Mobile, Alabama, to a high of 2,100 from a nationally representative survey of parents using GfK's probability sample [30].

Figure 2 illustrates the prevalence of support for sexual health education in schools for all surveys included in the analyses as well as the pooled estimates across all surveys, nationwide surveys, and parent surveys. Support for sexual health education in schools ranged from a high of 99.1% in a survey of parents in Minnesota to a low of 70.0% in a nationwide survey of parents. The pooled estimate for support of sexual health education in schools including all surveys was 88.7% (95% confidence interval: 86.2–91.2). There was a significant amount of heterogeneity between studies ($I^2 = 98.2$; $Q_{df=22} = 1222.22$, $p < .01$). However, sensitivity analyses did not reveal any particular survey that had undue influence on the findings. Authors observed comparable levels of support for sexual health education in schools when the results were limited to nationwide surveys (87.7%; 95% confidence interval: 85.1–90.6) and parent surveys (90.0%, 95.5% confidence interval: 86.5–93.4). Statistically significant levels of heterogeneity were observed for both nationwide ($I^2 = 96.7$; $Q_{df=22} = 398.7$, $p < .01$) and parent surveys ($I^2 = 98.4$; $Q_{df=22} = 630.3$, $p < .01$). But, again, sensitivity analyses did not identify any particular survey with undue influence.

Discussion

This study's findings contribute to a well-documented body of literature showing high levels of support for sexual health education in US schools. The findings demonstrate that a range of surveys report overwhelming support for school-based sexual health education, illustrating adults' continued interest in such educational experiences for youth. Across all surveys and both national and parent surveys, there was majority support with pooled estimates suggesting that nearly nine of 10 US adults,

including parents, support delivery of sexual health education in schools.

One of the strengths of this meta-analysis comes from the diversity of sources from which the constituent surveys were drawn, including surveys from major national news organizations, abstinence-only education advocacy organizations, public health surveys, and other nonprofit sources. In addition, authors included surveys from a range of geographical regions, including nationwide; large diverse states; and several surveys of the US Southeast, including states and localities. Despite the diverse sources of the surveys, the lowest prevalence of support for sexual health education identified was 70.0% from a survey of parents saying that sexual health should “definitely be covered” as a part of health education; it is noteworthy that this is a more stringent response option than that used for other surveys [25]. Authors were unable to obtain original data for reanalysis from the C.S. Mott (2016) survey and therefore were limited in calculations of acceptability based on scripted response options. This limitation should be considered when interpreting this survey's lower prevalence of support for sexual health education. Finally, only surveys that used representative sampling techniques were included in the analysis, suggesting study findings are robust to the possibility of self-selection of survey participants.

This study focused on overall support for sexual education in schools; however, differences in degree of support for sexual health education are well documented. Past research has shown that a number of demographic characteristics are associated with support for sexual health education, including religiosity, political affiliation, and educational attainment [31–34]. Furthermore, there is variability in support for specific topics in sexual health education with studies suggesting greater support for topics such as abstinence and refusal skills compared with the topics of contraceptives and sexual identity [17,21,22,35]. More evidence is needed to explore the intersection of individual characteristics on support for a range of health topics and skills and the prioritization of such content affecting adolescent sexuality across grade and developmental time span. Understanding adult and parent attitudes, preferences, and expectations for a comprehensive set of sexual health topics serves to enhance curriculum development and planning, as well as opportunities for parent education and tailoring by schools implementing sexual health education.

Finally, while findings assert majority support for sexual health education in schools broadly, less is known about preferences and attitudes toward sexual health-related skills for youth. As per the National Health Education Standards, students should demonstrate mastery of seven key skills to promote individual, family, and community health [36]. Building from this analysis, future surveys could be used to determine adult attitudes toward sexual health-related skill building through classroom instruction, including students' ability to identify valid and reliable sources of information, access health services and products, and practice self-management of health-enhancing behaviors [36]. As an example, a study by Bleakey et al. (2006) [33] depicts parental attitudes toward school-based condom demonstration, a common instructional activity and key skill to address STDs/HIV, and unintended pregnancy prevention [37]. The majority (68%) of survey respondents supported instruction on proper use of condoms, whereas even more (82%) supported instruction on importance of abstinence and other methods of preventing pregnancy and STDs [33]. Such sexual health topics

and skill-building instruction are essential components of sexual health education and help students' practice, adopt, and maintain healthy behaviors [38,39].

Although findings aggregate across various studies to conclude overwhelming public support for sexual health education in schools, results are based on participant self-report, which may not accurately reflect individuals' true attitudes and may be influenced by social-desirability biases. Furthermore, the survey data collection time period (2000–2016) may not accurately reflect more recent (past 3–5 years) trends in US adult and parent attitudes concerning sexual health in schools; an updated review and analysis of polling research is warranted to fill this gap. Although the included surveys used representative sampling techniques, there was wide variability in the extent that studies reported response rates or accounted for complex survey methods. Meta-analysis helps to account for these differences in individual survey methods. In addition, authors excluded surveys of youth based on primary interests in the attitudes of parents and voting age adult populations, but youth may have unique insights into how sexual health education may be best delivered to meet their needs in a manner that is culturally and developmentally appropriate.

Despite these limitations, nationwide, parent, state, and local surveys all reach the same conclusion: there is strong support for providing sexual health education in schools. However, more research is needed on individual differences in support for sexual health education, as well as more information on adult attitudes and supports for specific sexual and reproductive health topics and skills provided through sexual health education.

Acknowledgments

Authors have no acknowledgments.

Funding Sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- [1] Chin HB, Sipe TA, Elder R, et al. The effectiveness of group-based comprehensive risk-reduction and abstinence education interventions to prevent or reduce the risk of adolescent pregnancy, human immunodeficiency virus, and sexually transmitted infections: Two systematic reviews for the Guide to Community Preventive Services. *Am J Prev Med* 2012;42: 272–94.
- [2] Denford S, Abraham C, Campbell R, et al. A comprehensive review of reviews of school-based interventions to improve sexual-health. *Health Psychol Rev* 2017;11:33–52.
- [3] Kirby D, Laris B. *Emerging Answers: Research findings on programs to Reduce teen pregnancy: Research findings on programs to Reduce teen pregnancy and sexually transmitted diseases*. Washington, DC: National Campaign to Prevent Teen Pregnancy; 2007.
- [4] Centers for Disease Control and Prevention. *Results from the School Health Policies and Practices Study 2014*. Atlanta, GA: U.S. Department of Health and Human Services; 2015. Available at: https://www.cdc.gov/healthyouth/data/shpps/pdf/shpps-508-final_101315.pdf. Accessed June 23, 2021.
- [5] Centers for Disease Control and Prevention, Division of Adolescent and School Health. *Youth risk behavior surveillance: Data summary and trends report 2009–2019*. Atlanta, GA: U.S. Department of Health and Human Services; 2020. Available at: <https://www.cdc.gov/healthyouth/data/yrbs/pdf/YRBSDataSummaryTrendsReport2019-508.pdf>. Accessed January 14, 2021.
- [6] Centers for Disease Control and Prevention. *Sexually transmitted disease Surveillance 2018*. Atlanta, GA: U.S. Department of Health and Human Services; 2019. Available at: <https://www.cdc.gov/std/stats18/STDsurveillance2018-full-report.pdf>. Accessed January 14, 2021.
- [7] Landry DJ, Darroch JE, Singh S, et al. Factors associated with the content of sex education in US public secondary schools. *Perspect Sex Reprod Health* 2003;35:261–2.
- [8] Butler RS, Sorace D, Beach KH. Institutionalizing sex education in diverse US school districts. *J Adolesc Health* 2018;62:149–56.
- [9] Lloyd SW, Ferguson YO, Corbie-Smith G, et al. The role of public schools in HIV prevention: Perspectives from African Americans in the rural south. *AIDS Educ Prev* 2012;24:41–53.
- [10] Ito KE, Gizlice Z, Owen-O'Dowd J, et al. Parent opinion of sexuality education in a state with mandated abstinence education: Does policy match parental preference? *J Adolesc Health* 2006;39:634–41.
- [11] Smith TW, Son J. *Trends in public attitudes about sexual Morality*. Chicago, IL: NORC at the University of Chicago; 2013.
- [12] Millner V, Mulekar M, Turens J. Parents' beliefs regarding sex education for their children in southern Alabama public schools. *Sex Res Social Policy* 2015;12:101–9.
- [13] Hall KS, Sales JM, Komro KA, et al. The state of sex education in the United States. *J Adolesc Health* 2016;58:595–7.
- [14] National Public Radio KFF, Kennedy School of Government. *Sex education in America: General public/parents survey*. Menlo Park, CA: The Henry J. Kaiser Family Foundation; 2004.
- [15] Xia Q, Osmond DH, Tholandi M, et al. HIV prevalence and sexual risk behaviors among men who have sex with men: Results from a statewide population-based survey in California. *J Acquir Immune Defic Syndr* 2006;41:238–45.
- [16] Howard-Barr E, Moore MJ, Weiss JA, et al. Public opinion toward sexuality education: Findings among one south Florida county. *Am J Sex Educ* 2011; 6:176–91.
- [17] Eisenberg ME, Bernat DH, Bearinger LH, et al. Support for comprehensive sexuality education: Perspectives from parents of school-age youth. *J Adolesc Health* 2008;42:352–9.
- [18] Zogby International. *International poll: Parental support for abstinence education*. 2007.
- [19] Kalsbeek W, Agans R. *North Carolina parent opinion survey of public school sexuality education: An update to the 2003 survey*. Chapel Hill, NC: University of North Carolina at Chapel Hill; 2009:78.
- [20] Fox News Poll: *Opinion Dynamics. Teaching sex ed in schools*. New York, NY: Opinion Dynamics Corporation; 2009. Available at: https://www.foxnews.com/projects/pdf/061909_poll.pdf. Accessed June 23, 2021.
- [21] Barr EM, Moore MJ, Johnson T, et al. New evidence: Data documenting parental support for earlier sexuality education. *J Sch Health* 2014;84:10–7.
- [22] Tortolero SR, Johnson K, Peskin M, et al. Dispelling the myth: What parents really think about sex education in schools. *J Appl Res Child* 2011;2:5.
- [23] Dake JA, Price JH, Baksovic CM, et al. Preferences regarding school sexuality education among Elementary Schoolchildren's parents. *Am J Health Educ* 2014;45:29–36.
- [24] Moore MJ, Barr E, Wilson K, et al. Support for offering sexual health services through school-based health clinics. *J Sch Health* 2016;86:660–8.
- [25] C.S. Mott Children's Hospital. *C.S. Mott Children's Hospital National Poll on children's health, beyond sex ed: Parents want more health topics covered in school, Vol. 27*. Ann Arbor, MI: Mott Children's Hospital National Poll on Children's Health; 2016:1–2.
- [26] Corporation I. *SPSS statistics*. 21 edition. Armonk, N.Y., USA: IBM Corporation; 2020.
- [27] Wallace BC, Dahabreh IJ, Trikalinos TA, et al. Closing the gap between methodologists and end-users: R as a computational back-end. *J Stat Softw* 2012;49:1–15.
- [28] DerSimonian R, Laird N. Meta-analysis in clinical trials. *Control Clin Trials* 1986;7:177–88.
- [29] Rao SR, Graubard BI, Schmid CH, et al. Meta-analysis of survey data: Application to health services research. *Health Serv Outcomes Res Methodol* 2008;8:98–114.
- [30] GfK press. *KnowledgePanel®A methodological Overview*. Available at: https://www.gfk.com/fileadmin/user_upload/dyna_content/US/documents/KnowledgePanel_-_A_Methodological_Overview.pdf. Accessed January 12, 2020.
- [31] Kantor L, Levitz N. Parents' views on sex education in schools: How much do Democrats and Republicans agree? *PLoS One* 2017;12:1–9. <https://doi.org/10.1371/journal.pone.0180250>.
- [32] Kantor L, Levitz N, Holstrom A. Support for sex education and teenage pregnancy prevention programmes in the USA: Results from a national survey of likely voters. *Sex Educ* 2019;19:1–13.
- [33] Bleakley A, Hennessy M, Fishbein M. Public opinion on sex education in US schools. *Arch Pediatr Adolesc Med* 2006;160:1151–6.

- [34] Dent L, Maloney P. Evangelical Christian parents' attitudes towards abstinence-based sex education: 'I want my kids to have great sex! *Sex Educ* 2017;17:149–64.
- [35] Barr EM, Moore MJ, Wilson K, et al. Documenting support for Ongoing and improved Efforts in sexuality education. *Fla Public Health Rev* 2017;14:5.
- [36] Joint Committee on National Health Education Standards. National health education standards. 2nd edition. Washington, DC: Achieving Excellence; 2007.
- [37] Kirby D, Coyle K, Alton F, et al. Reducing adolescent sexual risk: A Theoretical Guide for developing and Adapting curriculum based programs. Scotts Vally: California ETR Associates; 2011.
- [38] Centers for Disease Control and Prevention. Characteristics of an effective health education curriculum. Available at: <https://www.cdc.gov/healthyschools/sher/characteristics/index.htm>. Accessed February 13, 2021.
- [39] Centers for Disease Control and Prevention. Health education curriculum analysis Tool (HECAT). Available at: <https://www.cdc.gov/healthyouth/hecat/index.htm>. Accessed February 23, 2020.