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Seven recent reviews of research show a lack of evidence of effectiveness for comprehensive sex education in schools

Introduction

Since its advent roughly three decades ago, advocates of comprehensive sex education (CSE)[1] in school classrooms have declared it to be "proven effective" at reducing teenage sexual risk behavior, pregnancy, and STDs.[2] However, upon close examination, the evidence cited to support this claim often appears problematic. It is often found to either be of poor scientific quality,[3] contain few positive outcomes for *school-based* CSE programs,[4] use inadequate criteria for measuring program effectiveness (e.g., the finding of only a 3-month post-program effect or a subgroup effect is called evidence of effectiveness) or discount harmful program effects,[5,6] or all of the above. Moreover, roughly one-half of the studies upon which this evidence is based are not independent evaluations; they were conducted by the program's developer, implementer, or marketer, who has an investment in the findings. And some of the evidence is based on correlational studies, a type of study design not capable of establishing a program's causal impact. These problems are typical of the "evidence" that has been cited over the years in support of school-based CSE.

What is the current state of the evidence? Contrary to the claims of CSE advocates, in recent years, numerous systematic research reviews have shown a lack of credible scientific evidence for school-based CSE effectiveness at producing desired behavioral outcomes in youth populations. These reviews have examined outcome studies that employ an experimental design, the type of study that *is* capable of testing a program's causal impact. Below are seven such reviews, with a brief description and/or commentary.

Findings: Seven Reviews of CSE Outcome Research

1. A landmark meta-analysis of sex education effectiveness sponsored by the U.S. Centers for Disease Control and Prevention (2012) found school-based CSE did not significantly increase teen condom use or reduce teen pregnancy or STDs.[7]

2. A 2018 meta-analysis of 19 school-based CSE programs found "no consistent evidence" that they significantly increased teen condom use or abstinence or reduced teen pregnancy.[8]

3. The Institute for Research and Evaluation (IRE) 2019 report, "Re-Examining the Evidence for School-based Comprehensive Sex Education: A Global Research Review"[9] examined the studies found in three separate systematic reviews of sex education outcome research, conducted by three scientific agencies: the United Nations Educational, Scientific and Cultural Organization (UNESCO), the U.S. Teen Pregnancy Prevention Evidence Review and the Centers for Disease Control and Prevention (CDC).[10] Of the 103 studies of school-based CSE in these 3 databases, only 6 showed evidence of program effectiveness. IRE used a definition of program effectiveness grounded in the scientific field of prevention research: a) an effective CSE program should make a significant improvement on at least one key protective risk indicator (sexual abstinence, condom use, pregnancy, or STDs); b) the effect should occur for the targeted youth population (not just a subgroup); c) the effect should last at least 12 months after the program's end; and d) the program should not have negative impact on other sexual risk indicators.[11] By this definition, the IRE reviewers found little evidence of success for school-based CSE and also found that 17 out of the 103 studies (1 in 6) showed negative CSE impact[12]—increases in teen sexual risk behavior, pregnancy, or STDs. Similar results were found in both the U.S. and non-U.S. studies. The IRE researchers concluded that when a credible scientific lens is used to evaluate school-based CSE,

rather than the low standards employed in many favorable CSE reviews,[6] there is little evidence of effectiveness and appears to be more evidence of harm than real benefit.

A recent critique of this IRE review attempted to discredit the findings, but the critique was undermined by its own high rate of scientific error (56%), misrepresentations of the IRE methodology, and double standards for research rigor. Notwithstanding such problems, this critique still found little evidence of effectiveness and a concerning number of negative effects in the CSE studies reviewed by IRE, confirmatory of IRE's findings.[13]

4. A 2019 meta-analysis of the 44 sex education programs on the U.S. Teen Pregnancy Prevention approved list found no evidence that school-based CSE had a significant protective effect on sexual risk indicators, including teen abstinence, condom use, pregnancy, or STDs. The study concluded, "it seems worthwhile to reexamine assumptions about the effectiveness of the numerous interventions for coed classrooms in changing the behavioral outcomes such programs are intended to prevent."[14]

5. The Goldfarb & Lieberman review (2021),[15] which claimed to show evidence of wide-ranging CSE benefits, did not hold up under an objective analysis which revealed that most of its sources were not studies of CSE, and those that were did not produce scientific evidence of CSE effectiveness.[16]

6. The 2023 update of the U.S. Teen Pregnancy Prevention Evidence Review did not identify any new studies (since 2016) of school-based CSE programs that showed evidence of effectiveness, that is, a 12-month post-program effect for the targeted teenage population, on any sexual risk indicators.[17]

7. A 2023 systematic review of the effects of CSE on youth, by Kim, et al., failed to provide credible evidence for school-based CSE effectiveness at reducing sexual risk behavior.[18] The review called itself a meta-analysis but it violated basic principles for valid meta-analysis. For example, the results of wildly disparate types of interventions—a text message program for gay teens on social media, a clinic program for adult sex workers, a social network program for adults who inject illegal drugs—were combined with the results of school-based CSE programs for teenage students. Disparate *outcomes* were also combined—*cognitive* measures (knowledge, attitudes) were averaged together with measures of sexual *behavior*. And the internal inconsistency of the findings was extremely high (the I^2 statistic was 99%, well above the 56% to 75% range indicating "high" or "severe" heterogeneity).[18,19] Scholars of meta-analysis contend that such high heterogeneity in the interventions, outcome measures, and findings of a meta-analysis makes its validity questionable and its results meaningless.[20] Moreover, 88% of the 34 included studies were rated low in quality, according to Kim, et al. All of these reasons justify ignoring this meta-analysis' questionable results in favor of examining each study individually. That inspection found there were only 10 of the 34 studies that tested the impact of school-based CSE programs on sexual risk behavior.[21] One of these studies was of inadequate quality[22] and none of the rest showed evidence of program effectiveness.[23]

Conclusion

In order to be valid, the claim that CSE is proven effective and worthy of widespread dissemination[24] must be based upon credible scientific evidence of effectiveness. However, *school-based CSE programs have not produced that evidence.* This conclusion is substantiated by seven recent systematic reviews of sex education outcome research, all of which failed to find evidence of sustained protective effects on the targeted teenage populations for school-based CSE. This conclusion is also consistent with the work of Blueprints for Healthy Youth Development, a registry of evidence-based programs to prevent the broad spectrum of youth risk behaviors (including substance abuse and violence, as well as sexual risk behavior), operated out of the University of Colorado. Based on its review of the research evidence, as of this printing, the Blueprints website does not show any CSE programs (whether school-based or not) as qualifying for the label "Model Program," a designation it requires for a prevention program to be considered "ready for widespread use."[25]

Endnotes and Citations

1. Comprehensive sex education (or CSE) is a type of sex education that emphasizes risk reduction—the use of condoms and other contraceptive methods—to reduce the likelihood of pregnancy and STD acquisition in youth populations. It may or may not include teaching about abstinence (sexual risk avoidance) and may contain content about how to give and get consent for sexual relations and how to achieve sexual pleasure. The most recent CSE programs often include ideological content about sexual orientation and gender identity.

2. As claimed by Advocates for Youth. (2009). Comprehensive Sex Education: Research and Results. *The Facts, September 2009*. Retrieved from https://www.advocatesforyouth.org/wp-content/uploads/storage//advfy/documents/fscse.pdf;

3. For example: Grunseit A, Kippax S, et al. (1997). Sexuality Education and Young People's Sexual Behavior: A Review of Studies. *Journal of Adolescent Research*, Volume 12, Issue 4. https://doi.org/10.1177/0743554897124002. (This study appeared to conduct no screening for study quality and stated that its own results "often [were] compromised…because of inadequacies in study design, analytic techniques, outcome indicators, and reporting of statistics."); Goldfarb E and Lieberman L. (2021). Three Decades of Research: The Case for Comprehensive Sex Education. *J Adolesc Health*, 68(1):13-27. doi: 10.1016/j.jadohealth.2020.07.036 (This study conducted no screening whatsoever for the scientific quality of the 80 studies included in the review. The authors actually acknowledged the "substantial number of studies with less rigorous designs, smaller samples, and/or more qualitatively based [i.e., subjective] approaches" in their evidence base; see p.4.)

4. For example: Fonner VA, Armstrong KS, Kennedy CE, et al. School based sex education and HIV prevention in low- and middle income countries: a systematic review and meta-analysis. Vermund SH, ed. PLoS ONE. 2014;9(3):e89692. doi:10.1371/journal.pone.0089692 (Out of the 33 studies analyzed by Fonner, there were only 5 studies of school-based CSE programs showing any *behavioral* outcomes and only one of these showed evidence of CSE program effectiveness, that is, a sustained effect occurring for the targeted population.)

5. Credible standards or definitions for program effectiveness should be grounded in the work of the scientific field of prevention research, especially entities like The Society for Prevention Research (SPR)and Blueprints for Healthy Youth Development. They stipulate that an effective prevention program should show long-term effects, should demonstrate effects across the target population, and should not produce negative effects on important outcomes. See the work of: Flay BR, Biglan A, Boruch RF, Castro FG, Gottfredson D. (2005). Standards of Evidence: Criteria for Efficacy, Effectiveness and Dissemination. *Prev Sci*, 6(3):151–175; Gottredson DC, Cook TD, Gardner FEM, Gorman-Smith D, Howe GW, Sandler IN, Zafft KM. (2015). Standards of Evidence for Efficacy, Effectiveness, and Scale-up Research in Prevention Science: Next Generation. *Prev Sci*, 16(7):893-926. doi: 10.1007/s11121-015-0555-x; Blueprints for Healthy Youth Development: Blueprints Standards. Available at: https://www.blueprintsprograms.org/blueprints-standards/

6. Despite SPR's requirement of long-term effects and no negative effects (see item 4 above) for the designation of "effectiveness," the occurrence of just one short-term or subgroup effect, and of negative program effects, allows a CSE program to make it onto the U.S. Teen Pregnancy Prevention (TPP) Evidence Review's list of programs showing "evidence of effectiveness in reducing teen pregnancy, sexually transmitted infections, and associated sexual risk behaviors" (see the *F.L.A.S.H.* program as one example). The TPP list contains several school-based CSE programs that have produced multiple harmful effects (increased sexual risk behaviors): *Cuidate!, It's Your Game,* and *Reducing the Risk*. (See: https://youth.gov/evidence-innovation/tpper/programs, https://youth.gov/sites/default/files/2023-02/PPRER_Protocol_7-27-2011.pdf, https://youth.gov/evidence-innovation/tpper/faqs#seventeenth, https://youth.gov/evidence-innovation/tpper/faqs#twenty). Similar lax criteria for effectiveness are used in: Kirby DB, Laris BA, Rolleri LA.(2007). Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world. *J Adolesc Health Off Publ Soc Adolesc Med,* 40(3):206–217. doi:10.1016/j.jadohealth.2006.11.143

7. Weed SE. (2012). Sex Education Programs for Schools Still in Question: A Commentary on Meta-Analysis. *Am J Prev Med*;42(3):313-315, doi: 10.1016/j.amepre.2011.11.004. The results in this commentary article were

presented in public meetings by the meta-analysis authors, but were obscured in the study article that was published by those same authors. That article was published side-by-side in the same journal with this commentary. (See: Chin H. B., Sipe, T. A., Elder, R., Mercer, S. L., Chattopadhyay, S., et al. (2012). The Effectiveness of Group-Based Comprehensive Risk Reduction and Abstinence Education Interventions to Prevent or Reduce the Risk of Adolescent Pregnancy, HIV, and STIs: Two Systematic Reviews for the Guide to Community Preventive Services. *American Journal of Preventive Medicine*, 42(3), 272–294. doi: 10.1016/j.amepre.2011.11.006.)

8. Marseille E, Mirzazadeh A, Antonia Biggs M, Miller AP, & Horvath H, et al. (2018). Effectiveness of school-based teen pregnancy prevention programs in the USA: a systematic review and meta-analysis, *Prevention Science*, 19(4):468–489.

9. Ericksen, I.H. and Weed, S.E. (2019). "Re-Examining the Evidence for School-based Comprehensive Sex Education: A Global Research Review." *Issues in Law and Medicine, 34(2):161-182.* https://institute-research.com/wp-content/uploads/2024/05/Ericksen__Weed-Re-Examining_the_Evidence_for_CSE_2019.pdf

10. United Nations Educational, Scientific and Cultural Organization. (2018). International Technical Guidance on Sexuality Education: An Evidence-Informed Approach, Revised Edition; Chin H. B., Sipe, T. A., Elder, R., Mercer, S. L., Chattopadhyay, S., et al. (2012). The Effectiveness of Group-Based Comprehensive Risk Reduction and Abstinence Education Interventions to Prevent or Reduce the Risk of Adolescent Pregnancy, HIV, and STIs: Two Systematic Reviews for the Guide to Community Preventive Services. *American Journal of Preventive Medicine*, 42(3), 272–294. doi: 10.1016/j.amepre.2011.11.006; U.S. Department of Health & Human Services, Teen Pregnancy Prevention Evidence Review, as of 2016. (For the current database, see: https://youth.gov/evidence-innovation/tpper/programs)

11. These standards or criteria for effectiveness are grounded in the work of the scientific field of prevention research, especially The Society for Prevention Research and Blueprints for Healthy Youth Development. The criteria are: 1) the use of a reliable study designed to test cause and effect: an experimental or quasi-experimental design study with adequate sample size and reliable measures of sustained effects; 2) program results that show evidence of effectiveness: significant ($p<.05$) sustained protective effects (for school-based programs, effects lasting 12 months post-program), for the intended or target population of program recipients (not just a subgroup or subsample), on one of the key outcomes (that actually protect from sexual harm), without other negative program effects occurring that increase sexual risk. See the work of: Flay BR, Biglan A, Boruch RF, Castro FG, Gottfredson D. (2005). Standards of Evidence: Criteria for Efficacy, Effectiveness and Dissemination. *Prev Sci*, 6(3):151–175; Gottredson DC, Cook TD, Gardner FEM, Gorman-Smith D, Howe GW, Sandler IN, Zafft KM. (2015). Standards of Evidence for Efficacy, Effectiveness, and Scale-up Research in Prevention Science: Next Generation. *Prev Sci*, 16(7):893-926. doi: 10.1007/s11121-015-0555-x; Blueprints for Healthy Youth Development: Blueprints Standards. Available at: https://www.blueprintsprograms.org/blueprints-standards/

12. The original published IRE review reported 16 studies showing negative CSE effects. However, negative program impact was found in another of the U.S. studies after the IRE review was published; this makes a total of 17 out of the 103 studies that found negative impact.

13. The Institute for Research & Evaluation. (2024). Rebuttal to a Critique by the World Health Organization, June 20, 2024 (https://institute-research.com/wp-content/uploads/2024/05/Rebuttal_to_WHO_Critique_of_IRE_Global_CSE_Review_5-20-24.pdf); VanTreeck K, Elnakib S, & Chandra-Mouli V. (2023) A reanalysis of the Institute for Research and Evaluation report that challenges non-US, school-based comprehensive sexuality education evidence base. *Sexual and Reproductive Health Matters*, 31:1, 2237791, DOI: 10.1080/26410397.2023.2237791

14. Juras R, Tanner-Smith E, Kelsey M, Lipsey M, Layzer J. (2019). Adolescent Pregnancy Prevention: Meta-Analysis of Federally Funded Program Evaluations, *American Journal of Public Health*. 2019;*09*(4), e1-e8.

15. Goldfarb E and Lieberman L. (2021). Three Decades of Research: The Case for Comprehensive Sex Education. *J Adolesc Health*, 68(1):13-27. doi: 10.1016/j.jadohealth.2020.07.036

16. Ericksen IH and Weed SE. (2023). "Three Decades of Research:" A New Sex Ed Agenda and the Veneer of Science. *Issues in Law and Medicine*, 38(1):27-46. https://institute-research.com/wp-content/uploads/2024/05/Critique_of_Goldfarb__Lieberman_Ericksen__Weed_2023.pdf

17. Forrester E, Manzer J, Chesnut K, Knab J, et al. (2023). Updated Findings from the HHS Teen Pregnancy Prevention Evidence Review: October 2016-May 2022. U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation, April 2023. https://tppevidencereview.youth.gov/

18. Kim, E.J.; Park, B.; Kim, S.K.; Park, M.J.; Lee, J.Y.; Jo, A.R.; Kim, M.J.; Shin, H.N. (2023). A Meta-Analysis of the Effects of Comprehensive Sexuality Education Programs on Children and Adolescents. *Healthcare*, 11, 2511. https://doi.org/10.3390/healthcare11182511

19. Higgins JPT, Thompson SG. (2002). Quantifying heterogeneity in a meta-analysis. *Stat Med*; 21:1539 –58.

20. Sharpe D. (1997). Of apples and oranges, file drawers and garbage: why validity issues in meta-analysis will not go away. *Clin Psychol Rev*;17(8):881–901.

21. An additional (11th) study used a cross-sectional correlation methodology to "estimate the association between [perceived] exposure to CSE" and sexual risk indicators. However, this type of study design is not able to test causal impact (see George, et al., p.274) and therefore, as a rule, is not included in systematic reviews of research on CSE effectiveness. (George, G.; Beckett, S.; Reddy, T.; Govender, K.; Cawood, C.; Khanyile, D.; Kharsany, A.B. (2022). Role of Schooling and Comprehensive Sexuality Education in Reducing HIV and Pregnancy Among Adolescents in South Africa. J. *Acquir. Immune Defic. Syndr*., 90, 270.)

22. Mellanby, A.R.; Phelps, F.A.; Crichton, N.J.; Tripp, J.H. (1995). School sex education: An experimental programme with educational and medical benefit. *BMJ*, 311, 414–417. This study employed a questionable study design, using 3 cohorts of program and matched comparison students to infer change over a 3-year time period, but each year was a different cohort of students, with the later cohorts having received more of the program content. There was no indication of the baseline differences between the program and comparison groups, for each cohort, on the outcome variables or the known confounding variables. This, along with the use of "local" and "distant" comparison groups, again, with no baseline measures of the outcomes for each cohort, makes the validity of the study's results highly suspect.

23. Grossman, J.M.; Tracy, A.J.; Charmaraman, L.; Ceder, I.; Erkut, S. (2014). Protective effects of middle school comprehensive sex education with family involvement. J. Sch. Health, 84, 739–747, found a significant reduction by CSE in sexual initiation for the intervention group, but the follow-up period was less than 9 months post-program; Taylor, M.; Jinabhai, C.; Dlamini, S.; Sathiparsad, R.; Eggers, M.S.; De Vries, H. (2014). Effects of a teenage pregnancy prevention program in KwaZulu-Natal, South Africa. Health Care Women Int., 35, 845–858, found a significant effect by CSE on condom use, but the follow-up period was only 8 months post-program and the intervention group's condom use actually decreased. The other 7 school-based CSE programs either produced no significant behavioral effects (Kemigisha, 2019; Manaseri, 2019; Rotz, 2018) or only short-term behavioral effects, detected only at the end of the program or 3 months post-program (Coyle, 2021; Hegdahl, 2022; Menna, 2015; Yakubu, 2019). Short-term effects may indicate program potential, but an effective program needs to show impact that is sustained well beyond its end.

24. United Nations Educational, Scientific, and Cultural Organization. (UNESCO). International Technical Guidance on Sexuality Education: An Evidence-Informed Approach, Revised Edition, 2018. The Introduction states as a desired goal, "to bring CSE to children and young people everywhere" (p.12). See: http://www.unaids.org/sites/default/files/media_asset/ITGSE_en.pdf.

25. See: https://www.blueprintsprograms.org/faq/