

Converging Evidence Leaves Policy Behind: Sex Education in the United States (Editorial)

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School-based sex education has the potential to prevent sexually transmitted infections and unwanted pregnancies and to promote healthy sexuality. Yet local, state, and national sex education policies in the United States comprise a bewildering patchwork of mandates, funding restrictions, omissions, and compromises, often at odds from one level to the next. As a result, the sex education received by most students is fragmented, incomplete, and frequently based on ineffective approaches and curricula [1-3] – an unacceptable state of affairs in a time of increasing teen birth rates and epidemics of sexually transmitted infections among American youth [4,5].

Much of this policy chaos arises out of politically fueled and morally motivated debates over the appropriateness of comprehensive sex education (CSE) versus abstinence-only (AO) education [6-8]. Although often rancorous and emotionally charged, these debates typically invoke research-based evidence [9]. Three domains of evidence are most relevant – evidence on effectiveness of AO programs, evidence on effectiveness of CSE programs, and evidence of parental (and public) support for one type of program versus the other. At this point in time, rigorous and compelling evidence has been amassed in two of these three domains – AO programs are not effective, and parents do overwhelmingly support CSE. For the third question – the effectiveness of CSE – the evidence is building.

Two articles in this month's issue add to the growing convergence of evidence in each of these three areas. Kohler and colleagues [10] present persuasive new findings on the effectiveness of CSE as compared with AO or no sex education. And the article by Dr. Eisenberg and colleagues [11] presents results of a statewide survey of Minnesota parents that add to the generalizability of previous state and national surveys demonstrating ubiquitous public and parent support for CSE.

Kohler and colleagues employed data from the 2002 National Survey of Family Growth (NSFG) to evaluate the effectiveness of both types of sex education programs at the population level. Their key findings are that adolescents who received CSE were significantly less likely to report teen pregnancies than were those who received either no sex education or AO education. Further, AO education was not significantly associated with reduced teen pregnancies when compared with no sex education. These findings result from a methodologically sophisticated epidemiological analysis that appropriately controlled for potentially confounding background factors.

Kohler and colleagues' finding of no association between AO education and teen pregnancies may not seem especially striking today. This is due to the unambiguous findings of no impacts on sexual behaviors recently provided by Trenholm and colleagues' rigorous multisite randomized trial [12]. But science is by definition a cumulative enterprise, and

converging evidence across different types of research designs and different levels of outcomes can be especially powerful. Trenholm and colleagues' trial measured a variety of self-reported sexual behavior outcomes, and focused specifically on four carefully selected exemplary programs under controlled conditions. It provides exceptionally strong internal validity (confidence in correctness of conclusions), and by virtue of studying multiple distinct programs following a common set of overarching specifications, the trial also affords some external validity (generalizability across programs, populations, and settings). The Kohler and colleagues study extends the generalizability of these no-effect findings to an uncontrolled, but vast and diverse pool of AO programs throughout the country while still providing reasonably good internal validity through its sophisticated epidemiological analysis of a major national dataset. At the same time it extends the sexual behavior outcomes to also include self-reported pregnancies. Although either study alone provides convincing evidence, when taken together, it becomes difficult to view the AO education effectiveness question as needing additional study.

Yet perhaps the most important aspect of Kohler and colleagues' study is its expansion of the existing but generally fragile positive results on the question of CSE effectiveness. There is no shortage of suggestions of positive effects from the numerous evaluations that have been conducted of promising CSE programs. Most of these evaluations have taken place at the local school district or community level, and suffer any number of the usual flaws commonly associated with school and community evaluations –control group contamination or pre-existing differences, differential attrition, uncorrected multiple significance testing, or questionable implementation fidelity, to name a few [13]. Some narrative reviews have concluded that the evidence indicates effectiveness for the best of these programs, and some have even created lists of recommended programs and strategies [e.g., 14]. But the more rigorous meta-analytic reviews, conducted by independent researchers with no program ties and including only the most rigorously evaluated programs, have been more hesitant to draw conclusions [e.g., 15].

It is on this question of CSE effectiveness that Kohler and colleagues make their critical contribution. For the first time, a sophisticated epidemiological analysis based on a major national dataset has been applied to this question, and the evidence is compelling: adolescents who reported receiving CSE had half the risk of teen pregnancy compared to those who reported AO education and 40% of the risk compared to those who reported no sex education. These researchers also found a moderately decreased likelihood of engaging in vaginal sex among adolescents who received CSE as compared with those who received no sex education, but no significant effect for AO education. Certainly there is much yet to be learned about specific programs that work, and under what conditions and in which populations and settings. And still missing is a large-scale randomized trial of exemplary CSE programs along the lines of the Trenholm and colleagues trial. In the meantime, the Kohler and colleagues study fills a critical gap in the evidence on the effectiveness of CSE, adding convergent validity to the existing favorable but imperfect school- and community-level program evaluations.

A related study from a different research group appeared in the January, 2008 issue of this journal [16]. Using a similar subset from the same 2002 NSFG dataset, Mueller and colleagues found, for those who had received any sex education, a reduced likelihood of ever having engaged in sexual intercourse among males, and a reduced likelihood of early sexual debut among both males and females. Yet this study did not consider type of sex education, potentially confounding the two-thirds of the sample who had received CSE with the 24% who had received AO. Kohler and colleagues' analyses go an important step further in contrasting

the two types of sex education. Their results suggest that findings of effectiveness attributed by Mueller and colleagues to any type of sex education can be explained by the majority of adolescents in the sample who received CSE.

In a second article in the current issue, Eisenberg and colleagues [11] report that 89% of Minnesota parents supported CSE as opposed to AO education, and that this support was ubiquitous across all subgroups based on age, race, ethnicity, religion, education, political ideology, and income. In fact, 80% or more of every subgroup examined supported CSE with the exception of the “very conservative” (51%) and “non-public-school” (75%) subgroups. Contrary to popular assumptions, 84% of “born-again Christians” also supported CSE. These results are consistent with those of the three previous peer-reviewed published surveys of parents or the general public, nationally [17] and within two other disparate states [18,19], and closely replicate the California parent survey that my research group published last year. In this survey we found an identical 89% parental support for CSE and similar consistency across subgroups, including 86% support among born-again or evangelical Christians [19]. The Eisenberg and colleagues survey moves the field further toward critical mass in demonstrating the generalizability of widespread support for CSE -- across parents and the public, states of varying geographic and demographic characteristics, and subgroups of all types.

With the prior available evidence on program effectiveness and parent support, and with what these two new articles add, one must now ask, will the sex education debates disappear and will the dysfunctional sex education policy patchwork in the United States be repaired? If indeed policy were evidence-based, it would be hard to argue otherwise. But values and politics also play a role, as they do in all public health policy. There is one small subgroup that does support AO education – not the very-conservatives or the evangelicals, but those who report morally absolutist values about sex versus those who report pragmatic, consequentialist moral values [19]. And this is the group least likely to be influenced by research-based evidence. It represents a very small minority, but one with a strong and well-heard voice. Another key factor is the manipulation of this issue for political (and often financial) benefit [6], as the AO industry lobby remains well funded, entrenched, and politically potent.

Moral values do have a place in public policy discourse, yet it is imperative for all sides to recognize that there is no evidentiary basis for AO education and that a growing foundation of convergent evidence favors CSE. For sex education policy in the United States to become evidence-based, the overwhelming majority of parents and the general public who hold pragmatic public-health-oriented moral values about this issue will need to speak more assertively [20]. To help bring this about, adolescent health professionals have a unique opportunity and responsibility to take an active advocacy role.

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