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An Evidence-Based Rebuttal to a Critique of Abstinence Education

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An influential article in the *Journal of Adolescent Health* (*JAH*), titled *Abstinence-Only-Until-Marriage: An Updated Review of U.S. Policies and Programs and Their Impact,* claims that sexual risk avoidance or abstinence education (AE) programs are "scientifically and ethically problematic" and proceeds to describe the detriments of such programs, with purportedly updated scientific evidence. In addition to criticizing AE, the *JAH* article states that, "Adolescent sexual and reproductive health promotion should be based on scientific evidence" and cites researchers who conclude that comprehensive sex education or CSE (which promotes condom/contraceptive use and may also teach abstinence) is an effective strategy. However, much of the evidence presented in this article to support its assertions is problematic. Below are evidence-based rebuttals to five of the article's key claims.[1]

1. Psychological and Physical Harms of Teen Sex

Claims by Santelli, et al.:

> The *JAH* article is critical of abstinence education advocates for suggesting that "sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects." Further, it states: "We find little evidence suggesting that consensual sex between adolescents is psychologically harmful."[2]

Rebuttal:

A substantial amount of research evidence indicates that sexual activity by adolescents, especially females, is associated with psychological and/or physical harm, harm not prevented by condom use.

a. Of the three scientific studies offered in the *JAH* article as support for its contention that teen sex is not psychologically harmful, two did not test this assertion, and the third found evidence of psychological harm that varied by gender and nationality.[3]

b. A considerable amount of evidence shows that sexual activity for adolescents, especially females, is psychologically detrimental:

- Meier (2007) found that sexual initiation was emotionally harmful for adolescents in a number of categories and circumstances: for younger teens (male or female) who

had sex and the relationship "broke up," for female teens (regardless of age) who had sex and the relationship "broke up," and for younger female teens regardless of relationship status.[4]

- Sabia (2008) found a causal relationship between sexual activity and depression for adolescent females.[5]
- Hallfors and associates found sexually active teens were at higher risk for depression and suicide—although sexual initiation was more detrimental to girls than boys.[6]
- Spriggs and Halpern found sexual debut was related to depressive symptoms for adolescent females.[7]
- Else-Quest, et al., found adolescent sexual debut was associated with lower life satisfaction afterward, for both males and females regardless of age at first sex.[8]
- In a nation-wide survey of young adult women (18-24 years old), the large majority expressed regret about initiating sexual activity: two-thirds of those who were sexually experienced said they wish they had waited longer to have sex. Only 24% said they felt happy about losing their virginity.[9]

c. The physical harms of sexual activity for adolescents are well documented:

- Teen sexual initiation is associated with a higher rate of dating violence (sexually active high school girls are almost five times more likely to be victimized by dating violence than girls who are abstinent) and younger sexually active teens have a high likelihood of sexual exploitation (approximately 50% have experienced statutory rape).[10] These harms are not preventable by contraceptive use.
- In addition to high levels of teen pregnancy, in the U.S., sexually transmitted diseases (STDs) are at epidemic levels in teens and rising (according to the Centers for Disease Control and Prevention "1 in 4 sexually active adolescent females has an STD").[11]
- Even consistent condom use provides only partial STD protection, ranging from 30% risk reduction for genital herpes to 80% risk reduction for HIV transmission.[12]
- Delaying sexual initiation is recommended by experts as a key strategy for HIV reduction.[13]

d. Sexual activity is disproportionately harmful to minority youth.

- According to O'Donnell, et al., "Early sexual initiation is associated with multiple negative health outcomes for which minority youth and young adults are at disproportionate risk, including HIV and AIDS, [STDs], unintended pregnancy … and intimate partner violence."[14] In the U.S., almost one-half (44%) of African American teenage girls has an STD, and among female teens who are infected with HIV, 71% are African American.[15]

- These disproportionate physical consequences of sexual activity also represent disproportionate sources of psychological distress in the lives of minority youth.

Thus, the *JAH* article seems to disregard the consistent evidence that sexual activity is harmful to adolescent females, especially those who are African American.

2. Effectiveness of Comprehensive Sex Education (CSE)

Claims by Santelli, et al.:

> The *JAH* article states that, "Adolescent sexual and reproductive health promotion should be based on scientific evidence" and cites researchers who claim comprehensive sex education is an effective prevention strategy.[16]

Rebuttal:

Many, if not most, U.S. adolescents who receive sex education receive it in a school setting, and the research evidence does not show that school-based comprehensive sex education programs have been effective.

a. Santelli, et al., cite a meta-analysis sponsored by the CDC as concluding "[CSE] programs were an effective strategy for reducing adolescent pregnancy and STI/HIV among adolescents."[17]

   - However, this same CDC-sponsored study found that CSE programs in school settings did not produce statistically significant effects on many of the most important protective outcomes: teen condom use, use of protection (meaning condom or contraception use), teen pregnancy, or STDs.[18]
   - Moreover, the effect for school-based CSE on teen pregnancy was in the wrong direction, suggesting that some of these programs had *increased* rather than decreased pregnancy rates.[19]

b. The Santelli article references a recent review of school-based sex education (Denford, et al., 2017). Not mentioned is that this review found inconsistent results for CSE programs in schools—including many null and some negative effects—and stated the evidence would not support drawing conclusions about CSE:

> "Whilst positive changes in reported behaviour were observed in some studies, findings were not consistent enough to draw firm conclusions (Jones et al., 2009a; Kim & Free, 2008; Kirby, 2005, 2007; Underhill et al., 2008; Yamada et al., 1999). Indeed, some studies found improvements while others reported negative or null effects for the same outcome. Health-related outcomes were rarely reported, and when they were, few positive changes were observed (DiCenso et al., 1999; Jones et al., 2009a; Kirby, 2005, 2007; Underhill et al., 2008). One review presented evidence that, in some instances, comprehensive programmes may increase sexual

intercourse (Kirby, 2005) …" and, "It was often not possible to identify … change that could be attributed to exposure to an intervention … positive changes were inconsistent."[20]

c. This lack of evidence for school-based comprehensive sex education effectiveness was confirmed by the results of a recently published peer-reviewed study that reviewed 60 of the strongest and most up-to-date studies of school-based CSE programs in the U.S., studies that were screened for adequate research quality by HHS, CDC, or UNESCO. The reviewers applied criteria for program effectiveness derived from the field of prevention research (effects sustained 12 months after the program on key protective indicators for the targeted population, without concurrent negative effects) to these programs and found far more evidence of CSE failure than success (see their review for full documentation of the findings below[21]):

- Out of the 60 U.S. school-based CSE studies, none demonstrated sustained reductions in teen pregnancy or STDs. One program produced a short-term reduction in teen pregnancy in one study but was found to *increase* teen pregnancy in a separate study.[22]
- Only one school-based CSE program reported sustained increases in teen abstinence (12 months after the program) without other negative effects, but multiple replication studies did not confirm these positive results.[23]
- None of the school-based CSE programs showed effectiveness at increasing *consistent* condom use by teens (consistent use is required for meaningful STD protection). The one program that reported a sustained effect (*¡Cuídate!*), in a study by the program's authors, was found in an independent replication study to have no positive effects and several harmful impacts (it *increased* multiple sexual risk behaviors). This negated the program's claim to effectiveness (as defined by the field of prevention research).[24]
- Just two studies (conducted by the programs' developers) showed effectiveness at producing 12-month increases in *frequency* of condom use (a less-protective behavior than *consistent* use) without other negative effects, but these findings have not been replicated.[25]
- Seven of the U.S. school-based CSE studies (12% or about one in eight) found significant negative effects: either an increase in teen sexual initiation, recent sex, oral sex, or pregnancy, or a decrease in contraceptive use.[26]

3. Effectiveness of Abstinence Education

Claims by Santelli, et al.:

According to the *JAH* article, research shows that abstinence education (AE) programs are ineffective and suggests they do harm by decreasing adolescent contraceptive use.

Rebuttal:

The evidence given for these claims is problematic. Research actually shows promising results for abstinence education at increasing teen abstinence and strong evidence that abstinence education does not decrease condom use.

a. Much of the supporting evidence cited in the Santelli article is dated and redundant—it does not contain the most recent studies of school-based abstinence education, and many of the supporting citations contain the same set of older AE research reviews.

b. Most of these older reviews of AE research cited by Santelli, et al., are undermined by the inclusion of several ostensibly rigorous AE studies that have serious methodological concerns. The Kirby review (2007), the Underhill review (2007), the CDC-sponsored review (2012), and the Denford review (2017) cited as sources in the *JAH* article contain most of these problematic AE studies (up to six in all) in which the studies' research design would be expected to underrepresent the impact of the AE programs they evaluated. (See endnote for details.[27])

c. Thus, the *JAH* article does not represent the current and best research evidence for AE effectiveness. (Abstinence education is defined here as programs that teach abstinence/risk avoidance as the prevention method, and do not promote condom/contraceptive use). This evidence shows the following:

- In the database of school-based sex education studies cited above (peer reviewed for adequate research quality by either HHS, the CDC, or UNESCO), seven of the 17 studies of AE showed delayed sexual initiation at least 12 months after the program.[28] (Replication studies should be conducted to verify these results.[29])
- The effect of AE on pregnancy or STDs is largely unknown because AE studies typically have not measured those outcomes. However, it can be safely assumed that the delay in sexual initiation produced by the seven AE programs would offer significant protection from these harms.
- This same body of studies produced strong evidence refuting the claim that AE reduces teen condom use. Of the nine rigorous studies that measured AE impact on condom use, eight found no negative program effects and one showed a significant 12-month *increase* in teen condom use.[30]
- With regard to negative impacts, just one out of 17 AE studies found a negative program effect (increased number of partners),[31] which was 6% of the school-based AE studies, compared to 12% of the school-based CSE studies in the U.S.

4. Impact of Virginity Pledges

Claims by Santelli, et al.:

> The Santelli article suggests that negative findings for teens who have taken a "virginity pledge" (a pledge to be abstinent until marriage) indicate a lack of effectiveness of abstinence education, and specifically, that taking a virginity pledge causes higher teen pregnancy and STD rates. These claims are not supported by the evidence.

Rebuttal:

Taking a virginity pledge is not the equivalent of receiving abstinence education. Moreover, virginity pledges have produced more positive or null effects than negative effects in multiple outcome studies; the evidence on pregnancy and condom use is inconsistent.

Merely taking a virginity pledge cannot be equated to participating in an abstinence education curriculum, and the results of taking such a pledge cannot be generalized to AE, as was done in the *JAH* article. Some pledges are made after attending only a single religious youth rally or a one-time assembly at school. This is a very different type of intervention than the typical multi-session, multi-dimensional AE program.

Keeping this "apples to oranges" comparison in mind, the research on virginity pledges shows:

a. Eight published studies have examined the long-term effects of virginity pledges but the *JAH* article cites only three and does not report the findings of the others.

b. The three studies cited by the Santelli article all use the same database, with all measuring the effects of taking a virginity pledge five to seven years after the fact. This length of duration for a program effect is an unrealistic expectation for most behavior change interventions and is a much longer duration than has typically been tested in CSE studies.

c. Overall, the eight studies found more positive or null effects than negative impacts from taking a virginity pledge. It should be remembered that these "effects" were measured five to seven years after the pledge occurred and do not represent the effects of abstinence education programs:

   - Five of the eight studies found pledging reduced teen sexual activity: five reported delayed sexual initiation, and three of the five also found a reduced number of sex partners.[32]
   - The four studies that measured STD rates found no overall impact of pledging;[33] although one of the studies searched and found a small, high-risk subgroup of "pledgers" that had an increase.[34]

- Two studies found no difference in oral/anal sex rates,[35] and one study found an increase in likelihood of oral sex, but only for those who had not had vaginal sex.[36]
- Five to seven years later, the effects of pledging were mixed for teen pregnancy and condom use: one study found a reduction in teen pregnancy and one found a slight increase;[37] three studies found no effects on condom use[38] while three others showed a reduction.[39] (This compares to the nine rigorous studies of actual AE programs, mentioned above, that measured impact on condom use and found no reduction.)

5. The Best Protection for Teens

Claims by Santelli, et al.:

> The *JAH* article recommends comprehensive sex education (CSE) over abstinence education (AE), claiming it provides superior protection for adolescents.

Rebuttal:

Research evidence supports the opposite conclusion: it shows abstinence education has provided protection that is superior to comprehensive sex education for adolescent populations in U.S. schools.

a. Given that the partial protection provided by condom use is inferior to the total protection of abstinence, if a CSE program increases teen condom use but not abstinence, it does not offer a superior benefit to an AE program that produces a comparable increase in abstinence. Thus, any specific CSE program should only be viewed as offering superior protection over an effective AE program if it increases *both* teen abstinence and condom use (by the sexually active) *for the same teen population within the same program*.

b. Research shows school-based CSE programs have not been effective at producing this dual benefit. In the above database containing 60 of the best U.S. studies of school-based CSE:
   - None showed evidence of effectiveness at increasing both teen abstinence and condom use within the same program/population, 12 months after the program.[40]
   - Only three programs showed evidence of short-term effects on both outcomes.[41]

c. In the same database (containing 17 AE studies in the U.S.) there was more evidence of effectiveness for school-based AE than CSE programs at protecting teens and more evidence of harm by CSE programs than AE programs:
   - Seven school-based CSE studies (12%) found harmful program effects compared to one school-based AE study (6%).[26,31]
   - Seven out of 17 AE studies showed effectiveness at delaying sexual initiation—a 12-month post-program effect for the target population, without other negative effects.[28] (Two replication studies have been done, with inconsistent results.[29]) This compares

to one out of 60 school-based CSE studies that showed effectiveness at delaying teen sexual initiation and only two that showed effectiveness at increasing teen condom use.[25] (The studies were conducted by the programs' developers and the initial positive results have not been replicated.[23])

- These findings seem to support a statement by Douglas Kirby, Ph.D., one of the foremost sex education researchers of the past three decades, who said, "…it may actually be easier to delay the onset of intercourse than to increase contraceptive practice."[42]

d. According to the CDC, only abstinence provides superior and complete protection, as expressed in the following position statement, currently posted on their website:

> "Abstinence from vaginal, anal, and oral intercourse is the only 100% effective way to prevent HIV, other STDs, and pregnancy. The correct and consistent use of male latex condoms can reduce the risk of STD transmission, including HIV infection. However, no protective method is 100% effective, and condom use cannot guarantee absolute protection against any STD or pregnancy."[43]

In light of this evidence, several comments in the "Summary" section of the *JAH* article would seem to apply better to school-based CSE than to AE. This can be illustrated by substituting "school-based CSE" for "AOUM (Abstinence-Only-Until-Marriage)" in these statements made on page 278: "[School-based CSE] programs have little demonstrated efficacy in helping adolescents to delay intercourse [or increase condom use] … While [school-based CSE] is theoretically … protective against pregnancy and STIs, in actual practice, [school-based CSE] programs fail to prevent these outcomes. [School-based CSE] programs have generated considerable political support … despite their lack of scientific evidence of efficacy."

The article concludes by saying that governments should support "evidence-based, and scientifically justified approaches to sexuality education for young people."[44] We wholeheartedly agree and urge policy-makers to examine the scientific evidence presented here.

ENDNOTES

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20. Denford, S., Abraham, C., Campbell, R., et al. (2016). A comprehensive review of reviews of school-based interventions to improve sexual-health. *Health Psychology Review, 11*(1), 33-52, see pp.39 and 47. In spite of *reporting* that CSE "findings were not consistent enough to draw firm conclusions" (p.39), the study's Abstract asserts that "comprehensive interventions … were found to be effective."

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27. One major source of the perception that abstinence education (AE) is ineffective comes from the findings of six problematic AE studies: four produced in a 2007 evaluation by Mathematica Policy Research, Inc., (Trenholm, C., Devaney, B., Fortson, K., Quay, L., Wheeler, J., & Clark, M. (2007). *Impacts of four Title V, Section 510 abstinence education programs*. Princeton, NJ: Mathematica Policy Research) and two other studies erroneously treated as evaluations of AE (Clark, M. A., Trenholm, C., Devaney, B., Wheeler, J., & Quay, L. (2007). *Impacts of the Heritage Keepers® Life Skills Education component*. Princeton, NJ: Mathematica Policy Research, Inc.; Blake, S. M., Simkin, L., Ledsky, R., Perkins, C., & Calabrese, J. M. (2001). Effects of a Parent-Child Communications Intervention on Young Adolescents' Risk for Early Onset of Sexual Intercourse. *Family Planning Perspectives*, *33*(2), 52-61). These six studies have been cited by numerous reviewers as compelling evidence for AE failure. However, their shortcomings raise concerns. For the Mathematica studies: 1) While touted as having a strong experimental (randomized) evaluation design, this methodology was weakened by randomizing the treatment and control groups *within* the same schools, disregarding the fact that cross contamination would likely occur between these two groups of youth—in the lunchroom, the locker room, and after-school programs, and within peer groups outside the school setting. Students tend to ignore their random group assignment and freely "share the medicine." Thus, if the abstinence program reduces sexual behavior in the treatment group, it will also likely diminish this in the control group by reducing the number of sexual partners available to them. So, a reduction in sexual activity likely occurs in both groups as a result of the program, minimizing between group differences and the measurement of a program effect. 2) This design problem was compounded in the four studies by another methodological issue—the very young age of the program participants (ages 10-11, 11-13, 8-13, and 13). Measuring sexual behavior in a population this young typically finds such low rates that cell sizes are too small to produce statistically significant differences between program and control groups, even a year later. This limitation might have been addressed by employing appropriately longer follow-up time periods. Instead, a third major shortcoming occurred: 3) The follow-up time frames were so long—three to five years *after* the program (four to six years post baseline) and without any additional program message reinforcement during the interim—that a post-program effect on behavior could not have reasonably been expected to persist at that point. Such unusually long follow-up times have not been employed in CSE studies. These three factors in combination—randomizing within schools, unusually young subject populations, and unrealistically long follow-up time frames—argue for viewing the findings of these four studies as "inconclusive" rather than as valid evidence of AE program failure. For the Clark and Blake studies: Each of these measured the *additive effect* of a secondary program component—one was a voluntary after-school "life skills" component (that did not have abstinence as its focus), and the other was a parent-communication component—compared to the impact of the program's mandatory AE classroom curriculum alone, which served as the counterfactual in the study. *In both cases, the AE curriculum was the control condition, and the study was an evaluation of the impact of the subsidiary program component, not of the AE program. Yet these two studies have been treated as evaluations of AE classroom curricula in several important evidence reviews.* None of the six studies mentioned here found significant program effects. so their null findings combine to form a faulty evidence base that weighs heavily in most reviews of AE effectiveness and has erroneously undermined the case for AE efficacy.

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The Institute for Research and Evaluation (IRE) is a nonprofit research agency that has gained national recognition for its work evaluating sex education programs over the past 25 years. *IRE* has conducted program evaluations for federal Title V, CBAE, and Title XX projects in 30 states, and has evaluated sex education in three foreign countries, collecting data from more than 900,000 teens, and conducting over 100 evaluation studies. *IRE* staff members have published articles in academic journals and presented at professional conferences and workshops. Dr. Stan E. Weed, Founder and Director of *IRE*, has served as a national consultant for federal Title XX and CBAE projects and was a charter member of the *National Campaign to Prevent Teen and Unplanned Pregnancy* (now, *Power to Decide*). He has been invited to provide expert testimony about sex education to state legislative bodies, the U.S. Senate, the U.S. House of Representatives, and the White House.