

# The Case for Addressing Gender and Power in Sexuality And HIV Education: A Comprehensive Review Of Evaluation Studies

By Nicole A. Haberland

Nicole A. Haberland is senior associate, Population Council, New York.

**CONTEXT:** Curriculum-based sexuality and HIV education is a mainstay of interventions to prevent STIs, HIV and unintended pregnancy among young people. Evidence links traditional gender norms, unequal power in sexual relationships and intimate partner violence with negative sexual and reproductive health outcomes. However, little attention has been paid to analyzing whether addressing gender and power in sexuality education curricula is associated with better outcomes.

**METHODS:** To explore whether the inclusion of content on gender and power matters for program efficacy, electronic and hand searches were conducted to identify rigorous sexuality and HIV education evaluations from developed and developing countries published between 1990 and 2012. Intervention and study design characteristics of the included interventions were disaggregated by whether they addressed issues of gender and power.

**RESULTS:** Of the 22 interventions that met the inclusion criteria, 10 addressed gender or power, and 12 did not. The programs that addressed gender or power were five times as likely to be effective as those that did not; fully 80% of them were associated with a significantly lower rate of STIs or unintended pregnancy. In contrast, among the programs that did not address gender or power, only 17% had such an association.

**CONCLUSIONS:** Addressing gender and power should be considered a key characteristic of effective sexuality and HIV education programs.

*International Perspectives on Sexual and Reproductive Health, 2015, 41(1):31–42, doi: 10.1363/4103115*

Globally, young people are at elevated risk of STIs, HIV and unintended pregnancy. Notable gender and racial disparities exist. In the United States, for example, 2013 chlamydia rates were more than four times as high among 15–19-year-old females as among males of the same age, and the rate among black females was five times the rate among white females in that age-group.<sup>1</sup> Worldwide, in 2013, among adolescents aged 15–19, two-thirds of new HIV infections were among females.<sup>2</sup> In some countries, the disparity is even greater; for example, HIV prevalence among young people aged 15–24 in South Africa is 14% for females and 4% for males.<sup>3</sup> In addition, the consequences of unintended pregnancy, along with the associated risks of childbearing and the responsibilities of child care, fall disproportionately on females.

Along with efforts to deliver clinical services, reduce structural vulnerability<sup>4–6</sup> and foster protective social norms, a key strategy for improving adolescent sexual health outcomes has been group- and curriculum-based sexuality and HIV education. Indeed, in response to the call of international agreements such as the 1994 International Conference on Population and Development (ICPD),<sup>7–10</sup> international agencies continue to prioritize comprehensive HIV and sexuality education,<sup>11–13</sup> and many countries are undertaking national efforts or have adopted policies for education to help prevent adolescent pregnancy and HIV transmission.<sup>14–16</sup>

Sexuality education curricula may be delivered in schools, community settings or clinics as a stand-alone program or as a component of a multifaceted intervention, such as a young women's financial literacy program. These programs go by various names, including "family life education," "AIDS education" or "health education," to name a few. The term "comprehensive sexuality education" has evolved historically and continues to be used elastically. It has often been used to describe curricula of any duration that provide complete, medically accurate content, including information about contraception and condoms, regardless of whether topics such as gender, rights, equality, diversity and power are addressed. In general, the term has been used to distinguish such curricula from abstinence-only approaches.<sup>17–19</sup>

Despite extensive investments in and evaluations of sexuality and HIV education for young people, questions of effectiveness persist. Indeed, many researchers note that significant room for program improvement remains,<sup>20–26</sup> and a number of reviews have sought to tease out characteristics common to effective curriculum-based interventions.<sup>25,27,28</sup> Consensus has been reached about several of such characteristics—i.e., the benefits of comprehensive versus abstinence-only content, and of participatory, skills-building teaching approaches—but overall, the literature raises a number of questions. "What is success?" and "What exactly works?" remain matters of ongoing debate.

At least two articles have critiqued some of the reviews on methodological grounds.<sup>26,29</sup> Others noted that whether a program is deemed successful or not may depend on whether an evaluation measures a behavioral outcome or a biological or health variable. Because reported sexual behavior does not always correlate with health outcomes, and because of issues regarding reporting by intervention participants—such as the validity of self-reports of sexual behavior and the potential for social desirability bias—one review concluded that “trials with reported sexual behaviors as their outcome are insufficient.”<sup>30</sup>(p. 511) Indeed, many reviews recommend the use of a higher bar, biological outcomes, as a more reliable, objective measure of program efficacy.<sup>20,22,27,30-34</sup> Of course, tracking biological and health outcomes requires large sample sizes and substantial resources. Thus, the use of adolescents’ self-reported sexual behavior change remains the only practical option for many studies. The results of such studies can still be instructive, but impact data are preferable for generating lessons about evidence-based programs and identifying key program characteristics.

In addition, researchers have noted the difficulty of identifying key characteristics that are consistent across studies.<sup>24,35</sup> For example, Chin and colleagues found that no moderator variables—dosage (average number of program hours), setting (school or community), focus (HIV and STIs, pregnancy, or both), facilitator (adult, peer or both), number of components (single versus multiple) and targeting (tailoring of materials to participants)—were consistently associated with effectiveness or lack of effectiveness in their meta-analysis of 66 studies.<sup>17</sup> Johnson and colleagues, in their review, found that interventions were more successful when they delivered more intensive content—for example, through more sessions, more condom skills training or more motivational training—though they note that “finer grained analyses of intervention content may yield better explanation of efficacy.”<sup>28</sup>(p. 82)

This point is well taken, as only characteristics that are looked for will be found and proven or disproven as consequential. In recent years, drawing largely from the ICPD, emerging evidence, and field experiences of feminist and nongovernmental organizations in developing countries, international agencies, donor programs and researchers have increasingly highlighted gender as a topic integral to comprehensive sexuality education.<sup>19,36-40</sup> Although this approach is gaining currency on the ground in some settings, meaningful attention to gender is still far from the norm.<sup>41,42</sup> Programs have lagged in integrating a gender or power perspective into comprehensive sexuality education because there is a lack of clarity about what a gender or power perspective means, and especially, about how to implement such an approach clearly enough and with enough detail for both the educator and the learner. This article explores whether the inclusion of content focusing on gender and power matters for program efficacy and the ways in which effective curriculum-based programs have addressed gender and power.

## Rationale

A strong theoretical base supports attention to gender and power in comprehensive sexuality education. Connell’s theory of gender and power, for example, provides a rich theoretical underpinning of the social structures that characterize the gendered relationship between males and females.<sup>43</sup> Wingood and DiClemente<sup>44</sup> have extended this theory, highlighting how economic factors, relationships of unequal power and gender norms manifest in exposures and risk factors that increase women’s risk of HIV. Pulerwitz and colleagues<sup>45</sup> operationalized the concept by developing and validating the Sexual Relationship Power Scale, a tool used to measure relationship power in HIV and STI research.

In addition, a large body of empirical evidence indicates that gender and power matter for sexual and reproductive health behavior and outcomes. This evidence is consistent across three interrelated domains: gender norms (including masculinity, femininity and equality), power in sexual relationships, and intimate partner violence. Harmful gender norms have been correlated with a number of adverse sexual and reproductive health outcomes and risk behaviors, even after other variables have been controlled for. For example, studies have found that individuals who adhere to harmful gender attitudes are significantly less likely than those who do not to use contraceptives or condoms.<sup>46-51</sup> Also, compared with women and female adolescents’ reports of more equitable relationships, reports of low power in sexual relationships have been independently correlated with negative sexual and reproductive health outcomes, including higher rates of STIs and HIV infection.<sup>52-54</sup> And women and female adolescents who have experienced intimate partner violence are significantly more likely than those who have not to have a host of adverse outcomes—from low rates of condom use<sup>55-57</sup> to higher rates of pregnancy<sup>58-61</sup> and STIs or HIV infection.<sup>52,54-56,62,63</sup>

Thus, a strong rationale exists for why attention to gender and power has the potential to improve the outcomes of curriculum-based sexuality and HIV education programs for young people. But does inclusion of these topics in a group- and curriculum-based context make a difference? We could identify no rigorous studies that examined the efficacy of sexuality education programs in terms of whether they included content on gender and power. The current review was undertaken to determine what existing evaluations of interventions for young people might suggest. Mindful of researchers’ concerns regarding the strength of evidence for effectiveness and their recommendation to look at actual health outcomes (as opposed to self-reports of behavior change), the review included rigorous evaluations of group- and curriculum-based sexuality and HIV education that assessed health outcomes—specifically, pregnancy, childbearing, HIV or other STIs—to compare programs that included attention to gender and power with those that did not. This study also seeks to provide initial insight into which characteristics of gender and power programs appear to influence effectiveness.

## METHODS

The electronic databases searched were PubMed, ERIC, Cochrane Central Register of Controlled Trials and Eldis. The following search terms were used: “evaluation,” “outcome,” “impact” or “effect,” “program” or “intervention”; “HIV,” “AIDS,” “STI,” “STD,” “sexually transmitted infection,” “sexually transmitted disease” or “pregnancy;” and “adolescent,” “adolescence,” “youth,” “young people” or “teen.” The reference sections in 36 reviews, meta-analyses and systematic reviews of interventions aiming to decrease sexual risk, including three Cochrane Reviews, were hand searched, as were the Centers for Disease Control and Prevention’s Compendium of Evidence-Based HIV Prevention Interventions Web site and the Office of Adolescent Health’s Teen Pregnancy Prevention Resource Center Web site.<sup>17,20–25,28–36,64–83</sup>

Studies were included if they were evaluations of behavior-change interventions to prevent HIV, STIs or unintended pregnancy that were group- and curriculum-based, or were multicomponent interventions in which one of the main components entailed participants meeting in a group and following a curriculum; exclusively or predominantly assessed effects on adolescents aged 19 or younger; were published between 1990 and 2012; used rigorous designs, such as randomized controlled trials or quasi-experimental studies that adjusted for baseline differences; had a minimum sample size of 100; and measured the effect of the intervention on health outcomes—i.e., STIs, HIV, pregnancy or childbearing.

Programs of any length could be evaluated, and programs were not required to include all of the criteria that have been outlined in various standards for sexuality education, as long as they were not abstinence-only. The programs included in this review are typical of the diverse scope of non-abstinence-only programs that operate in much of the world.

Studies were excluded if they were conducted among special populations (such as drug users, men who have sex with men or commercial sex workers).

Criteria were established for classifying curricula as addressing gender—gender norms, gender equality, and harmful or biased practices and behavior driven by gender—and power inequalities in intimate relationships. Specifically, curricula had to go beyond the conventional content on resisting sexual advances (refusal skills) to include at least one explicit lesson, topic or activity covering an aspect of gender or power in sexual relationships—for example, how harmful notions of masculinity and femininity affect behaviors, are perpetuated and can be transformed; rights and coercion; gender inequality in society; unequal power in intimate relationships; fostering young women’s empowerment; or gender and power dynamics of condom use.

The classification of an intervention as addressing gender and power was first determined by assessing the description provided in the primary article, and when available, related articles. If this was insufficient, the curricu-

ulum or curriculum summaries were obtained; in some instances, the authors were contacted for details on program content. Notes describing the way that gender and power were addressed in the intervention were taken as needed. This content review was conducted by three researchers other than the author and was blind, i.e., information on the results of the program was not provided to the researchers.

Also, so that other potential influences on outcome could be considered, additional information was extracted about each program and study, including the study design, the theoretical basis and general description of the intervention, the duration of the intervention, and the pedagogical approach. The independent effect of each intervention on health outcomes—pregnancy, childbearing, HIV or STIs—was recorded separately.

## RESULTS

Of 8,230 citations identified, 7,614 were excluded after examination of the title. Of the remaining 616 citations, 316 were excluded after examination of the abstract, and 300 articles were reviewed in full. Twenty-seven articles (22 studies) met all inclusion criteria.<sup>84–110</sup> Of the 22 studies included in this review, 14 were conducted in the United States,<sup>84,85,88–90,93,95–97,99,100,104,105,107</sup> six in low- or middle-income countries<sup>86,91,92,94,101,108</sup> and two in high-income countries other than the United States.<sup>98,109</sup> Fifteen were randomized controlled trials,<sup>84–86,88–91,93,94,96,98,100,101,105,109</sup> and seven were longitudinal cohort studies with controls.<sup>92,95,97,99,104,107,108</sup> Sample sizes ranged from 148<sup>105</sup> to more than 9,000 participants.<sup>101</sup> Seven studies enrolled females only,<sup>85,89,90,93,99,104,105</sup> 15 included both females and males<sup>84, 86,88,91,92,94–98,100,101,107–109</sup> and none enrolled males only. Ten of the included studies were conducted in schools,<sup>84,88,91,92,95–98,107,109</sup> five in clinic settings,<sup>89,90,93,104,105</sup> four in community settings,<sup>94,99,100,108</sup> two in multiple settings<sup>86,101</sup> and one at a Marine recruit training base (Appendix Table 1).<sup>85</sup>

### Program Efficacy

About half of the programs (10) demonstrated significant decreases in pregnancy,<sup>84,86,89,100</sup> childbearing,<sup>91</sup> STIs,<sup>89,90,93,94,105</sup> or STIs and pregnancy combined;<sup>85</sup> just over half (12) failed to show a significant, independent effect on any of these outcomes.<sup>88,92,95–99,101,104,107–109</sup> Of the 10 effective programs, five enrolled both females and males.<sup>84,86,91,94,100</sup> In one study, effects were the same for females and males (both sexes had a reduction in HSV-2 incidence, and the incidence of HIV infection and pregnancy involvement were unchanged for both).<sup>94</sup> Another study found differential effects by sex: decreased pregnancy among females, but no change in males’ reports of causing a pregnancy.<sup>100</sup> In the remaining three studies, pregnancy or childbearing information was gathered or reported for females only,<sup>84,86,91</sup> although for one of these, a subsequent study found that the program’s effect on reducing pregnancy did not differ for females and males.<sup>111</sup>

Study and program dimensions that may help explain why some comprehensive sexuality education programs were effective and others were not are examined below. Characteristics of the research designs, different aspects of interventions, and finally the gender and power content of the curricula are examined.

### Study Design and Efficacy

All studies employed rigorous designs: randomized controlled trials or longitudinal cohort studies with controls. Two-thirds (10 out of 15) of the programs that were evaluated with a randomized controlled trial achieved significant reductions in pregnancy,<sup>84,86,100</sup> childbearing,<sup>91</sup> STIs,<sup>89,90,93,94,105</sup> or STIs and pregnancy combined.<sup>85</sup> None of the programs evaluated with a longitudinal cohort study with controls demonstrated a significant independent effect on any of these indicators.<sup>92,95,97,99,104,107,108</sup>

Sample size may affect the likelihood of detecting an effect. Six studies had sample sizes of between 100 and 500 participants, two (33%) of which showed significantly decreased pregnancy or STI rates<sup>100,105</sup> and four (67%) of which did not.<sup>92,97,99,104</sup> Of the six studies with sample sizes of between 501 and 1,000 adolescents, four (67%) decreased pregnancy or STI rates<sup>84,89,90,93</sup> and two did not.<sup>88,95</sup> Ten studies had more than 1,000 participants in their sample, with four (40%) demonstrating a significant decrease in pregnancy, childbearing, STIs, or STIs and pregnancy combined,<sup>85,86,91,94</sup> and six having no significant effect on these outcomes.<sup>96,98,101,107-109</sup> Thus, while programs in the smallest sample size category were least likely to report an impact on health outcomes, some programs evaluated under even this scenario showed decreased pregnancy or STI rates. Larger sample sizes did not guarantee detection of a significant effect—only half of the studies with more than 500 participants showed significant decreases in pregnancy, childbearing or STIs.

Postintervention follow-up was six months or less in five studies; one evaluation showed a significant decrease in pregnancy risk<sup>84</sup> and four had no effect on pregnancy or STIs.<sup>92,104,107,108</sup> Nine of the 17 studies (53%) that followed participants for one year or longer found significantly decreased rates of pregnancy, childbearing or STIs,<sup>85,86,89-91,93,94,100,105</sup> and eight of the 17 did not.<sup>88,95-99,101,109</sup> For the outcomes examined, longer term follow-up (a year or more) appears more likely to detect a beneficial impact than follow-up at six months or less.

Eight of the studies were published in the 1990s, and 14 were published in 2000 or later. One of the eight studies from the 1990s showed significantly decreased pregnancy rates,<sup>84</sup> whereas the other seven studies had no effect on pregnancy or STI outcomes.<sup>92,95,96,98,99,104,107</sup> Among the 14 studies published in 2000 or later, nine (64%) had an effect on childbearing, pregnancy, STIs, or pregnancy and STIs,<sup>85,86,89-91,93,94,100,105</sup> and five did not.<sup>88,97,101,108,109</sup> Programs evaluated more recently, i.e., 2000 or later, appear more likely to demonstrate beneficial health impacts than the earlier studies.

### Pedagogy, Theory, Duration and Efficacy

As noted above, one program characteristic that has been fairly consistently correlated with effective programs is interactive, learner-centered and skills-based teaching approaches. Of the 22 programs, all but one explicitly described using interactive, participatory, learner-centered or critical thinking pedagogy. Thus, while good pedagogy may be a prerequisite for positive results, alone it is not what distinguished effective from ineffective programs.

Another characteristic cited as important for efficacy is that the program be based on a theory of behavior change (such as theory of reasoned action, health belief model, social cognitive theory, etc.) or have a clear model for how the program will lead to behavior change.<sup>79</sup> This characteristic had no explanatory power in this set of studies. Most—20 out of 22 programs—described their theory or model of behavior change. Of those that specified a theory of behavior change, half (10) significantly decreased pregnancy or STIs<sup>84-86,89-91,93,94,100,105</sup> and half (10) did not.<sup>88,95-99,101,104,107,109</sup> This finding is consistent with a recent review of HIV prevention programs for young people in Sub-Saharan Africa that found no difference in the effectiveness of programs that were based on theory and those that were not.<sup>112</sup>

Nor did intervention duration appear to differentiate effective from ineffective programs. Both sets of studies—programs that significantly decreased adverse health outcomes and programs that did not—comprised interventions with a similar range in duration: 1-2 single-session interventions, 5-8 of intermediate duration (2-17 sessions, totaling 5-50 hours), and three that ran for at least one school year.

### Program Setting, Multiple Components and Efficacy

Evaluations were conducted in multiple settings, including schools, clinics, community-based organizations, a Marine recruit training base or a mix of these. Out of the 10 evaluations conducted in schools, two (20%) found a significant independent reduction in pregnancy or childbearing,<sup>84,91</sup> and eight had no effect on pregnancy or STI outcomes.<sup>88,92,95-98,107,109</sup> Four out of five programs implemented in clinics (80%) significantly decreased STIs;<sup>89,90,93,105</sup> one of the clinic-based programs had no effect.<sup>104</sup> The four community-based programs were as likely to have had an effect on health outcomes as not: Two significantly reduced pregnancy or STI rates<sup>94,100</sup> and two did not.<sup>99,108</sup> The program implemented in a Marine recruit training base significantly decreased pregnancy and STIs (as a combined variable).<sup>85</sup> Of the two programs that were implemented in multiple settings, one had a significant, positive effect on pregnancy,<sup>86</sup> and the other had no effect on health outcomes.<sup>101</sup> Schools appeared to be more challenging settings, whereas clinic-based programs were more likely to have a significant effect.

Multicomponent interventions have been hypothesized to be more effective than single-component interventions. Of the 22 studies in this review, 14 were single-component

sexuality education interventions. Eight were multicomponent, that is, they included at least one other type of program element, such as service learning,<sup>84,88</sup> community awareness raising,<sup>86,101</sup> health services or vouchers for services,<sup>86,90,99–101,108</sup> or activities or support in nonhealth areas (e.g., jobs, academics, art, sports),<sup>99,100</sup> in addition to curriculum-based sexuality education. Half (four out of eight) of the multicomponent interventions demonstrated a significant decrease in pregnancy or STI rates,<sup>84,86,90,100</sup> and almost half (six out of 14) of the single-component interventions demonstrated such an effect.<sup>85,89,91,93,94,105</sup> This did not vary by type of component. For example, of the two programs that had a service-learning component in addition to group- and curriculum-based sexuality education, one had a significant reduction in pregnancy rates,<sup>84</sup> and the other had no effect on health outcomes.<sup>88</sup> Thus, as Chin and colleagues<sup>17</sup> found in their meta-analysis, multicomponent interventions were not found to be associated with a greater likelihood of effect than single-component interventions among these studies.

### Gender and Power Content and Efficacy

Disaggregating the evaluated programs by gender and power content found that 10 curricula included attention to issues of gender or power,<sup>84,86,89–91,94,99–101,105</sup> and 12 did not.<sup>85,88,92,93,95–98,104,107–109</sup> The two groups of curricula—those that included gender or power and those that did not—were similar in most other program aspects analyzed. Table 1 shows roughly similar breakdowns by location, female-only vs. mixed sex, sample size, last follow-up survey, whether participatory and learner-centered teaching methods were used, and whether the program was theory based. Dimensions in which programs that included attention to gender or power appeared to differ from other programs were setting, number of components and some study design aspects.

The inclusion of gender and power content exerted a powerful effect on program outcomes. Among the 10 programs that addressed gender and power, eight (80%) led to significant decreases (Table 2, page 36) in at least one of the health outcomes (pregnancy, childbearing or STIs).<sup>84,86,89–91,94,100,105</sup> In contrast, among the 12 programs that did not address gender and power, only two (17%) significantly reduced rates of pregnancy or STIs.<sup>85,93</sup>

### Other Possible Factors

Because study design characteristics and the setting of the intervention also may have led to a greater or lesser likelihood of detecting or leading to an impact, the question is whether the association between gender and power content and program efficacy still holds when considered in relation to these other characteristics.

As noted above, randomized controlled trials were far more likely to detect significant reductions in STIs, pregnancy or childbearing than were longitudinal cohort designs. If we look at the gender and power content of only the 15 programs evaluated with a randomized controlled

**TABLE 1. Characteristics of studies assessing effects of curriculum-based sexuality and HIV education interventions, by gender and power content, 1990–2012**

Characteristic	All (N=22)	Gender and power content (N=10)	No gender or power content (N=12)
<b>Location</b>			
Low- or middle-income country	6	4	2
United States	14	6	8
Other high-income country	2	0	2
<b>Setting</b>			
School	10	2	8
Clinic	5	3	2
Community	4	3	1
Multiple	2	2	0
Other	1	0	1
<b>Participants' sex</b>			
Female only	7	4	3
Mixed	15	6	9
<b>Study design</b>			
Randomized controlled trial	15	9	6
Longitudinal cohort study with control	7	1	6
<b>Sample size</b>			
100–500	6	3	3
501–1,000	6	3	3
>1,000	10	4	6
<b>Last follow-up survey</b>			
≤6 mos.	5	1	4
≥12 mos.	17	9	8
<b>Publication year</b>			
1990s	8	2	6
2000 or later	14	8	6
<b>Used participatory, learner-centered approach</b>			
Yes	21	10	11
No/not specified	1	0	1
<b>Based on theory/explicit model of behavior change</b>			
Yes	20	10	10
No/not specified	2	0	2
<b>Components</b>			
Single	14	4	10
Multiple	8	6	2

trial design, 89% (8 out of 9) of the programs that addressed gender or power had a beneficial effect, compared with 33% (2 out of 6) of those that did not (Figure 1, page 37). Larger sample size also tended to help detect an effect. Yet if only the 16 evaluations with sample sizes of greater than 500 are considered, 86% (6 out of 7) of the programs with a gender and power component led to significant reductions in STIs or pregnancy, compared with 11% (1 out of 9) without such a component. A similar pattern is found for length of follow-up: Of the 17 studies that had a postintervention follow-up of one year or longer, 78% (7 out of 9) of the programs that addressed gender or power reduced adverse health outcomes, compared with 25% (2 out of 8) of those that did not. And, when only the 14 studies published since 2000 were considered, 88% (7 out of 8) of the programs that addressed gender or power were found to be effective in decreasing STIs or pregnancy, com-

pared with 33% (2 out of 6) of programs that did not.

In terms of setting, only two of 10 school-based programs brought about a significant decrease in pregnancy, childbearing or STIs. These were also the only two school-based programs that addressed gender or power. Clinic-based programs were far more likely to reduce adverse health outcomes than programs implemented in other settings, with four out of five clinic-based programs proving effective. All three clinic-based programs that addressed gender or power had a positive effect, whereas only one of the other two programs had an effect.

Overall, gender or power content remains a consistently important characteristic of effective programs, even when other variables are considered.

**Are These Results Due to Chance?**

Another question that arises is whether the results of this gender analysis could reflect chance. Indeed, a critique<sup>26</sup> that has been made of lists of “programs that work” is that programs demonstrating just a single, positive effect—which may indicate that a result was achieved by chance—are typically classified as “evidence-based, effective” programs. To examine whether the findings regarding the importance of addressing gender and power may have been due to chance, the evaluations categorized as effective were examined for evidence of other positive effects, such as increased reports of condom use, decreased number of partners, improved self-efficacy and reductions in intimate partner violence. Among the eight programs that addressed gender and power and demonstrated significant decreases in pregnancy or STIs, all eight also found significant, independent beneficial effects on reported behavior, attitudes, or other desirable health or social out-

comes. Most reported several additional positive effects. In contrast, of the two programs that did not address gender or power that found a significant effect on any health outcome (i.e., decreases in STIs, pregnancy, or STIs and pregnancy as a combined outcome), only one of them also had positive effects on reported behaviors, knowledge and self-efficacy;<sup>93</sup> the other program had no effect on any self-reported risk behavior (multiple partners, casual partners or inconsistent condom use).<sup>85</sup> Nine out of 10 programs that found reductions in pregnancies or STIs also demonstrated decreases in other risk factors, and it is thus highly unlikely that their effect on health outcomes was by chance. The one “effective” program that considered STIs and pregnancy as a combined outcome but did not show a decline in other risk behaviors did not address gender or power.

**How Do Successful Programs Approach Gender and Power?**

Finally, this review sought to identify the specific qualities of a gender and power program that may contribute to positive results. Despite the small number of programs, some common characteristics emerged. In addition to the interactive and learner-centered pedagogical approaches noted above, these elements included:

- *Explicit attention to gender or power in relationships.* This approach includes providing teachers with specific content, activities and vocabulary to explore gender stereotypes and power inequalities in intimate relationships. Some also provide explicit instructions for handling subtle, and not so subtle, sexual or homophobic harassment. A notable contrast is the SHARE program.<sup>109</sup> Although the authors of the study thoughtfully consider how power and gender norms relate to sexual behavior,<sup>113,114</sup> the curricu-

**TABLE 2. Studies assessing effects of curriculum-based sexuality and HIV education interventions, by gender and power content and outcome**

Study	Intervention	Setting	Gender or power included?	Positive effect on health outcome?
Boyer et al. <sup>85</sup>	FOCUS	Marine recruit training base	No	Yes
Coyle et al. <sup>88</sup>	All4You!	School	No	No
Fawole et al. <sup>92</sup>	Comprehensive health education	School	No	No
Jemmott et al. <sup>93</sup>	Sisters Saving Sisters	Adolescent medicine clinic	No	Yes
Kirby et al. <sup>95</sup>	Reducing the Risk	School	No	No
Kirby et al. <sup>96</sup>	Project SNAPP	School	No	No
Lieberman et al. <sup>97</sup>	IMPACT	School	No	No
Mitchell-DiCenso et al. <sup>98</sup>	McMaster Teen Program	School	No	No
Smith, Weinman and Parrilli <sup>104</sup>	Condom motivation education	Teen health clinic	No	No
Walter and Vaughan <sup>107</sup>	AIDS prevention curriculum	School	No	No
Wang et al. <sup>108</sup>	Comprehensive sex education	Community	No;	No
Wight et al., <sup>109</sup> Henderson et al. <sup>110</sup>	SHARE	School	No	No
Allen et al. <sup>94</sup>	Teen Outreach Program	School	Yes	Yes
Cowan et al., <sup>96</sup> Cowan et al. <sup>87</sup>	Regai Dzive Shiri	School, community, health services	Yes	Yes
DiClemente et al. <sup>89</sup>	SIHLE	Community health agency	Yes	Yes
DiClemente et al. <sup>90</sup>	HORIZONS	Clinic	Yes	Yes
Dupas <sup>91</sup>	Relative Risk Information Campaign	School	Yes	Yes
Jewkes et al. <sup>94</sup>	Stepping Stones	Community	Yes	Yes
Nicholson and Postrado <sup>99</sup>	Girls Inc. Preventing Adolescent Pregnancy Program	Community-based organization	Yes	No
Philliber et al. <sup>100</sup>	Children’s Aid Society–Carrera Program	Community-based youth agency	Yes	Yes
Ross et al. <sup>101</sup> (also Obasi et al., <sup>102</sup> Doyle et al. <sup>103</sup> )	MEMA kwa Vijana	School, community, health services	Yes	No
Thurman et al. <sup>105</sup> (also Shain et al. <sup>106</sup> )	Project SAFE	Public health clinic	Yes	Yes

lum itself does not provide explicit activities or tools for teachers to engage learners in these topics. The evaluation found no effect on pregnancy or on reported behaviors.

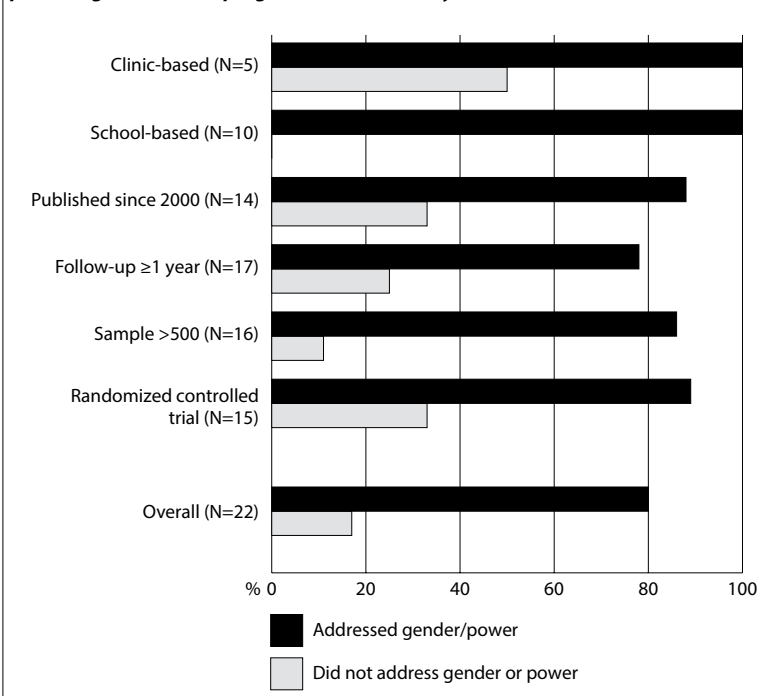
- **Fostering critical thinking about how gender norms or power manifest and operate.** Depending on the local context, this element may include critically examining and analyzing images of females in visual media and music,<sup>89,90,100</sup> harmful practices such as early marriage,<sup>94</sup> power disparities in relationships caused by economic or age differences,<sup>91,94</sup> or how some of the differences in the ways males and females express their sexuality are the result of gender stereotypes.<sup>84</sup>

- **Fostering personal reflection.** Participants are given opportunities to reflect on how the contextual factors of gender and power relate to their own life, sexual relationships or health. The Teen Outreach Program, for example, asks participants to think about how messages about gender affect their relationships, sexual and otherwise.<sup>84</sup> SIHLE, HORIZONS, Stepping Stones, the Children’s Aid Society–Carrera program and Project Safe explore how power operates in relationships and why it makes it difficult to protect one’s health.<sup>89,90,94,100,105</sup> The ways programs foster such reflection varies. Some use personal writing exercises, another asks participants to think about their own current and past relationships while playing a game about relationship types and situations, and others provide short case studies and facilitate discussions about how power inequality and gendered sexual scripts influence condom use. Many programs also address sexual coercion and intimate partner violence.<sup>84,89,90,94</sup> In contrast, MEMA kwa Vijana’s multi-year curriculum, which did not decrease STIs or pregnancy, has a single session on gender but focuses on the equal abilities of males and females, rather than taking the next step to help participants reflect on how gender norms and stereotypes affect relationships, power, sexual and reproductive health, or HIV. Indeed, in a process evaluation of the program and reflection on barriers to and facilitators of change, the authors conclude that the intervention did not sufficiently address systemic social or structural factors, including gender.<sup>115</sup>

- **Valuing oneself and recognizing one’s own power.** Acknowledging one’s power to effect change in one’s own life, relationship or community is another consistently recurring theme in the successful gender and power programs. For example, the Teen Outreach Program engages participants in community service,<sup>84</sup> and the Children’s Aid Society–Carrera program is undergirded by a belief in participants’ “pure potential.”<sup>100</sup> Some programs for females aim to foster gender pride.<sup>89,90,105</sup> Many emphasize young women’s power, strength, self-respect and agency.<sup>89–91,94,105</sup> In settings where racialized social structures may affect one’s sense of self-worth, some programs interweave gender pride with ethnic or racial pride. For example, in the United States, SIHLE fosters young women’s pride in being black and female, and includes reading and analyzing poetry by famous black female writers.<sup>89</sup>

These qualities—addressing gender and power explic-

**FIGURE 1. Percentage of effective programs that addressed gender and power versus percentage of effective programs that did not, by selected characteristics**



itly, using participatory and learner-centered teaching approaches, fostering both critical thinking and personal reflection about how these concepts affect one’s own life and relationships, and valuing one’s own potential as an individual and as a change agent—overlap and reinforce each other, helping learners to apply the content to their own sexual and reproductive lives.

## DISCUSSION

The nearly opposite outcomes of programs that address gender and power and programs that do not is striking. This finding is consistent with theory, as well as with the body of evidence that links gender, power and intimate partner violence with sexual and reproductive health outcomes, including HIV. It echoes the increasingly frequent call to address the multiple contextual factors that shape adolescent sexual behavior.<sup>30,66,67,116,117</sup> Indeed, reviews of adolescent sexual risk reduction programs in South Africa by Harrison and colleagues looked beyond individual-level pathways and concluded that addressing contextual factors such as gender and poverty was important for success.<sup>22</sup> Findings are also consistent with reviews of more diverse program types—i.e., reviews that included different kinds of interventions, not just those that were focused on adolescents and were group- and curriculum-based. These reviews have found that programs that address gender or power have positive effects on sexual and reproductive health—including knowledge, attitudes, reported behavior change and health outcomes.<sup>118,119</sup>

A main limitation of this review, as with all reviews, is the possibility of missing eligible studies. While resources precluded perusal of additional databases such as Psyc-

INFO and CINAHL, multiple databases were searched thoroughly and the references from 36 reviews and meta-analyses (most of which were themselves the product of broad searches) were hand searched. It is therefore likely that most, if not all, eligible studies were identified. Several other common limitations to systematic reviews were addressed: By setting a high bar for the measurement of effectiveness—the achievement of positive health outcomes—this review avoids the pitfall regarding the reliability of self-reported attitudes and behavior change. The drawback to ensuring a sample of studies with more reliable results, however, is that using a higher bar may in some way have biased the types of interventions included. Possible explanatory variables such as program duration, study design, pedagogical approach or inclusion of additional program components do not seem to be confounding the effects observed. Finally, the possibility of including chance findings was reduced by examining effects on the range of indicators that evaluations measured.

This review provides strong evidence that content on gender and power in intimate relationships should be considered a key characteristic of effective sexuality and HIV education. Many of the programs that addressed gender and power and significantly reduced pregnancy and STIs shared the following elements: They addressed gender and power explicitly, used participatory and learner-centered teaching approaches, facilitated critical thinking about gender and power in participants' society, fostered personal reflection about how these concepts affect one's own life and relationships, and helped participants value their own potential as individuals and as change agents.

Rigorous impact evaluations that compare models with and without a strong gender and power approach and a control would of course further add to this discussion. However, until such a body of work emerges, the theory, the antecedent evidence and the evaluation evidence reviewed here, all of which point to the import of gender and power, provide a powerful and persuasive argument for a shift toward programs that place attention on gender and power—or what may be termed an “empowerment” approach to sexuality education.<sup>120</sup>

There are also implications for research. This review strongly concurs with the recommendations of others to use biological outcomes as a measure of efficacy when applicable and feasible, and to provide greater detail in reporting of interventions and control conditions.<sup>20,22,27,30–34</sup> To advance further understanding of the potential impact for young people of sexuality and HIV education that addresses gender and power, a wider range of indicators must be included in evaluation studies. These include explanatory and outcome variables that measure gender attitudes, agency, power in relationships, critical thinking skills, intimate partner violence, advocacy or civic participation, school environment and safety, schooling outcomes, and school connectedness. Doing so will allow us to better understand the pathways through which an intervention operates, as well as expand the vision for what sexuality

and HIV education can help achieve. Specifically, it can increase the chances that young people will have relationships characterized by equality, respect and nonviolence, and incur the benefits that such characteristics bring for a host of other outcomes.

## REFERENCES

- Centers for Disease Control and Prevention, *Sexually Transmitted Disease Surveillance 2013*, Atlanta, GA, USA: U.S. Department of Health and Human Services, 2014.
- Joint United Nations Programme on HIV/AIDS (UNAIDS), *All In #EndAdolescentAIDS*, Geneva: UNAIDS, 2015, <[http://www.unaids.org/sites/default/files/media\\_asset/20150217\\_ALL\\_IN\\_brochure.pdf](http://www.unaids.org/sites/default/files/media_asset/20150217_ALL_IN_brochure.pdf)>, accessed Feb. 19, 2015.
- UNAIDS, *Global Report: UNAIDS Report on the Global AIDS Epidemic 2013*, Geneva: UNAIDS, 2013.
- Erulkar AS and Muthengi E, Evaluation of Berhane Hewan: a program to delay child marriage in rural Ethiopia, *International Perspectives on Sexual and Reproductive Health*, 2009, 35(1):6–14.
- Pronyk PM et al., Effect of a structural intervention for the prevention of intimate-partner violence and HIV in rural South Africa: a cluster randomised trial, *Lancet*, 2006, 368(9551):1973–1983.
- Baird SJ et al., Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial, *Lancet*, 2012, 379(9823):1320–1329.
- United Nations (UN), *Report of the International Conference on Population and Development*, New York: UN, 1995.
- UN, Fourth World Conference on Women, *Beijing Declaration and Platform for Action*, 1995, <<http://www.un.org/womenwatch/daw/beijing/platform>>, accessed Aug. 11, 2014.
- UN Commission on Population and Development, Resolution 2009/1 (para 7) E/CN.9/2009/5, <[http://www.un.org/en/development/desa/population/commission/pdf/42/CPD42\\_Res2009-1.pdf](http://www.un.org/en/development/desa/population/commission/pdf/42/CPD42_Res2009-1.pdf)>, accessed Feb. 22, 2014.
- UN Commission on Population and Development, Resolution 2012/1 Adolescents and youth (para 26) E/CN.9/2012/8, <[http://www.un.org/en/development/desa/population/pdf/commission/2012/country/Agenda%20item%208/Decisions%20and%20resolution/Resolution%202012\\_1\\_Adolescents%20and%20Youth.pdf](http://www.un.org/en/development/desa/population/pdf/commission/2012/country/Agenda%20item%208/Decisions%20and%20resolution/Resolution%202012_1_Adolescents%20and%20Youth.pdf)>, accessed Feb. 22, 2014.
- United Nations Population Fund (UNFPA), *UNFPA Framework for Action on Adolescents & Youth: Opening Doors with Young People: 4 Keys*, New York: UNFPA, 2007.
- UNAIDS, *Getting to Zero: 2011–2015 UNAIDS Strategy*, Geneva: UNAIDS, 2010.
- United Nations Educational, Scientific and Cultural Organization (UNESCO), *UNESCO's Strategy for HIV and AIDS*, Paris: UNESCO, 2011.
- U.S. Department of Health and Human Services, Office of Adolescent Health, Teen pregnancy prevention, <[http://www.hhs.gov/ash/oah/oah-initiatives/teen\\_pregnancy/about/](http://www.hhs.gov/ash/oah/oah-initiatives/teen_pregnancy/about/)>, accessed Sept. 16, 2014.
- Republic of Namibia, *National Strategic Framework for HIV and AIDS Response in Namibia 2010/11–2015/16*, Windhoek, Namibia: Solitaire Press, 2010.
- UNESCO Bangkok, *Review of Policies and Strategies to Implement and Scale Up Sexuality Education in Asia and the Pacific*, Bangkok: UNESCO Bangkok, 2012.
- Chin HB 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, *American Journal of Preventive Medicine*, 2012, 42(3):272–294.
- Fonner VA et al., School based sex education and HIV prevention in low- and middle-income countries: a systematic review and meta-analysis, *PLoS ONE*, 2014, doi: 10.1371/journal.pone.0089692, accessed Sept. 18, 2014.



19. World Health Organization and Federal Centre for Health Education (BZgA), *Standards for Sexuality Education in Europe: A Framework for Policy Makers, Educational and Health Authorities and Specialists*, Cologne, Germany: BZgA, 2010, <<http://www.bzga-whocc.de/pdf.php?id=061a863a0fdf28218e4fe9e1b3f463b3>>, accessed Dec 15, 2014.
20. Sales JM, Milhausen RR and DiClemente RJ, A decade in review: building on the experiences of past adolescent STI/HIV interventions to optimise future prevention efforts, *Sexually Transmitted Infections*, 2006, 82(6):431–436.
21. DiClemente RJ and Crosby RA, Preventing sexually transmitted infections among adolescents: 'the glass is half full,' *Current Opinion in Infectious Diseases*, 2006, 19(1):39–43.
22. Harrison A et al., HIV prevention for South African youth: which interventions work? A systematic review of current evidence, *BMC Public Health*, 2010, doi: 10.1186/1471-2458-10-102, accessed Nov. 9, 2010.
23. Blank L et al., Systematic review and narrative synthesis of the effectiveness of contraceptive service interventions for young people, delivered in educational settings, *Journal of Pediatric and Adolescent Gynecology*, 2010, 23(6):341–351.
24. Robin L et al., Behavioral interventions to reduce incidence of HIV, STD and pregnancy among adolescents: a decade in review, *Journal of Adolescent Health*, 2004, 34(1):3–26.
25. Oringanje C et al., Interventions for preventing unintended pregnancies among adolescents, *Cochrane Database of Systematic Reviews*, 2009, Issue 4, No. CD005215.
26. Constantine NA, Intervention effectiveness research in adolescent health psychology: methodological issues and strategies, in: O'Donohue WT, Benuto LT and Woodward Tolle L, eds., *Handbook of Adolescent Health Psychology*, New York: Springer, 2013, pp. 295–322.
27. Kirby DB, Laris BA and Rolleri LA, Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world, *Journal of Adolescent Health*, 2007, 40(3):206–217.
28. Johnson BT et al., Interventions to reduce sexual risk for human immunodeficiency virus in adolescents: a meta-analysis of trials, 1985–2008, *Archives of Pediatrics & Adolescent Medicine*, 2011, 165(1):77–84.
29. Jukes M, Simmons S and Bundy D, Education and vulnerability: the role of schools in protecting young women and girls from HIV in southern Africa, *AIDS*, 2008, 22(Suppl. 4):S41–S56.
30. Ross DA, Behavioural interventions to reduce HIV risk: what works? *AIDS*, 2010, 24(Suppl. 4):S4–S14.
31. Magnussen L et al., Interventions to prevent HIV/AIDS among adolescents in less developed countries: are they effective? *International Journal of Adolescent Medicine and Health*, 2004, 16(4):303–323.
32. Michielsen K et al., Effectiveness of HIV prevention for youth in sub-Saharan Africa: systematic review and meta-analysis of randomized and nonrandomized trials, *AIDS*, 2010, 24(8):1193–1202.
33. Underhill K, Operario D and Montgomery P, Systematic review of abstinence-plus HIV prevention programs in high-income countries, *PLoS Medicine*, 2007, doi: 10.1371/journal.pmed.0040275, accessed Feb. 16, 2012.
34. Napierala Mavedzenge SM, Doyle AM and Ross DA, HIV prevention in young people in sub-Saharan Africa: a systematic review, *Journal of Adolescent Health*, 2011, 49(6):568–586.
35. Mullen PD et al., Meta-analysis of the effects of behavioral HIV prevention interventions on the sexual risk behavior of sexually experienced adolescents in controlled studies in the United States, *Journal of Acquired Immune Deficiency Syndromes*, 2002, 30(Suppl. 1):S94–S105.
36. UNESCO, *International Technical Guidance on Sexuality Education, Volume I: The Rationale for Sexuality Education*, Paris: UNESCO, 2009.
37. Rogow D and Haberland N, Sexuality and relationships education: toward a social studies approach, *Sex Education*, 2005, 5(4):333–344.
38. Braeken D et al., *IPPF Framework for Comprehensive Sexuality Education*, London: International Planned Parenthood Foundation, 2010.
39. UNFPA, *UNFPA Operational Guidance for Comprehensive Sexuality Education: A Focus on Human Rights and Gender*, New York: UNFPA, 2014.
40. UNFPA, *Comprehensive Sexuality Education: Advancing Human Rights, Gender Equality and Improved Sexual and Reproductive Health*, Bogotá, Colombia: UNFPA, 2010.
41. Haberland N and Rogow D, Sexuality education: emerging trends in evidence and practice, *Journal of Adolescent Health*, 2015, 56(Suppl. 1):S15–S21.
42. Herat J et al., Missing the target: using standardised assessment tools to identify gaps and strengths in sexuality education programmes in West and Central Africa, paper presented at the 20th International AIDS Conference, Melbourne, Australia, July 20–25, 2014.
43. Connell RW, *Gender and Power: Society, the Person and Sexual Politics*, Stanford, CA, USA: Stanford University Press, 1987.
44. Wingood GM and DiClemente RJ, Application of the theory of gender and power to examine HIV-related exposures, risk factors and effective interventions for women, *Health Education & Behavior*, 2000, 27(5):539–565.
45. Pulerwitz J, Gortmaker SL and DeJong W, Measuring sexual relationship power in HIV/STD research, *Sex Roles*, 2000, 42(7/8):637–660.
46. Zambrana RE et al., Latinas and HIV/AIDS risk factors: implications for harm reduction strategies, *American Journal of Public Health*, 2004, 94(7):1152–1158.
47. Impett EA, Schooler D and Tolman DL, To be seen and not heard: femininity ideology and adolescent girls' sexual health, *Archives of Sexual Behavior*, 2006, 35(2):131–144.
48. Tang CS, Wong CY and Lee AM, Gender-related psychosocial and cultural factors associated with condom use among Chinese married women, *AIDS Education and Prevention*, 2001, 13(4):329–342.
49. Karim AM et al., Reproductive health risk and protective factors among unmarried youth in Ghana, *International Family Planning Perspectives*, 2003, 29(1):14–24.
50. Pleck JH, Sonenstein FL and Ku LC, Masculinity ideology: its impact on adolescent males' heterosexual relationships, *Journal of Social Issues*, 1993, 49(3):11–29.
51. Santana MC et al., Masculine gender roles associated with increased sexual risk and intimate partner violence perpetration among young adult men, *Journal of Urban Health*, 2006, 83(4):575–585.
52. Dunkle KL et al., Gender-based violence, relationship power and risk of HIV infection in women attending antenatal clinics in South Africa, *Lancet*, 2004, 363(9419):1415–1421.
53. Raiford JL, Seth P and DiClemente RJ, What girls won't do for love: human immunodeficiency virus/sexually transmitted infections risk among young African-American women driven by a relationship imperative, *Journal of Adolescent Health*, 2013, 52(5):566–571.
54. Jewkes RK et al., Intimate partner violence, relationship power inequity and incidence of HIV infection in young women in South Africa: a cohort study, *Lancet*, 2010, 376(9734):41–48.
55. Hess KL et al., Intimate partner violence and sexually transmitted infections among young adult women, *Sexually Transmitted Diseases*, 2012, 39(5):366–371.
56. Seth P et al., Intimate partner violence and other partner-related factors: correlates of sexually transmissible infections and risky sexual behaviours among young adult African American women, *Sexual Health*, 2010, 7(1):25–30.

57. Wingood GM et al., Dating violence and the sexual health of black adolescent females, *Pediatrics*, 2001, doi: 10.1542/peds.107.5.e72, accessed June 2, 2010.
58. Miller E et al., Pregnancy coercion, intimate partner violence and unintended pregnancy, *Contraception*, 2010, 81(4):316–322.
59. Silverman JG et al., Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy and suicidality, *Journal of the American Medical Association*, 2001, 286(5):572–579.
60. Zakar R et al., Intimate partner violence and its association with women's reproductive health in Pakistan, *International Journal of Gynaecology & Obstetrics*, 2012, 117(1):10–14.
61. Pallitto CC et al., Intimate partner violence, abortion, and unintended pregnancy: results from the WHO Multi-country Study on Women's Health and Domestic Violence, *International Journal of Gynaecology & Obstetrics*, 2013, 120(1):3–9.
62. Silverman JG et al., Intimate partner violence and HIV infection among married Indian women, *Journal of the American Medical Association*, 2008, 300(6):703–710.
63. Kouyoumdjian FG et al., Intimate partner violence is associated with incident HIV infection in women in Uganda, *AIDS*, 2013, 27(8):1331–1338.
64. Paul-Ebhohimhen VA, Poobalan A and van Teijlingen ER, A systematic review of school-based sexual health interventions to prevent STI/HIV in sub-Saharan Africa, *BMC Public Health*, 2008, doi: 10.1186/1471-2458-8-4, accessed Nov. 6, 2008.
65. Underhill K, Operario D and Montgomery P, Abstinence-only programs for HIV infection prevention in high-income countries, *Cochrane Database of Systematic Reviews*, 2007, Issue 4, No. CD005421.
66. McCoy SI, Kangwende RA and Padian NS, Behavior change interventions to prevent HIV infection among women living in low and middle income countries: a systematic review, *AIDS and Behavior*, 2010, 14(3):469–482.
67. Cowan F and Pettifor A, HIV in adolescents in sub-Saharan Africa, *Current Opinion in HIV and AIDS*, 2009, 4(4):288–293.
68. Mize SJ et al., Meta-analysis of the effectiveness of HIV prevention interventions for women, *AIDS Care*, 2002, 14(2):163–180.
69. Logan TK, Cole J and Leukefeld C, Women, sex and HIV: social and contextual factors, meta-analysis of published interventions, and implications for practice and research, *Psychological Bulletin*, 2002, 128(6):851–885.
70. DiClemente RJ et al., Psychosocial predictors of HIV-associated sexual behaviors and the efficacy of prevention interventions in adolescents at-risk for HIV infection: what works and what doesn't work? *Psychosomatic Medicine*, 2008, 70(5):598–605.
71. Albarracín D et al., A test of major assumptions about behavior change: a comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic, *Psychological Bulletin*, 2005, 131(6):856–897.
72. Scott-Sheldon LAJ et al., Efficacy of behavioral interventions to increase condom use and reduce sexually transmitted infections: a meta-analysis, 1991 to 2010, *Journal of Acquired Immune Deficiency Syndromes*, 2011, 58(5):489–498.
73. Darbes L et al., The efficacy of behavioral interventions in reducing HIV risk behaviors and incident sexually transmitted diseases in heterosexual African Americans, *AIDS*, 2008, 22(10):1177–1194.
74. Bennett SE and Assefi NP, School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials, *Journal of Adolescent Health*, 2005, 36(1):72–81.
75. Tan JY et al., A meta-analysis of the efficacy of HIV/AIDS prevention interventions in Asia, 1995–2009, *Social Science & Medicine*, 2012, 75(4):676–687.
76. Eaton LA et al., Meta-analysis of single-session behavioral interventions to prevent sexually transmitted infections: implications for bundling prevention packages, *American Journal of Public Health*, 2012, doi: 10.2105/AJPH.2012.300968, accessed Jan. 17, 2013.
77. Maticka-Tyndale E and Barnett JP, Peer-led interventions to reduce HIV risk of youth: a review, *Evaluation and Program Planning*, 2010, 33(2):98–112.
78. Lopez LM et al., Theory-based interventions for contraception, *Cochrane Database of Systematic Reviews*, 2011, Issue 3, No. CD007249.
79. Lopez LM et al., Theory-based strategies for improving contraceptive use: a systematic review, *Contraception*, 2009, 79(6):411–417.
80. Crepez N et al., The efficacy of HIV/STI behavioral interventions for African American females in the United States: a meta-analysis, *American Journal of Public Health*, 2009, 99(11):2069–2078.
81. Kirby D, *The Impact of Sex Education on the Sexual Behaviour of Young People*, New York: United Nations Department of Economic and Social Affairs, Population Division, 2011.
82. Cardoza VJ et al., Sexual health behavior interventions for U.S. Latino adolescents: a systematic review of the literature, *Journal of Pediatric and Adolescent Gynecology*, 2012, 25(2):136–149.
83. Goesling B et al., Programs to reduce teen pregnancy, sexually transmitted infections and associated sexual risk behaviors: a systematic review, *Journal of Adolescent Health*, 2014, 54(5):499–507.
84. Allen JP et al., Preventing teen pregnancy and academic failure: experimental evaluation of a developmentally based approach, *Child Development*, 1997, 68(4):729–742.
85. Boyer CB et al., Evaluation of a cognitive-behavioral, group, randomized controlled intervention trial to prevent sexually transmitted infections and unintended pregnancies in young women, *Preventive Medicine*, 2005, 40(4):420–431.
86. Cowan FM et al., The Regai Dzive Shiri project: results of a randomized trial of an HIV prevention intervention for youth, *AIDS*, 2010, 24(16):2541–2552.
87. Cowan FM et al., The Regai Dzive Shiri Project: a cluster randomised controlled trial to determine the effectiveness of a multi-component community-based HIV prevention intervention for rural youth in Zimbabwe—study design and baseline results, *Tropical Medicine & International Health*, 2008, 13(10):1235–1244.
88. Coyle KK et al., All4You! A randomized trial of an HIV, other STDs and pregnancy prevention intervention for alternative school students, *AIDS Education and Prevention*, 2006, 18(3):187–203.
89. DiClemente RJ et al., Efficacy of an HIV prevention intervention for African American adolescent girls: a randomized controlled trial, *Journal of the American Medical Association*, 2004, 292(2):171–179.
90. DiClemente RJ et al., Efficacy of sexually transmitted disease/human immunodeficiency virus sexual risk-reduction intervention for African American adolescent females seeking sexual health services: a randomized controlled trial, *Archives of Pediatrics & Adolescent Medicine*, 2009, 163(12):1112–1121.
91. Dupas P, Do teenagers respond to HIV risk information? Evidence from a field experiment in Kenya, *American Economic Journal: Applied Economics*, 2011, 3(1):1–34.
92. Fawole IO et al., A school-based AIDS education programme for secondary school students in Nigeria: a review of effectiveness, *Health Education Research*, 1999, 14(5):675–683.
93. Jemmott JB III et al., HIV/STD risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic: a randomized controlled trial, *Archives of Pediatrics & Adolescent Medicine*, 2005, 159(5):440–449.
94. Jewkes R et al., Impact of Stepping Stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: cluster randomised controlled trial, *BMJ*, 2008, doi: 10.1136/bmj.a506, accessed Oct. 15, 2008.
95. Kirby D et al., Reducing the risk: impact of a new curriculum on sexual risk-taking, *Family Planning Perspectives*, 1991, 23(6):253–263.
96. Kirby D et al., An impact evaluation of project SNAPP: an AIDS and pregnancy prevention middle school program, *AIDS Education and Prevention*, 1997, 9(Suppl.1):44–61.

97. Lieberman LD et al., Long-term outcomes of an abstinence-based, small-group pregnancy prevention program in New York City schools, *Family Planning Perspectives*, 2000, 32(5):237-245.
98. Mitchell-DiCenso A et al., Evaluation of an educational program to prevent adolescent pregnancy, *Health Education & Behavior*, 1997, 24(3):300-312.
99. Nicholson HJ and Postrado LT, A comprehensive age-phased approach: Girls Incorporated, in: Miller BC et al., eds., *Preventing Adolescent Pregnancy: Model Programs and Evaluations*, Newbury Park, CA: Sage Publications, 1992, pp. 110-138.
100. Philliber S et al., Preventing pregnancy and improving health care access among teenagers: an evaluation of the Children's Aid Society-Carrera program, *Perspectives on Sexual and Reproductive Health*, 2002, 34(5):244-251.
101. Ross DA et al., Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial, *AIDS*, 2007, 21(14):1943-1955.
102. Obasi AI et al., Rationale and design of the MEMA kwa Vijana adolescent sexual and reproductive health intervention in Mwanza Region, Tanzania, *AIDS Care*, 2006, 18(4):311-322.
103. Doyle AM et al., Long-term biological and behavioural impact of an adolescent sexual health intervention in Tanzania: follow-up survey of the community-based MEMA kwa Vijana Trial, *PLoS Medicine*, 2010, doi: 10.1371/journal.pmed.1000287, accessed June 23, 2010.
104. Smith PB, Weinman ML and Parrilli J, The role of condom motivation education in the reduction of new and reinfection rates of sexually transmitted diseases among inner-city female adolescents, *Patient Education and Counseling*, 1997, 31(1):77-81.
105. Thurman AR et al., Preventing recurrent sexually transmitted diseases in minority adolescents: a randomized controlled trial, *Obstetrics & Gynecology*, 2008, 111(6):1417-1425.
106. Shain RN et al., A randomized, controlled trial of a behavioral intervention to prevent sexually transmitted disease among minority women, *New England Journal of Medicine*, 1999, 340(2):93-100.
107. Walter HJ and Vaughan RD, AIDS risk reduction among a multiethnic sample of urban high school students, *Journal of the American Medical Association*, 1993, 270(6):725-730.
108. Wang B et al., The potential of comprehensive sex education in China: findings from suburban Shanghai, *International Family Planning Perspectives*, 2005, 31(2):63-72.
109. Wight D et al., Limits of teacher delivered sex education: interim behavioural outcomes from randomised trial, *BMJ*, 2002, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC115856/>, accessed Jan. 19, 2011.
110. Henderson M et al., Impact of a theoretically based sex education programme (SHARE) delivered by teachers on NHS registered conceptions and terminations: final results of a cluster randomised trial, *BMJ*, 2007, doi: 10.1136/bmj.39014.503692.55, accessed Jan. 19, 2011.
111. Allen JP and Philliber S, Who benefits most from a broadly targeted prevention program? Differential efficacy across populations in the teen outreach program, *Journal of Community Psychology*, 2001, 29(6):637-655.
112. Michielsen K et al., Nothing as practical as a good theory? The theoretical basis of HIV prevention interventions for young people in sub-Saharan Africa: a systematic review, *AIDS Research and Treatment*, 2012, doi: 10.1155/2012/345327, accessed Sept. 22, 2014.
113. Wight D, Abraham C and Scott S, Towards a psycho-social theoretical framework for sexual health promotion, *Health Education Research*, 1998, 13(3):317-330.
114. Wight D and Abraham C, From psycho-social theory to sustainable classroom practice: developing a research-based teacher-delivered sex education programme, *Health Education Research*, 2000, 15(1):25-38.
115. Wight D, Plummer M and Ross D, The need to promote behaviour change at the cultural level: one factor explaining the

limited impact of the MEMA kwa Vijana adolescent sexual health intervention in rural Tanzania. A process evaluation, *BMC Public Health*, 2012, doi: 10.1186/1471-2458-12-788, accessed Oct. 3, 2013.

116. Coates TJ, Richter L and Caceres C, Behavioural strategies to reduce HIV transmission: how to make them work better, *Lancet*, 2008, 372(9639):669-684.
117. DiClemente RJ, Salazar LF and Crosby RA, A review of STD/HIV preventive interventions for adolescents: sustaining effects using an ecological approach, *Journal of Pediatric Psychology*, 2007, 32(8):888-906.
118. Rottach E, Schuler SR and Hardee K, *Gender Perspectives Improve Reproductive Health Outcomes: New Evidence*, Washington, DC: Population Reference Bureau, 2009.
119. Blanc AK, The effect of power in sexual relationships on sexual and reproductive health: an examination of the evidence, *Studies in Family Planning*, 2001, 32(3):189-213.
120. Rogow D et al., Integrating gender and rights into sexuality education: field reports on using It's All One, *Reproductive Health Matters*, 2013, 21(41):154-166.

## RESUMEN

**Contexto:** La educación en sexualidad y VIH fundamentada en un currículo es un soporte esencial de las intervenciones para prevenir las ITS, el VIH y los embarazos no planeados entre la gente joven. La evidencia vincula las normas tradicionales de género, la desigualdad de poder en las relaciones sexuales y la violencia de pareja íntima con resultados negativos en materia de salud sexual y reproductiva. Sin embargo, se ha dado poca atención al análisis de si el abordaje del género y del poder en los currículos de educación en sexualidad está asociado con mejores resultados.

**Métodos:** Con el fin de explorar si la inclusión de contenido relativo al género y al poder tiene importancia para la eficacia de los programas, se llevaron a cabo sondeos electrónicos y manuales para identificar evaluaciones rigurosas de educación en sexualidad y VIH provenientes de países desarrollados y en desarrollo, publicadas entre 1990 y 2012. Se desagregaron las características de las intervenciones y del diseño de los estudios de las intervenciones analizadas tomando en cuenta si abordaban o no aspectos de género y poder.

**Resultados:** De las 22 intervenciones que cumplieron con los criterios de inclusión en el estudio, 10 abordaron los temas de género o poder y 12 no lo hicieron. Los programas que abordaron el género o el poder, tuvieron cinco veces más probabilidades de ser efectivos en comparación con aquellos que no lo hicieron; 80% de estos programas se asociaron con una tasa significativamente menor de ITS o embarazo no planeado. En contraste, entre los programas que no abordaron el género ni el poder, solamente 17% tuvieron dicha asociación.

**Conclusiones:** El abordaje del género y del poder debe ser considerado como una característica clave de los programas efectivos de educación en sexualidad y VIH.

## RÉSUMÉ

**Contexte:** L'éducation à la sexualité et VIH dans le cadre du programme scolaire est un pilier des interventions de prévention des IST, du VIH et de la grossesse non planifiée parmi les jeunes. Le lien n'est plus à établir entre les normes de genre traditionnelles, le pouvoir inégal dans les relations sexuelles et la vio-

lence aux mains d'un partenaire intime, d'une part, et, d'autre part, les issues de santé sexuelle et reproductive négatives. La question de savoir si la discussion du genre et du pouvoir dans les programmes scolaires d'éducation à la sexualité est associée à de meilleurs résultats n'a cependant guère été analysée.

**Méthodes:** Pour déterminer si l'inclusion de contenu sur le genre et le pouvoir importe à l'efficacité programmatique, des recherches électroniques et manuelles ont été effectuées afin d'identifier les évaluations rigoureuses de l'éducation à la sexualité et VIH publiées dans le monde industrialisé et en développement entre 1990 et 2012. Les caractéristiques d'intervention et du plan d'étude des interventions incluses ont été désagrégées suivant qu'elles couvraient ou non les questions de genre et de pouvoir.

**Résultats:** Des 22 interventions conformes aux critères d'inclusion, 10 abordaient le genre et le pouvoir et 12, non. Les programmes des premières se sont révélés cinq fois plus effi-

caces que ceux des secondes: non moins de 80% d'entre eux sont associés à un taux d'IST ou de grossesses non planifiées significativement inférieur. En revanche, parmi les programmes omettant les questions de genre ou de pouvoir, 17% seulement présentent une telle association.

**Conclusions:** Les questions de genre et de pouvoir doivent être considérées parmi les caractéristiques essentielles d'efficacité des programmes d'éducation à la sexualité et VIH.

#### **Acknowledgments**

The author is grateful to Debbie Rogow for her valuable comments and her input into the conceptualization of this study. The author also thanks Cecilia Choi, Michelle Skaer and Eleanor Timreck for their research assistance. This research was made possible by grants from the Ford Foundation and The John D. and Catherine T. MacArthur Foundation.

**Author contact:** [nhaberland@popcouncil.org](mailto:nhaberland@popcouncil.org)

**APPENDIX TABLE 1. Summary of included studies**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Allen et al., 1997 <sup>84</sup>	United States; 25 sites nationwide; high schools	Teen Outreach Program: Pregnancy and school failure prevention program; includes volunteer service, classroom discussions of service experience and curriculum-based group sessions	RCT; 695 participants; immediate postintervention follow-up	High school students grades 9–12 (85% female, 15% male); mean age, 15.8	Positive youth development approach; establishing competence and autonomy in a context of supportive relations with adult mentors	Yes (including group discussions, exercises, role plays, guest speakers and volunteer service)	Yes	9 months (school year)	NA	NA	+ (41% lower risk of pregnancy among females)	NA	Reductions in school suspension and course failure (42% and 39%, respectively)
Boyer et al., 2005 <sup>85</sup>	United States; Marine recruit training base	FOCUS: Aims to prevent STIs, HIV and unintended pregnancy by improving knowledge about STIs, HIV, AIDS, pregnancy and contraception; modifying beliefs and attitudes that impact sexual behavior; and building communication, refusal and condom use skills	RCT; 2,157 participants; two follow-ups: One month post-training and 14 months after baseline	Female Marine recruits; 54% aged 17–18; 90% aged 21 or younger	Cognitive behavioral approach, focused on key elements of the information, motivation and behavioral skills model (IMB)	Yes (interactive group discussions and exercises, self-risk appraisal and videos)	No	Four 2-hour group sessions	0	NA	0	+ (23.9% of control group had an unplanned pregnancy or STI vs. 17.9% of the intervention group)	No main effects on any self-reported risk behavior (multiple partners, casual partners or condom use). Among participants not sexually experienced at baseline, intervention participants were less likely to have multiple partners or casual partners
Cowan et al., 2010; <sup>86</sup> Cowan et al., 2008 <sup>87</sup>	Zimbabwe; southeastern rural districts; schools, community, health services	Regai Dzive Shiri: Youth programs for schools (used MEMA Kwa Vijana curriculum, adding sessions on gender issues, communication, self-belief and self-awareness) and out of school; community-based program for parents and stakeholders; youth-friendly clinics	RCT; 4,684 respondents; impact measured in cross-sectional population-based survey; follow-up: post-intervention, i.e., four years after baseline	Female and male secondary school students; mean age, 15 at baseline; final survey age, 18–22	Social learning theory and stages of change model	Yes (participatory, including participatory theater, storytelling and role plays)	Yes	Four years	0 (no effect on HIV or HSV-2)	NA	+ (among women: significant reduction in reported current or past pregnancies in intervention arm)	NA	For males: knowledge indicators and attitude (control around sexual refusal and rights within marriage). For females: knowledge indicators, condom self-efficacy, HIV testing self-efficacy, attitudes (safe sex and condoms, gender empowerment) and ability to go to clinic if need contraception

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Coyle et al., 2006 <sup>88</sup>	United States; urban counties in northern California; schools	All4You!: Skills-based HIV, STI and pregnancy prevention curriculum delivered in classrooms and service learning activities	Cluster RCT; 988 participants; follow-ups: six, 12 and 18 months after baseline	High school students (63% male, 37% female); aged 14–≥18 years (>80% were aged 15–17)	Social cognitive theory, theory of planned behavior and social development theory	Yes (role playing, videos, group discussion, practicing correct condom use and volunteer service)	No	14-session program (about 26 hours total): nine sessions for curriculum (13.5 hours), and five sessions for service learning (12.5 hours)	NA	NA	0	NA	Improvement in three measures of condom use at six months; not significant at 12 and 18 months. Decrease in frequency of sex at six months. Decrease in non-steady partners without a condom at 18 months. Overall increase in condom and HIV knowledge. Condom self-efficacy and attitudes and beliefs about condoms favored controls. No effect on number of times tested for HIV and other STIs
DiClemente et al., 2004 <sup>89</sup>	United States; Birmingham, AL; community health agencies	SIHLE: Skills-based HIV prevention curriculum, emphasizing gender and ethnic pride, HIV knowledge, communication, condom use skills and healthy relationships	RCT; 522 participants; follow-ups: six and 12 months	Black adolescent females seeking services at community health agencies; aged 14–18; mean age, 16	Social cognitive theory and theory of gender and power	Yes (interactive group sessions, including reading poetry, role plays, cognitive rehearsal, group discussions and practicing condom use)	Yes	Four 4-hour sessions	+	NA	+	NA	Multiple: Three measures of condom use increased; decrease in new partners; improvement in HIV knowledge, partner communication, condom use self-efficacy and observed condom use skills, among other positive outcomes

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
DiClemente et al., 2009 <sup>90</sup>	United States; Atlanta, GA; clinics providing sexual health services to adolescents	HORIZONS: Group STI and HIV prevention sessions; fosters sense of cultural and gender pride; addresses individual, relational and social factors that contribute to STI and HIV risk; vouchers for male partners for STI screening and treatment; four brief telephone contacts to reinforce prevention information	RCT; 715 participants; follow-ups: six and 12 months	Black females attending sexual health clinics; aged 15–21; mean age, 17.8	Social cognitive theory and theory of gender and power	Yes (interactive; group discussion, role plays, practicing communication and condom skills)	Yes	Two 4-hour group sessions	+	NA	NA	NA	Increases for several measures of condom use; decreased douching; increased partner communication; increased condom use self-efficacy and increased STI and HIV prevention knowledge
Dupas, 2011 <sup>91</sup>	Kenya; two rural districts in western Kenya; schools	Relative Risk Information Campaign: Video on “sugar daddies”; discussion of risk of cross-generational sex and gender- and age-disaggregated data on HIV prevalence in nearby city	RCT; 328 primary schools; three follow-ups: 5–8 months, 9–12 months, 10–14 months	Grade 8 female and male students; mean age, 15	Clear pathway of behavior change specified	Yes (interactive group discussion, critical thinking, learner-centered)	Yes	40 minutes	Not available	+	Not available	Not available	Reduced pregnancies by older partners by 62%; reduced number of partners that are >5 years older
Fawole et al., 1999 <sup>92</sup>	Nigeria; Ibadan; schools	Comprehensive health education: HIV and AIDS education aimed to improve knowledge and attitudes and reduce sexual risk behaviors; includes condom demonstration	Longitudinal controlled cohort; 450 participants; follow-up: six months	Female and male public secondary school students; mean age, 17.6 (experimental) and 17.8 (control)	Not specified	Yes (films, role plays, stories, songs, debates, essays and condom demonstration)	No	Six 2–6 hour sessions	0	NA	NA	NA	Knowledge improved; attitudes about people living with AIDS improved; some reported behaviors improved (mean number of sexual partners and proportion of students who are sexually active), but no change in condom use

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Jemmott et al., 2005 <sup>93</sup>	United States; Philadelphia, PA; adolescent medicine clinic in a children's hospital	Sisters Saving Sisters: Skills-based HIV and STI risk reduction curriculum emphasizing knowledge, attitudes and skills for condom negotiation and use	RCT; 682 participants; follow-ups: three, six and 12 months	Black and Latina females attending adolescent clinic; aged 12–19; mean age, 15.5	Theory of reasoned action, social cognitive theory and theory of planned behavior	Yes (interactive and skills-based, including exercises, games, group discussions, practicing correct use of condom and role play)	No	One 4.5-hour session	+	NA	NA	NA	Multiple: Skills vs. health arms also showed positive changes for condom use; number of partners; HIV and STI knowledge; condom use intention; and confidence that they can use condoms skillfully
Jewkes et al., 2008 <sup>94</sup>	South Africa; rural setting, Eastern Cape; community	Stepping Stones: Adapted for South Africa, participatory HIV prevention program that aims to improve sexual health by building stronger, more gender equitable relationships	RCT; 1,360 males, 1,416 females; follow-ups: 12 and 24 months	Females and males aged 15–26; 75% aged ≤19 (50% of ≤19 were ≤17)	Socioecological model of behavior change	Yes (participatory learning, including critical reflection, roleplay, and drama; draws on participants' everyday lives)	Yes	50 hours over 6–8 weeks (13 3-hour single sex sessions, three meetings with male and female groups, and one community meeting)	+	NA	0	NA	Lower percentage of males reported having transactional sex at 12 months (disappeared at 24 months); lower percentage of males reported intimate partner violence at 24 months



**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Kirby et al., 1991 <sup>95</sup>	United States; California; high schools	Reducing the Risk: Curriculum focuses on knowledge, attitudes and skills that will help students avoid unprotected sex, either through abstinence or using condoms or contraceptives	Quasi-experimental; 758 participants; follow-ups: six and 18 months	High school students (47% male, 53% female); 56% in 10th grade; mean age, 15.3	Social learning theory, social inoculation theory and cognitive behavior theory	Yes (interactive, skills-based, includes role plays, activities and class discussions)	No	16 45–50-minute sessions (at the time of this evaluation, Reducing the Risk was 15 sessions)	NA	NA	0	NA	Increased knowledge and reduced unprotected sex among females who were sexually inexperienced at baseline (no effects on sexual initiation or recent sexual activity; no effect on contraceptive use for the entire sample)
Kirby et al., 1997 <sup>96</sup>	United States, Los Angeles, CA; middle schools	Project SNAPP: Pregnancy and HIV prevention program that aims to delay sexual initiation and increase condom use among youth who do have sex; includes increasing knowledge, communication and negotiating skills, and self efficacy regarding those skills	RCT; 1,657 participants; follow-ups: five and 17 months	7th grade classes (46% male, 54% female); mean age, 12.3	Social learning theory and health belief model	Yes (interactive and skills-based, uses games, role plays, group activities and guided discussion)	No	Eight sessions delivered over a 2-week period	0	NA	0	NA	Knowledge increased and two out of 21 attitudes and beliefs improved; no change in sexual or contraceptive behaviors or condom use
Lieberman et al., 2000 <sup>97</sup>	United States; New York, NY; middle schools	IMPACT: Small group-based; emphasizes abstinence and discusses contraception; aims to provide accurate information about sexuality, pregnancy and disease prevention; build communication skills; and create peer groups supportive of healthy behaviors	Longitudinal controlled cohort; 312 respondents; two follow-ups: after program completed and 12 months	Middle school students (67% female, 33% male); mean age, 12.9	Small group model based on social cognitive theory	Yes (group discussion, activities, learner-centered, builds communication skills)	No	12–14 sessions, 35–45 minutes each, over one semester	NA	NA	0	NA	Increases in locus of control and parental relationship variables; no change in self efficacy, sexual initiation or condom use

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Mitchell-DiCenso et al., 1997 <sup>98</sup>	Canada; Hamilton, ON; schools	McMaster Teen Program: Small coed groups; includes accurate information about reproductive system and puberty; offers strategies for developing responsible relationships and communication and problem-solving skills, and provides practice for implementing decisions	RCT; 3,374 participants; five follow-ups: immediately postprogram and then annually for four years	Female and male students in grades 7 and 8; mean age, 12.6	Cognitive behavioral model	Yes (learn and practice decision-making and problem-solving skills)	No	10 one-hour sessions	NA	NA	0	NA	No positive effects reported
Nicholson and Postrado, 1992 <sup>99</sup>	United States; Dallas, TX, Memphis, TN, Omaha, NE, and Wilmington, DE; community	Girls Inc. Preventing Adolescent Pregnancy Program: Includes "Growing Together" (for participants and parents to increase comfort and skill in communicating about sexuality), "Will Power/ Won't Power" (assertiveness training to postpone sexual initiation), "Taking Care of Business" (to increase participants' motivation to avoid pregnancy through education and career planning), and "Health Bridge" (connects participants to health services, including reproductive health services)	Longitudinal cohort with comparison group; 343 participants; follow-up: 2 years	Adolescent females at Girls Inc. sites; aged 12–15 at start of the study	Social learning theory and life options model	Yes (interactive, including exercises, role play, discussions and films)	Yes	Growing Together: five 2-hour sessions; Will Power/ Won't Power: six 2-hour sessions; Taking Care of Business: nine 2-hour sessions. Participants could participate in as many programs as they wanted	NA	NA	0 (participation in one or more components related to lower likelihood of becoming pregnant, but marginally significant)	NA	No change in having intercourse without birth control

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported	
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined		
Philliber et al., 2002 <sup>100</sup>	United States; New York, NY; after-school youth agencies serving inner-city populations	Children's Aid Society–Carrera Program: Focuses on reducing pregnancy; uses a youth development model (including job, academic, individual sports and art components), combined with comprehensive sexuality education, contraceptive provision, and medical and mental health care	RCT, 484 participants; follow-up: three years	Disadvantaged adolescents (55% female, 45% male); aged 13–15	Positive youth development approach; principles include treating youth as part of the family and viewing each young person as pure potential—“at promise” instead of “at risk”	Yes (including interactive activities, group discussion and critical reflection)	Yes	3 years, year-round, participants attended about 16 hours per month (activities were available five days per week, about 3 hours per day)	NA	NA (did bivariate only for this; too few births to analyze)	+	(female participants had one-third the odds of becoming pregnant of control females; no difference among males)	NA	Females also had reduced odds of currently being sexually active and elevated odds of having used a condom and hormonal contraceptive; having received good health care was significant for both males and females
Ross et al., 2007 <sup>101</sup> (also Obasi et al., 2006; <sup>102</sup> Doyle et al., 2010 <sup>103</sup> )	Tanzania; rural Mwanza region; schools, community, health services	MEMA kwa Vijana: Multicomponent program to reduce HIV, STIs, pregnancy and sexual risk behavior; includes sexuality education in schools (focuses on provision of accurate information, promotion of specific desirable behaviors and addressing misconceptions), youth friendly sexual and reproductive health services, community-based condom distribution, community-wide awareness raising activities	RCT; 9,645 participants; follow-up of cohort at three years and cross-sectional survey at 9 years postintervention	Adolescent females and males aged ≥14 who were in grades 4–6 of government primary schools; mean age, 15.7	Social learning theory	Yes (participatory, including drama, stories, and games)	Yes (but limited)	Three years: 12 40-minute sessions per year (participants entering grade 7 received only one year of the school-based component, those entering grade 6 received two years and those entering 5th grade received three years)	– (increase in gonorrhea in intervention arm at three years for females but disappeared at nine years)	NA	0	NA	Increase in knowledge and attitudes about situations when female can refuse sex (significant at three years, not at nine); fewer partners for males; more condom use reported on two measures for males (significant at three years, not at nine) and for females on one measure (a different measure at three years than at nine years)	

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Smith, Weinman and Parrilli, 1997 <sup>104</sup>	United States; Houston, TX; teen health clinics at public hospitals	Condom motivation education: Small group; focuses on STI prevention and condom use	Longitudinal controlled cohort; 205 participants; follow-up: six months	Females attending teen health clinic; mean age, 17.3	Information, motivation and behavior skills model	Yes (included games, coaching on responding to partners' reluctant to use condoms and condom demonstration)	No	One 30–45 minute class	0	NA	NA	NA	No other outcomes reported
Thurman et al., 2008 <sup>105</sup> (also Shain et al., 1999 <sup>106</sup> )	United States; San Antonio, TX; public health clinics	Project SAFE: Group-based behavioral intervention; helps participants recognize risk of contracting STIs, commit to behavior change and acquire the skills necessary to affect change; covers gendered sexual scripts, relationships and power	RCT; 148 respondents; follow-up: six and 12 months	Black and Latina females attending public health clinics; aged 14–18	Health belief model, self-efficacy theory, decision-making models and diffusion theory	Yes (role playing, interactive video, games and group discussion)	Yes	Three 3-hour sessions	+	NA	NA	NA	Behavioral outcomes including multiple partner-related variables and douching
Walter et al., 1993 <sup>107</sup>	United States; New York, NY; high schools	AIDS prevention curriculum: Aims to improve AIDS-related knowledge and beliefs, and to teach skills necessary for preventive behaviors	Longitudinal controlled cohort; 1,201 participants; follow-up: three months	Public high school students (41.5% male, 58.5% female); ninth and 11th grade; mean age, 15.7	Health belief model, social cognitive theory and model of social influence	Yes (including values clarification; role plays; negotiation skills for delaying sexual initiation and using condoms; and skills necessary to obtain condoms and use them correctly)	No	Six 1-class period sessions	0	NA	NA	NA	Significant effects for knowledge, beliefs (about susceptibility to HIV, benefits of and barriers to prevention, and norms about involvement in AIDS prevention), self-efficacy to perform AIDS-prevention actions, and lower levels of sexual risk behavior

**APPENDIX TABLE 1. Summary of included studies (continued)**

Study	Setting	Intervention name and description	Study design and sample size	Population	Theories	Used participatory, learner-centered approach?	Gender or power included?	Duration of intervention	Significant, independent effect on				Other significant positive outcomes reported
									STIs	Child-bearing	Pregnancy	STI or pregnancy combined	
Wang et al., 2005 <sup>108</sup>	China; suburban Shanghai; community	Comprehensive sex education: Covers abstinence, contraception, and healthy and safer sexual behaviors; includes several separate components: facilitated group discussions; lectures; videos; informational materials; provision of reproductive health services, counseling and contraceptives	Longitudinal controlled cohort; 2,042 respondents; follow-up: immediately postintervention	Unmarried females and males; aged 15–24; mean age, 18.5 (54–57% were ≤18)	Not stated	Not clear, possibly limited (group discussions covered correct condom use, skills needed in sexual negotiation and decision-making, but teaching methods were not specified)	No	20 months	NA	NA	0	NA	Significant effect for reduced coerced sex, increased contraceptive use and increased condom use
Wight et al., 2002 <sup>109</sup> (also Henderson et al., 2007 <sup>110</sup> )	United Kingdom; Scotland; schools	SHARE: Aims to reduce unwanted pregnancies, reduce unsafe sex and improve the quality of sexual relationships; includes sessions on relationships, male and female anatomy, positive body image, pregnancy, contraception, STIs, condoms, communication skills, resisting pressure for sex, pregnancy and parenthood, and negotiating condom use	RCT; 5,854 respondents; follow-up: two and 4.5 years	Two successive cohorts of female and male third-year secondary school students; aged 13–14	Social psychological cognitive models and sociological interpretations	Yes (small group work, games, interactive video and role playing)	No	20 sessions: 10 in third year of secondary school and 10 in fourth year	NA	NA	0	NA	No differences in behavioral outcomes; males reported less regret of first intercourse with most recent partner; sexual health knowledge scores increased for males and females

Notes: RCT=randomized controlled trial. NA=not assessed.