TOPICAL CONTENT IN SEXUALITY EDUCATION AND
SEXUAL HEALTH OUTCOMES

Maia Christine Cudhea, B.A.

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APPROVED:

Cynthia M. Cready, Committee Chair
Nicole Dash, Committee Member
Elizabeth M. Esterchild, Committee Member
Dale E. Yeatts, Chair of the Department of
Sociology
Thomas L. Evenson, Interim Dean of the
College of Public Affairs and
Community Service
Sandra L. Terrell, Dean of the Robert B.
Toulouse School of Graduate Studies

Secondary analysis of data from the National Longitudinal Study of Adolescent Health is used to examine possible explanatory variables for sexual health outcomes. Linear and logistic regression analyses were conducted to examine the relationship between sexual health outcomes and topical content in sexuality education, controlling for race, biological sex, low socioeconomic status, and religiosity. Results indicated increasing topical content in sexuality education had a positive effect on knowledge acquisition and confidence, but no statistically significant effect on engagement in sexual risk behavior or likelihood of reporting sexual coercion. Control variables were significant predictors and overall model fit was low, indicating topical content in sexuality education is minimally important in creating adolescent sexual behavior. Further exploration of differing aspects of sexuality education is suggested.
ACKNOWLEDGEMENTS

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INTRODUCTION

This year, approximately half of all sexually transmitted diseases (STDs) contracted by Americans will appear in people under 24, a group which represents only one quarter of the sexually active population (Weinstock, Berman, & Cates, 2004). In 2004, 13% of new HIV infections occurred in people younger than 24 (Centers for Disease Control, 2005). The U.S. has one of the highest teen birthrates in the developed world (Darroch, Singh, & Frost, 2001). These facts, along with a growing recognition of sexual imagery in the media, sexual violence, the so-called sexual revolution, sexual identity politics and other changes in cultural values around sexuality, have triggered a growing concern with the development and shaping of adolescent sexuality. Concerns range from the extent of the influence of media devaluation of sexuality to the spread of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) to condoms in schools, but whatever the topic, everyone seems to want to weigh in on how young people are “doing it” and why.

One of the most contentious issues in this area is how to effectively and appropriately educate young people about sexual risk, health, and safety. Today, 18 states and the District of Columbia mandate sexuality education be provided in school. 32 states do not. In states like Louisiana, students learn about HIV/AIDS, but not about any other STDs or how to prevent pregnancy. In states such as Washington, teens receive information on everything from birth control pills to homosexuality. (Sexuality Information & Education Council of the United States, 2006)

According to recent polling data, the vast majority of Americans, about 93%, support the idea of providing some sort of sexuality education in public schools (Kaiser,
2004). However, this level of consensus disappears when people are asked to define what should make up the substance and effects of that education. Abstinence-only, comprehensive (also known as abstinence-plus or pragmatic), and anti-rape education all have advocates arguing that their approach is surely the most sound, correct, and effective approach to reducing the astronomically high rates of teen pregnancy, STD infection, and sexual assault in the U.S. Sexuality education programs also differ in the degree to which they acknowledge the cultural or group contexts of teens’ sexual attitudes and behaviors.

This study is designed to investigate the relationship between one aspect of formal school-based sexuality education programs and a variety of sexual health outcomes. Specifically, I use data from a nationally representative dataset of U.S. teens to examine the effects of the topical coverage of these programs on teens’ knowledge accuracy and confidence, age of first vaginal intercourse, lifetime number of sexual partners, and experiences with sexual coercion. Topical coverage is an aspect of sexuality education programs that tends to target individual attitudes and behavior, without much consideration for the cultural or group processes that shape these attitudes and behavior. I hope that by considering the topical coverage of sexuality education separately from other aspects of these programs and in terms of differing outcomes, we can gather a better understanding of the relative importance and interrelationships among it and more culturally or group focused elements of sexuality education.
LITERATURE REVIEW

Academic researchers attempting to systematically evaluate sexuality education programs have taken various approaches. Most of their research has been composed of specific program evaluations, with a few notable exceptions. While most of these exceptions have been meta-analyses of program evaluations, a few have taken different forms. For instance, a 1990 nationwide telephone survey found that women, although not men, who described their sex education as “inadequate” were more likely to report having been sexually abused before the age of 18 (Finkelhor, Hotaling, Lewis, & Smith, 1990). For the majority of researchers however, program evaluations have been the rule. These evaluations share many similarities in method, but vary chiefly on two key dimensions: the general category of the intervention studied and the type of outcomes actually measured.

Many researchers evaluate sexuality education programs by defining and describing them in terms of their topical content. The most common, and generally accepted, divisions are abstinence-only versus comprehensive sexuality education and anti-rape versus general sexuality education. While there is a general consensus regarding the substantive and analytic utility of these divisions, the boundaries between them are less than clear. In a general sense, programs defined as abstinence only tend to focus on the dangers of sexual behavior and the delay of intercourse. Programs classified as comprehensive tend to take a more ‘pragmatic’ approach, combining an emphasis on delayed intercourse with instruction in a variety of health risk management strategies, such as common usage. Programs classified as anti-rape tend to use feminist theoretical perspectives to challenge the sexual beliefs and values that
underline sexual violence. Any program that does not use this specific framework would be classified as general sexuality education. Obviously, one serious problem is that although these four categories are not mutually exclusive researchers have often treated them as if they were. In fact, the focus on these four dimensions of definition may also be partially responsible for many researchers’ neglect in studying sexual violence outcomes- if a program is not classified as ‘anti-rape’, sexual violence may be construed as a peripheral concern. Nonetheless, they are the prevailing dimensions of sexuality education research and in evaluating this research and, even without being perfectly accurate, they serve a convenient analytic purpose.

Results regarding the higher relative efficacy of the comprehensive approach have been very consistent. In a 2002 meta-analysis of 26 randomized, controlled sexuality education interventions designed to reduce teen pregnancy, researchers found that abstinence-only sexuality education programs not only failed to reduce young women’s rate of pregnancy, but actually increased it (DiCenso, Guyatt, Willan, & Griffith, 2002). A 1998 review of both abstinence-only and “safer sex” (i.e. comprehensive) programs designed to serve low-income, inner-city, African-American adolescents found that while both programs showed some reduction in sexual risk behavior, the comprehensive approach provided longer lasting effects and proved to be more effective with adolescents who were already sexually active or experienced (Jemmott, Jemmott, & Fong, 1998).

Fewer researchers have specifically studied abstinence-only sexuality education, but the results of these studies have been the expected flipside to the results on comprehensive sexuality education. The largest scale study of abstinence-only
sexuality education comes from the recently released evaluation of four Title V, Section 510 sexuality education programs conducted by Mathematica Policy Research, Inc. This report was commissioned by the U.S. Department of Health and Human Services to evaluate the efficacy of the U.S. government’s slow shift beginning in the late 1990’s to funding exclusively abstinence-only sexuality education programs (Mathematica Policy Research, 2007).

Overall, the researchers found only one measurable difference between adolescents who received abstinence-only sexuality education and those who received none at all. Youth in the abstinence-only program were more likely to be able to identify which diseases on a list were sexually transmitted, although they were no more knowledgeable about the risks and consequences of the diseases. Across all four programs, youth in the abstinence-only program were just as likely as those in no sexuality education program to have abstained from or engaged in sexual intercourse, to have similar numbers of sexual partners, to have initiated intercourse at similar ages, to have unprotected sexual intercourse, to have become pregnant or given birth, or to have contracted an STD (Mathematica Policy Research, 2007).

Surprisingly, despite the dramatic differences in the results of comprehensive versus abstinence-only program evaluations, few researchers have put their efforts towards better defining what makes a program “comprehensive”. One notable exception to this is the research of Douglas Kirby, conducted in conjunction with the National Campaign to End Teen Pregnancy and the Sexuality Education and Information Council of the United States. In his review of 250 studies of sexuality education programs, Kirby found that comprehensive sexuality education programs
which show clear results in delaying the onset of sexual intercourse, reducing the frequency of sexual intercourse, reducing the number of sexual intercourse partners, and increasing the use of contraception share a common and specific set of 10 principles. These shared characteristics cover not only topical content, but also program duration, teaching/learning approach, program leadership, and theoretical approaches (National Campaign to End Teen Pregnancy, 2001). Although the specific wording of these principles sometimes varies, the essential elements of ‘effective’ sexuality education are identified as:

1) Focused on reducing sexual behaviors that lead to unintended pregnancy or STD infection.

2) Based on theoretical approaches that are effective in reducing risky behavior (i.e. are targeted to changing psycho-social risk and promoting psycho-social protective factors).

3) Give clear and continually reinforced messages about condom or contraceptive use.

4) Provide basic, medically accurate information about risks of sexual behavior and risk management methods.

5) Include activities that address social pressures influencing sexual behavior (like media images, family values, community norms, etc.).

6) Provide modeling or and practice with communication, negotiation, and refusal skills.

7) Use interactive teaching methods designed to allow learners to personalize information.
8) Incorporate goals, methods, and materials that are age, experience, and culturally appropriate.

9) Last a sufficient length of time.

10) Utilize teacher and peer leaders that are well-trained and believe in the program that they are implementing. (National Campaign to End Teen Pregnancy, 2001, p. 10)

Despite these well-documented and fairly clear results, few if any researchers have followed up with studies designed to test the accuracy of this analysis of important principles. Rather than focusing on testing the efficacy of the specific principles outlined by Kirby, most researchers have continued to define sexuality education programs on their own terms. The ultimate effect of this is that most research on sexuality education has little impact beyond endorsing or criticizing one particular program. Instead, researchers might approach the problem by developing measurements for the principles of efficacy outlined and then defining programs in terms of these principles and their effects. If this was the standard approach, then both the independent and interdependent effects of each element of ‘effective’ sexuality education could be analyzed. Through this method, we could come to understand not only the ‘best practices’ of sexuality education, but also uncover the underlying processes that make those practices preferable. By continuing to allow sexuality education programs to define themselves in terms of loose categories that fail to uniquely distinguish them, researchers curtail the ability of the reader to gauge the relative variety of sexuality education programs studied and their possibilities for change.
A second unfortunate byproduct of researchers’ neglect of these important principles has been the diversion of attention from the definition of a cultural process of sexuality education. The 10 principles of ‘effective’ sexuality education have a distinct slant towards the importance of accounting for social and cultural variables in the process. In fact, with the exception of the first and fourth principles, they are almost exclusively focused on group, cultural and social interaction processes and approaches. When researchers focus on evaluating specific programs and their effects on the behavior of specific individuals, they miss the important group elements of sexuality education captured in these principles.

Regarding the anti-rape versus general sexuality education split, comparisons have been somewhat less clear. Acceptance of cultural rape myths (such as the beliefs that women incite men to rape, that victims should ‘just forget about’ rapes, that rapists are ‘criminal types’, that only ‘bad women’ get raped, and that false reports of rape are common) is one of the most frequently researched outcomes in this arena. Several studies have found lower acceptance of rape myths reported by students who took a human sexuality class than students who took a non-sexuality related class, but the differences, while statistically significant, have been very small (Dallager & Rosen 1993; Fischer, 1986; Patton & Mannison, 1993). Other studies comparing specific anti-rape sexuality education with no program intervention have found much larger decreases in rape myth acceptance (Foubert & Marriott, 1997) and even long-term, anecdotally-reported changes in behavior towards women, specifically around social drinking situations (Wantland, 2005).
One standout in this comparison is a 1998 study of students in a human sexuality course versus those in an intensive program designed to train students to be peer anti-rape educators (CARE program). Researchers compared students both on their decreases in cultural rape myth acceptance and on their reported behavioral intentions in hypothetical sexual situations. This study found much larger decreases in acceptance of cultural rape myths, adversarial sexual beliefs, and in several forms of potentially problematic sexual negotiation for the students in the CARE program than for those in the general sexuality education class (Lonsway, et al., 1998).

The attention paid to the group and cultural processes in studies of anti-rape education are much more pronounced than in the literature on comprehensive sexuality education. The most obvious reason for this is the feminist emphasis on cultural beliefs, norms, and values as the underlying explanation for sexual violence. If culture causes rape, then ending rape must be a cultural process. Unfortunately, researchers in comprehensive sexuality education are not forced into this perspective of cultural processes because of the continued focus on individual participation and outcomes masking the influence of group processes.

Another crucial dimension of difference in studies of sexuality education programs is the wide variety of outcomes measured as documenting the efficacy of a particular program. Positive outcomes measured for sexuality education fall into four major categories: increased knowledge accuracy, improved knowledge orientations (put another way, better attitudes and behavioral intentions), reduced sexual risk behaviors, and reduced negative sexual outcomes/experiences. The first category, the increased accuracy of objective knowledge about sexuality, sexual health, and sexual risks,
seems to be one of the most commonly measured as well as the easiest for any given
program to accomplish. Even the most ineffective sexuality education programs are
generally able to demonstrate to some improvement in this area, as evidenced by the
Mathematica study of abstinence-only programs discussed previously. However, since
this measure is often unconnected to any larger behavioral, risk, or outcome change, it
may be the least important. At the same time, this outcome may not be so trivial if adult
sexuality education is added into the picture. One study of college educated parents
found that those who had taken a human sexuality course were much more likely to use
their increased knowledge to initiate discussions about sexuality with their children
(King, Parisi, & O'Dwyer, 1993).

The next major group of outcomes measured is changes in attitudes and
behavioral intentions. These may include reduced acceptance of rape myths, increased
intentions to remain a virgin, and reduced antagonistic attitudes towards sexuality.
Although the vast majority of sexuality education programs evaluated show some
movement in this area, as discussed previously, comprehensive sexuality education
programs have been found to achieve more long lasting and widespread changes in this
area than abstinence-only programs. This type of outcome measure is also the only
one used for almost all investigations into the effect of sexuality education on sexual
assault, sexual coercion, and rape.

The final two outcomes, likelihood of engaging in sexual risk behaviors, such as
unprotected intercourse, and objectively negative outcomes, such as unintended
pregnancy, move the evaluation of sexuality education programs out of the speculative
and into the concrete. Almost all studies of both comprehensive and abstinence-only
include at least one or two of these outcomes as a part of their review. Very rarely does the impact of sexuality education on the incidence of sexual assault or rape make it into this category. One notable exception to this is 2005 evaluation of a comprehensive sexuality education program in China. This research found that this program, in addition to increasing the odds of participants using contraceptives or condoms and reducing the odds of pregnancy, significantly reduced the odds of participants reporting coercing a partner into sex (Wang, Hertog, Meier, Lou, & Gao, 2005).

This usual failure to include the risk of actually experiencing or committing sexual coercion, assault, or rape as an objective outcome of sexuality education is one of the major failures that I seek to address in this study. While acceptance of rape myths has been found to be associated with higher reported proclivity to rape (Burt, 1980; Carr & VanDeusen, 2004; Check & Malmuth, 1983; Osland, Fitch, & Willis, 1996), this association is far from perfect. In addition, while there is significant evidence that higher acceptance of rape myths is associated with a greater proclivity to rape, support for the proposition that lowering acceptance of rape myths will necessarily decrease the proclivity to rape is sorely lacking. This is analytically troubling because most authors are careful to clarify the effect of rape myths as environmentally rather than individually causative; if this is the case, changing the beliefs of a few individuals will likely have little effect. This failure is surprising given the feminist focus on cultural supports for sexual violence, but is likely the result of an overwhelming bias to treating education as an individual process throughout the social sciences.

The lack of focus on the objective outcomes of sexual coercion, assault, or rape is also politically and personally troubling given the high degree of concrete and
measurable physical and mental health consequences of these experiences. Experiences of being sexually coerced have been associated with suicidal thoughts and attempts (Tubman, Langer, & Calderon, 2001), higher levels of sexual risk behavior (Tubman, Langer, & Calderon, 2001), more frequent reported genital discharge and pregnancy (Geary, Wedderburn, McCarraher, Cuthbertson, & Pottinger, 2006), less consistent use of condoms in relationships (Hoffman, O’Sullivan, Harrison, Dolezal, & Monroe-Wise, 2006), and a higher likelihood of reproductive tract infections (Erulkar, 2004). These negative effects are magnified when sexual coercion, assault, or rape takes place within a partnered relationship. Researchers have found that intimate partner sexual assault/coercion is associated with a higher degree of coercion, physical trauma, and injury severity (Stermac, Del Bove, Brazeau, & Bainbridg, 2006), as well a higher risk of victims experiencing Rape-Related Post Traumatic Stress Disorder, stress, and dissociation (Temple, Weston, Rodriguez, & Marshall, 2007). These experiences of sexual victimization are also likely to snowball for many, particularly women, as past victimization has been found to be a very powerful predictor for future victimization for women of all ages (Gidycz, Hanson, & Layman, 1995), particularly in light of researchers’ findings that sexual victimization and low sexual assertiveness have a reciprocal relationship (Livingston, Testa, & VanZile-Tamsen, 2007).

Given the high frequency and trauma of sexual coercion, assault, and rape within relationships and the low frequency of these actual experiences being studied relative to sexuality education, I will focus on reports of actual intimate partner sexual assault/coercion as an outcome of primary interest. Other outcomes include accuracy of knowledge about sexuality and sexual risks, orientations towards this knowledge, and
engagement in risky sexual behavior. The independent variable in the study, topical coverage of formal school-based education programs, is most closely related to the first and fourth principles of sexuality education outlined by Kirby and presented earlier. These two principles are the 2 of the 10 listed that are the most narrowly focused on the individual or student. That is, by themselves, the two principles, and, thus, my independent variable do not acknowledge the cultural and group embeddedness of individuals' sexual beliefs, attitudes, and behaviors. By examining the effects of only topical coverage in formal school-based sexuality education programs on a variety of adolescent sexual health outcomes, I hope to use any gaps in explanatory power to expose the necessity of an increased awareness and incorporation of cultural and group processes and effects in these programs.
HYPOTHESES

Given the research findings described above, the following four hypotheses were developed:

1) Respondents/youth who indicate increased topical content in formal school-based education about sexuality will demonstrate higher levels of accurate knowledge about sexual risk behavior and consequences.

2) Respondents/youth who indicate increased topical content in school-based education about sexuality will report higher levels of confidence in their knowledge about sexual risk behavior and consequences.

3) Respondents/youth who indicate increased topical content in formal school-based education about sexuality will report engaging in lower levels of sexual risk behavior; specifically, they will have a higher age of first vaginal intercourse and a smaller number of lifetime sexual partners.

4) Respondents/youth who indicate increased topical content in formal school-based education about sexuality will be less likely to report either experiencing or perpetrating sexual force/coercion in their most recent relationship.
DATA

The data for this analysis are taken from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative longitudinal survey following the social contexts of the health-related behaviors of adolescents beginning in grades 7 through 12 and following them through young adulthood, ages 18 to 26. A sample of 80 high schools and 52 middle schools from the U.S. was selected with probability relative to their size and a fixed number of students (200) was drawn from each school. Incorporating systematic oversampling of subpopulations and regional stratification into the Add Health study design ensured that this sample is representative of U.S. schools with respect to region of the country, urbanicity, school size, school type, and ethnicity. Although not utilized in this analysis, the Add Health data set also includes strategically oversampled subsets for African-American adolescents with a college educated parent, Cuban adolescents, Puerto Rican adolescents, disabled adolescents, and genetic twins. Data were collected from all available respondents at three time points; Wave 1 from September 1994 through December 1995, Wave 2 from April 1996 through August 1996, and Wave 3 from August 2001 through April 2002. The response rate for Wave 1 is 78.9%, for Wave 2 is 88.2%, and for Wave 3 is 77.4%. (Harris, Florey, Tabor, Bearman, Jones, & Udry, 2003)

The analytic data set for this research initially consisted of 4,877 youth respondents from the public use data set who provided information at both Wave 1 and Wave 3 data collection. Respondents’ missing data on the key independent variable of interest, sexuality education level, necessitated the deletion of only two cases. There were no cases of missing data for three of the four control variables, race, sex, and
importance of religion. However, one control variable, indicator of low socioeconomic status (SES), did require the deletion of over 600 cases. The lack of data for this variable is because all information regarding respondents’ family income and employment was drawn from the interviews of respondents’ parents, not all of which could be completed during the data collection period. This left an analytic data set comprised of 4,252 respondents.
The independent variable of adolescents’ level of sexuality education was quantified by their affirmative or negative responses when asked in Wave 1 data collection if they had learned about certain sexuality related topics in school, specifically pregnancy and AIDS. Adolescents who responded in the affirmative to both were classified as receiving “full” sexuality education (SEXEDLVL = 2), those who responded negatively to both were classified as receiving “no” sexuality education (SEXEDLVL = 0), and those with one affirmative and one negative answer were classified as receiving “partial” sexuality education (SEXEDLVL = 1). In this classification scheme, the majority of respondents (82.9% - see Table 1 at the end of this section) received “full” sexuality education.

While this method of operationalizing the independent variable may be less than ideal because it fails to include many of the characteristics of comprehensive sexuality education as defined by Kirby (National Campaign to End Teen Pregnancy, 2001), the lack of detailed information on sexuality education in the existing data set was a major limitation. However, despite this limitation, I am attempting to isolate the importance of adding areas of topical coverage as an element of sexuality education.

Control variables for this analysis included race, sex, indicator of low SES, and degree of religiosity. All control variables were taken from data collected in Wave 1. The complete sample distribution of each of these variables is described in Table 1 at the end of this section. Respondents’ race was classified as a dummy variable, either white (RACE = 1) or non-white (RACE = 0). Although this generalized distinction may mask differences between groups of youth of color, this sacrifice seemed reasonable in
order to avoid over complicating the analysis. Respondents’ biological sex was also classified as a dummy variable, where males were used as the reference group, coded SEX = 1, and females were coded SEX = 0. Degree of religiosity was coded as a series of dummy variables, with the reference group being those respondents who reported no religious affiliation at all. For each of the four levels of reported importance of religion (very important, fairly important, fairly unimportant, and not at all important), a dummy variable was created. Respondents who reported a religious affiliation were coded 1 for the level of importance they reported feeling for their religion, and 0 for all others.

Indicator of low SES was the only control variable whose classification and coding process was more complex. Because a sizable number of respondents’ parents (around 1,200, which is approximately 25% of the total sample) declined to specify a dollar amount for their annual income, family income was not a reasonable choice for measuring SES. Instead, respondents were classified as having low SES if their parent indicated receiving a form of public assistance (including Social Security Insurance Disability, food stamps, housing subsidy, or Temporary Aid for Needy Families), if they reported an annual income under $14,000 (the federal poverty line for a family of two—the minimum family size to complete both respondent and parent interview), or if they answered “no” to the question “do you have enough money to pay your bills?”. If respondents’ parents fit any of these criteria, then the respondent was coded as LOWSES = 1. The reference group for this dummy variable was youth whose parents did not fit any of these criteria for indicators of low SES (LOWSES = 0).

The first two dependent variables, KQSCORE and KQCONFID, were taken from respondents’ performance on a ten item “knowledge quiz” administered during Wave 1
data collection. Respondents were asked to determine whether given statements about pregnancy and STD risk were true or false and then asked to gauge how confident they were in the accuracy of their answer. One limitation important to note is that the knowledge quiz portion of this survey was only administered to those respondents who were aged 15 years or older at Wave 1 data collection. This means that the sample size for both of these outcome variables is only 2,734 respondents.

In order to compile KQSCORE, a measure of the respondent’s overall sexual health and risk knowledge accuracy, each individual question response was coded as 1 for a correct answer and 0 for an incorrect answer. Each respondent’s total number of 1’s was then summed in order to create an overall knowledge quiz score, ranging from 0 to 10. The ‘average’ score, both mean and median, was 6 (see Table 2). Although the Cronbach’s alpha for this scale of items was only .576 (see Table 2), the relatively low degree of inter-item reliability may be the result of the fact that the knowledge quiz was evenly divided between two distinct knowledge areas, STD risk and pregnancy risk. Also, the low degree of inter-item reliability may result from disorganization and inaccuracy in students’ knowledge about sexuality. However, since the items were administered together as a single measure and because they collectively address the topical coverage areas included in the construction of SEXEDLVL, the use of this scale seemed justified.

To create the KQCONFID scale, a measure of each respondent’s overall comfort with and attitude towards their sexual health and risk knowledge, respondents’ estimations of how confident they were in the accuracy of their answers were coded as follows: “very confident” = 4, “moderately confident” = 3, “slightly confident” = 2, “not at
all confident”/”don’t know how confident” = 1. These confidence codes were then
summed for all ten items to create an overall scale of confidence, ranging from 0 to 30.
The mean score was 19.5 and the median was 21.0, indicating a slight positive skew on
the distribution of this variable. The inter-item reliability of this scale was much higher,
with a Cronbach’s alpha of .829. The overall distribution for both of these knowledge
quiz outcome variables can be found in Table 2 at the end of this section.

The remaining four dependent variables were all taken from data collected during
Wave 3. The third and fourth outcome measures focus on objective outcome measures
of respondent’s engagement risk behaviors, including their reported number of sexual
partners over their lifetime and their reported age of first vaginal intercourse. Both of
these variables required no re-coding, as the questions directly requested a numerical
response. For age of first vaginal intercourse, the observed sample distribution ranged
from 10 to 25 and was fairly normally distributed (mean-median difference is only 0.4
years, skewness is only .311, and approximately two-thirds of the sample fall within one
standard deviation of the mean- see Table 2). For number of lifetime partners, the
observed sample distribution ranged from 1 to 50 (see Table 2). On this variable, there
was a definite positive skew with a mean-median difference of -2.2 partners. Although
the majority of respondents had initiated vaginal intercourse by the time of Wave 3 data
collection, those who had not had to be excluded from analysis on this variable,
resulting in an analytic sample size of 3,611 respondents for age of first vaginal
intercourse and 3,578 respondents for number of lifetime sexual partners. The
discrepancy in the two sample sizes is due to those who reported not knowing their
numbers or ages and those who refused to respond. Additional descriptive statistics for each of these variables are provided in Table 2 at the end of this section.

The final two outcome variables, reported experiences and commission of sexual coercion in the respondent’s most recent relationship were taken from the detailed information collected on respondents’ recent relationships in Wave 3 of data collection. Respondents were asked how frequently, in their most recent relationship, they had insisted on having sex despite their partner’s objection and how frequently their partner had insisted on having sex despite their objection. Because the overall frequency of responses indicating any frequency of sexual coercion in the most recent relationship was relatively low (8.1% for experiencing and 4.8% for committing - see Table 2), this variable was constructed as a dummy variable, with respondents who reported any incident of experiencing sexual coercion coded EXPCOER = 1 and respondents who reported any incident of committing sexual coercion coded CMMTCOER = 1. Because this measure excludes experiences of sexual coercion outside of a relationship or in a more distant past relationship, it is therefore likely to underestimate the occurrence of these experiences in this sample. For a complete description of the distribution of independent and control variables, see Tables 1 and 2.
Table 1

*Sample Distribution of Independent and Control Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Percentage</th>
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<td>Sexuality Education Level</td>
<td>Full</td>
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<tr>
<td></td>
<td>Partial</td>
<td>12.0%</td>
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<td>None</td>
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<tr>
<td>Race</td>
<td>White</td>
<td>74.7%</td>
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<td></td>
<td>Non-White</td>
<td>25.3%</td>
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<tr>
<td>Sex</td>
<td>Male</td>
<td>51.0%</td>
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<td>Female</td>
<td>49.0%</td>
</tr>
<tr>
<td>Importance of Religion</td>
<td>Very Important</td>
<td>41.6%</td>
</tr>
<tr>
<td></td>
<td>Fairly Important</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>Fairly Unimportant</td>
<td>6.6%</td>
</tr>
<tr>
<td></td>
<td>Not At All Important</td>
<td>2.9%</td>
</tr>
<tr>
<td></td>
<td>No Religion Reported</td>
<td>13.4%</td>
</tr>
<tr>
<td>Indicator of low SES</td>
<td>Low SES</td>
<td>32.3%</td>
</tr>
<tr>
<td></td>
<td>Not Low SES</td>
<td>67.7%</td>
</tr>
</tbody>
</table>

*(N=4252)*
<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Sample Size (n)</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Quiz Score</td>
<td>2734</td>
<td>6.0</td>
<td>6.0</td>
<td>2.06</td>
<td>0 to 10</td>
<td>.576</td>
</tr>
<tr>
<td>Knowledge Quiz Confidence</td>
<td>2734</td>
<td>19.5</td>
<td>21.0</td>
<td>6.41</td>
<td>0 to 30</td>
<td>.829</td>
</tr>
<tr>
<td>Age of 1st Vaginal Intercourse</td>
<td>3611</td>
<td>16.4</td>
<td>16.0</td>
<td>2.25</td>
<td>10 to 25</td>
<td></td>
</tr>
<tr>
<td>Lifetime Intercourse Partners</td>
<td>3578</td>
<td>6.2</td>
<td>4.0</td>
<td>7.55</td>
<td>1 to 50</td>
<td></td>
</tr>
<tr>
<td>Experienced Sexual Coercion</td>
<td>2138</td>
<td>Yes</td>
<td>8.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>91.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Committed Sexual Coercion</td>
<td>2141</td>
<td>Yes</td>
<td>4.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>95.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANALYTIC METHODS

For all analyses, sample weight and cluster variables were used to adjust for the stratified sampling techniques of the Add Health survey. In accordance with the guidelines provided by the Add Health researchers, both sample weights and cluster variables were used in this analysis (Chantala & Tabor, 1999). The cluster variable, or primary sampling unit, was the school attended by the respondent at Wave 1 data collection (Chantala, 2006). The sample weight used was GSWGT3_2, the grand sample weight for longitudinal analysis of Wave 1 and Wave 3 data indicated by the Add Health researchers’ guidelines (Chantala, 2006). In accordance with instructions posted on the Add Health website’s frequently asked questions, strata variables were not used as they were not included in the public use data set and do not substantially affect the results of analysis (University of North Carolina Population Center, 2003).

For the two knowledge quiz variables and the two risk behavior outcome variables, ordinary least squares regression was used to examine the relationship with sexuality education level. For all regressions, control variables included race, sex, low SES, and degree of religiosity. For the sexual coercion reports, which were dichotomous variables, logistic regression was determined to be a more appropriate test, also controlling for race, sex, low SES, and degree of religiosity. Although the hypotheses for key outcome variables are clearly directional, the expectations for the effects of control variables are less clear. Therefore, all reported p values are from two-tailed tests of statistical significance. All calculations and data transformation were performed using Stata V.9 and SPSS V.14.
RESULTS

All regression results are provided in Tables 3 and 4 at the end of this section. As column 1 in Table 3 shows, increased topical coverage in sexuality education has a positive effect on knowledge quiz scores. Increasing a level of sexuality education, from “none” to “partial” or from “partial” to “full”, tended to increase respondents knowledge quiz score (KQSCORE) by approximately 0.552 points per level. This coefficient was found to be statistically significant ($p = .006$).

Several control variables also had a significant effect on knowledge quiz score. Sex was found to be a contributing factor to knowledge quiz score, with males having an average score approximately 0.283 points lower than females. This result was also statistically significant ($p = .001$). A moderate degree of religiosity, as compared to those respondents with no religious affiliation, also seemed to affect knowledge quiz score, although only at the middle range levels. While the effects of religion being very important or not at all important did not prove to be statistically significant ($p = .151$ and $p = .396$, respectively), respondents who reported religion to be fairly important had an average knowledge quiz score of .384 points higher than those with no religious affiliation and respondents who reported religion being fairly unimportant had an average knowledge quiz score of .758 points higher than those with no religious affiliation. Both results were statistically significant ($p = .031$ and $p = .001$, respectively).

No other variables were found to be statistically significant in predicting knowledge quiz score from this model. Overall, although the hypothesized relationship was found, with an $R^2$ of only .052, this model explains a very limited amount (about 5%) of the variation in knowledge quiz scores.
Regression results indicate a similar, but distinct, relationship between level of topical coverage in sexuality education and reported knowledge quiz confidence (column 2, Table 3). Increasing a level of sexuality education tended to increase respondents’ knowledge quiz confidence score (KQCONFID) by 1.77 points, a result which was statistically significant ($p=.006$). The same control variables with significant effects on knowledge quiz score also significantly affected the knowledge quiz confidence score. Sex remained a factor in explaining confidence, but in the opposite direction from explaining knowledge accuracy. In this confidence outcome, males had an average score of approximately .698 points higher than females, a result which was statistically significant ($p=.015$). Curiously, although religiosity remained somewhat important, it was only for respondents who rated religion fairly unimportant. These respondents had an average score of 2.213 points higher than those with no religious affiliation. This result was statistically significant ($p=.003$). Again, however, overall results indicate an $R^2$ of only .035, meaning this model still explains only 3% of the variation in the overall knowledge quiz confidence score.

Although regression results for the age of first vaginal intercourse do indicate a very small effect in the hypothesized direction, with an increase in the level of sexuality education being associated with an age of first vaginal intercourse older by 0.077 years (just under a month), this result was not statistically significant ($p=.440$) (column 3, Table 3). However, several control variables did have statistically significant effects on this outcome. White respondents’ average age of first intercourse was 0.487 years (just over 5 months) older than non-white respondents’ average age of first intercourse. These results were found to be statistically significant ($p<.001$). Religiosity also had an
effect, but only for those who reported religion to be very or fairly important. The average age of first intercourse for respondents who reported their religion was very important was 0.937 years (just over 11 months) older than respondents who reported no religious affiliation. The average age of first intercourse for those who reported their religion was fairly important was 0.412 years (just under 5 months) older than those with no religious affiliation. These results were statistically significant ($p<.001$ for religion very important and $p=.007$ for religion fairly important). One new control variable proved to be statistically significant in explaining negative changes in this outcome, low SES. The average age of first intercourse for respondents with an indicator of low SES was 0.413 years (just under 5 months) younger than those without an indicator of low SES. This result was statistically significant ($p<.001$). Again, however, the overall $R^2$ of .039 indicates that this model explains little, about 4%, of the overall variation in age of first intercourse.

Regression results for number of lifetime partners indicated a miniscule effect of the independent variable in the hypothesized direction, with increasing levels of sexuality education lowering the average number of lifetime partners by only 0.003 partners per level, but this effect was not found to be statistically significant ($p=.991$) (column 4, Table 3). However, several control variables did have substantial and significant effects on this outcome. Being white continued to advantage respondents, with white respondents reporting 1.152 fewer lifetime partners on average than non-whites. This result was statistically significant ($p=.003$). Being male created a disadvantage for respondents on this outcome, with males reporting 1.245 more partners on average than females. This result was also statistically significant ($p<.001$).
A high degree of religiosity also had an effect, with respondents who considered their religion very important reporting 1.64 fewer partners than those with no religious affiliation. This result was statistically significant ($p=.005$). Finally, the overall $R^2$ of this model was only .022, indicating that this combination of variables only explains about 2% of the variation in number of lifetime sexual partners.

Logistic regression results indicated that, as hypothesized, increasing a level of sexuality education was associated with an 11.6% decrease (odds ratio = .884) in the likelihood of reporting experiences of sexual coercion in the respondent’s most recent relationship (column 1, Table 4). However, this result was not statistically significant ($p=.529$). None of the control variables produced statistically significant effects on reporting experiences of sexual coercion in the most recent relationship. Overall, this model proved to be a poor fit for explaining experiences of sexual coercion and was not statistically significant ($p=.457$).

Logistic regression results indicated similar results for the reporting of committing sexual coercion in the most recent relationship, but with a greater degree of overall fit for the model, which just barely missed being statistically significant ($p=.052$) (Table 4). Again in line with the hypothesized relationship for this variable, increasing a level of sexuality education was associated with a 6% decrease (odds ratio = .939) in the likelihood of reporting committing sexual coercion in the most recent relationship, but this effect is statistically insignificant ($p=.830$). On this outcome, only one control variable did prove to have a statistically significant effect on the outcome, low SES. Perhaps counter-intuitively, those respondents with an indicator of low SES were almost
56% less likely (odds ratio = .445) to report committing sexual coercion in their most recent relationship. This result was statistically significant ($p = .003$).
Table 3

OLS Regression of Sexual Health Outcomes on Sexuality Education Level, Controlling for Race, Sex, Low Socioeconomic Status, and Degree of Religiosity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Knowledge Quiz Score</th>
<th>Knowledge Quiz Confidence</th>
<th>Age of 1st Intercourse</th>
<th># Lifetime Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=2734)</td>
<td>(n=2734)</td>
<td>(n=3611)</td>
<td>(n=3578)</td>
</tr>
<tr>
<td>Independent Variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexuality</td>
<td>.552</td>
<td>1.77</td>
<td>.077</td>
<td>-.003</td>
</tr>
<tr>
<td>Education Level</td>
<td>(p = .006)</td>
<td>(p = .006)</td>
<td>(p = .440)</td>
<td>(p = .991)</td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>-.017</td>
<td>-.452</td>
<td>.487</td>
<td>-1.152</td>
</tr>
<tr>
<td>(1 = white)</td>
<td>(p = .891)</td>
<td>(p = .264)</td>
<td>(p &lt; .001)</td>
<td>(p = .003)</td>
</tr>
<tr>
<td>Sex</td>
<td>-.283</td>
<td>.698</td>
<td>.131</td>
<td>1.245</td>
</tr>
<tr>
<td>(1 = male)</td>
<td>(p = .001)</td>
<td>(p = .015)</td>
<td>(p = .130)</td>
<td>(p &lt; .001)</td>
</tr>
<tr>
<td>Low SES</td>
<td>-.238</td>
<td>-.583</td>
<td>-.413</td>
<td>.271</td>
</tr>
<tr>
<td>(1 = low SES)</td>
<td>(p = .058)</td>
<td>(p = .135)</td>
<td>(p &lt; .001)</td>
<td>(p = .356)</td>
</tr>
<tr>
<td>Religion</td>
<td>-.265</td>
<td>.421</td>
<td>.937</td>
<td>-1.64</td>
</tr>
<tr>
<td>Very Important*</td>
<td>(p = .151)</td>
<td>(p = .560)</td>
<td>(p &lt; .001)</td>
<td>(p = .005)</td>
</tr>
<tr>
<td>Religion</td>
<td>.384</td>
<td>.578</td>
<td>.412</td>
<td>-.520</td>
</tr>
<tr>
<td>Fairly Important*</td>
<td>(p = .031)</td>
<td>(p = .393)</td>
<td>(p &lt; .007)</td>
<td>(p = .400)</td>
</tr>
<tr>
<td>Religion Fairly</td>
<td>.758</td>
<td>2.213</td>
<td>.126</td>
<td>.074</td>
</tr>
<tr>
<td>Unimportant*</td>
<td>(p = .001)</td>
<td>(p = .003)</td>
<td>(p = .537)</td>
<td>(p = .918)</td>
</tr>
<tr>
<td>Religion Not At</td>
<td>.251</td>
<td>-1.057</td>
<td>.365</td>
<td>.825</td>
</tr>
<tr>
<td>All Important*</td>
<td>(p = .396)</td>
<td>(p = .280)</td>
<td>(p = .172)</td>
<td>(p = .453)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.189</td>
<td>16.306</td>
<td>15.482</td>
<td>7.185</td>
</tr>
<tr>
<td></td>
<td>(p &lt; .001)</td>
<td>(p &lt; .001)</td>
<td>(p &lt; .001)</td>
<td>(p &lt; .001)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.052</td>
<td>.035</td>
<td>.039</td>
<td>.022</td>
</tr>
</tbody>
</table>

All regression coefficient values are unstandardized
All p values are from two-tailed tests.
*Reference group- respondents with no religious affiliation
Table 4

Logistic Regression of Sexual Health/Violence Outcomes on Sexuality Education Level, Controlling for Race, Sex, Low Socioeconomic Status, and Degree of Religiosity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experiencing Sexual Coercion</th>
<th>Committing Sexual Coercion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n = 2138 )</td>
<td>( n = 2141 )</td>
</tr>
<tr>
<td><strong>Test Variable</strong></td>
<td>( B )</td>
<td>( B )</td>
</tr>
<tr>
<td>Sexuality Education Level</td>
<td>-0.124 (.884, .529)</td>
<td>-0.063 (.939, .830)</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (1 = white)</td>
<td>-0.010 (.990, .957)</td>
<td>-0.222 (.801, .384)</td>
</tr>
<tr>
<td>Sex (1 = male)</td>
<td>-0.205 (.815, .221)</td>
<td>-0.042 (.959, .840)</td>
</tr>
<tr>
<td>Low SES (1 = low SES)</td>
<td>-0.291 (.747, .138)</td>
<td>-0.809 (.445, .003)</td>
</tr>
<tr>
<td>Very Important*</td>
<td>-0.271 (.763, .332)</td>
<td>-0.099 (.905, .805)</td>
</tr>
<tr>
<td>Fairly Important*</td>
<td>-0.262 (.769, .378)</td>
<td>-0.458 (.632, .171)</td>
</tr>
<tr>
<td>Fairly Unimportant*</td>
<td>-0.217 (.804, .644)</td>
<td>-1.03 (.358, .147)</td>
</tr>
<tr>
<td>Not At All Important*</td>
<td>0.225 (1.253, .651)</td>
<td>-1.170 (.844, .798)</td>
</tr>
<tr>
<td><strong>Model F</strong></td>
<td>(8, 124) 0.98 (.457)</td>
<td>(8, 124) 2.00 (.052)</td>
</tr>
</tbody>
</table>

All \( B \) values are unstandardized
All \( p \) values are from two-tailed tests.
*Reference group- respondents with no religious affiliation
LIMITATIONS

The limitations of this research design have been significant factors throughout this analysis. First and foremost, the measure of 'level' of sexuality education leaves much to be desired. Because of existing data limitations of the public use data set information on only two areas of topical content, pregnancy and HIV, were available for evaluation. Given the results of prior studies, especially those by Kirby and Mathematica Policy Research, Inc., many other criteria are likely to be crucial in determining the efficacy of sexuality education in promoting positive outcomes. The inability to include these variables may be responsible for the low levels of overall model fit of all the regressions. In addition, by the measure of sexuality education used in this analysis, more than three-quarters of respondents received “full” sexuality education. Given the variability, controversy, and instability in sexuality education offered to youths discussed in the literature review, this is likely to overestimate youth who received “comprehensive” sexuality education. This limitation may also help explain the weak relationships between levels of sexuality education and various outcomes. The upshot of this limitation is that it allows the isolation of these specifically individually oriented variables, which will hopefully illuminate the relative importance of cultural and group processes in sexuality education.

Second, since youth respondents were not directly questioned about family financial or class status, responses for the low SES variable had to be taken from the parent interview. Because some parents were not able to complete this interview during the data collection period, a sizable number of respondents, about 600, had to be dropped from the analysis due to lack of data on this variable. In addition, because
many parents declined to answer the direct question regarding family income (which would have been the simplest and most straightforward way to quantify socioeconomic status) the measurement of low SES was instead put together from several responses, as discussed in the measurement construction and sample distribution section. Although this measure is likely to catch many youth living in or on the edge of poverty, it may be oversensitive because it includes parents’ subjective perception of not having enough money. Since low SES youth may be overestimated, many of the results regarding low SES youth are potentially tenuous.

Finally, the measurement of experiences of sexual coercion is also weak due to existing data limitations. Respondents were only asked about experiences of sexual coercion in the context of their most recent relationship. This excludes experiences of sexual coercion outside of relationships, which by itself may be justified since as mentioned in the literature review, sexual violence within relationships tends to be experienced as more traumatic. However, limiting the measurement to only the most recent relationship likely excludes a sizable portion of relationship and sexual history for many respondents. This limitation may be a major part of why the reported occurrence of sexual coercion in relationships is so low overall, which makes identifying associations with it extremely difficult.
DISCUSSION AND ANALYSIS

The results found supported the first two hypotheses and suggested reasons for the lack of support for the last two hypotheses. The first two hypotheses, regarding the direct relationship between increasing sexuality education levels and increasing knowledge accuracy and increasing knowledge confidence (one type of positive knowledge orientation), do appear to be supported. Although the effects measured were only slight, ranging from a 3% to 8% improvement in scaled scores, the results were statistically significant. The results of this analysis confirm the findings of Mathematica Policy Research, Inc., in that their study seems to suggest that almost any form of sexuality education can improve knowledge accuracy and positive knowledge orientations. The overall model was found to have a very limited predictive power, but this could easily be the result of the limitations of the sexuality education level variable described in the limitations section. The limited effect of this individual-level variable on the first two outcomes may also indicate that even individually controlled outcomes are influenced by non-individual (group, cultural, or social) variables.

While females had higher average knowledge accuracy, males reported higher average knowledge confidence. The reversal of the effect of sex between these first two outcome measures is of particular interest in demonstrating how non-individual variables interact with individual ones. This relationship may indicate a general sex/gendered orientation to sexual knowledge acquisition and usage. For instance, researchers have found evidence of markedly different sexual cultures among elementary age boys and girls. One study found that girls tended to relate to information about sexuality in a more serious manner, focusing on important details and
information, while boys tended to relate to information about sexuality in a more joking manner and with strong linkages to their self image (Halstead & Waite, 2001). In both that study and the analysis at hand, males and females react very differently to what is ostensibly similar information and questions. These observations strongly suggest the salience of gendered learning processes, especially for sexual learning, which means that sexuality education programs ought to approach male and female participants as if they will ingest and output the information received in very different manners. While some sexuality education programs are specifically designed for young men or women, many are purported to be appropriate for almost any group of participants, regardless of their varying cultural influences. If learning about sexuality is a gendered process, then sexuality education is more than an attempt to modify individual’s knowledge and behavior; sexuality education becomes an attempt to modify individual’s interaction with culture and possibly even the culture itself.

For the third hypothesis, regarding levels of engagement in sexual risk behaviors, no support was found in the hypothesized direction. In this case, the failure to find a relationship may again be due to the problems of the sexuality education variable discussed in the limitations section. As asserted by Kirby’s research, topical coverage is only one aspect of effective sexuality education. This finding should not necessarily be seen as a failure of sexuality education to affect risk behaviors in general, but should be seen as a demonstration of the importance of principles of sexuality education that focus on factors outside of the individual.

In fact, finding significant results for these two outcomes in terms of race, sex, low SES, and the highest degree of religiosity suggests that topical knowledge, and
other individually focused principles, may be the smallest of factors contributing to adolescent sexual risk behavior. The effects found for race and sex on number of lifetime partners were generally the effects of greatest magnitude throughout the whole analysis. This finding suggests that informal and cultural sexuality education processes are a force that is at least equally, if not more, powerful than formal sexuality education processes. If informal and cultural trends in sexuality create much of sexual behavior, then one of the main points of efficacy in comprehensive sexuality education may be counter-acting informal education, rather than actually building a new knowledge base. Once again, this suggests that sexuality education is less a process of individual education and more a process of cultural transformation.

For the final hypothesis, concerned with sexual coercion— the topic of greatest interest to this researcher, no statistically significant support was found in the hypothesized direction. It is likely that relationships between sexuality education and sexual coercion that may exist were depressed by the operational variable parameters discussed in the limitations section. However, it is notable that one control variable, low SES, did have a significant effect, reducing the likelihood of committing sexual coercion by half. This may be the result of underreporting of sexual coercion among those in the ‘lower’ classes, which implies that there are class-based definitions of sexual coercion. Extending this logic with a little imagination, the results might alternatively suggest that ‘lower’ class youth are less integrated in a culture of male sexual entitlement (or more fearful of overstepping their ‘place’) and therefore engage in less sexual coercion. Whether the relationship is due to differences in reporting or to differences in actual
incidence is irrelevant; either way, the results suggest a culture-based explanation for individual behaviors.

On the whole, the findings should not be seen as a failure of sexuality education to affect sexual coercion/violence outcomes. Instead, this should be interpreted to mean that topical coverage is not the crucial principle of sexuality education explaining this outcome. Since most of the prior research suggests that cultural variables play a large part in creating sexual violence, it makes sense that the culturally focused principles of sexuality education (not measured in this study) would provide better explanations of outcomes.
CONCLUSION

Overall, this study provides several results. First, increasing topical content in sexuality education does lead to higher levels of accurate knowledge and confidence in that knowledge. This result is as expected and confirms other findings that almost all sexuality education can create movement in these heavily individual variables.

Secondly, while topical content coverage in sexuality education is insufficient to predict behavioral outcomes, many informal, cultural, or social patterns of sexuality education may be more effective at explaining outcomes. This strongly implies that cultural sexuality education environments, and possibly identities, are a powerful force in shaping behavioral outcomes and must be taken into account in designing a sexuality education program to have a positive effect on actual life results. In practical terms, this means that sexuality educators have to get serious about designing and implementing more programs tailored specifically to small, well-defined groups of participants in order to have the desired effects.

Finally, while the results do not show a linkage between levels of topical content in sexuality education and actual experiences of sexual coercion, it suggests a method for doing so in combination with other health outcome variables. If certain outcome variables are excluded because they are too cultural or too political, then we can never hope to understand how individual and cultural variables interact to create outcomes.

The more researchers ensure that they evaluate all aspects of sexuality education based outcomes, both individual and cultural, the better we can begin to understand the processes that shape them. In order to make the best use of these findings, further research should be conducted to tease out the relative impact of both
individual and cultural characteristics of sexuality education programs and how individuals and groups actually utilize different aspects of these characteristics. Furthermore, future research should look at how sexuality education may affect cultural or group outcomes themselves, rather than simply aggregates of individual outcomes. With a better understanding of how sexuality education operates to affect both individual people and their cultures, researchers can move out of academic speculation and into changing not just lives, but entire worlds.
REFERENCES


