Relationship Between Comprehensive Sex Education and Teen Pregnancy in MN

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Abstract: This research study assessed the scope of comprehensive sexuality education (CSE) offered to high school students, using 39 topics defined by SIECUS's Guidelines for CSE, and determined if a correlation existed between number of topics emphasized and the corresponding county's teenage pregnancy rate, for a sample of 10 Minnesotan counties. A survey was sent to 104 educators within 10 counties. A mean of 24 topics were reportedly emphasized. No significant correlation r(7) = 0.50, p = .915 was found between pregnancy rates and number of topics reportedly emphasized. Results showed that CSE was not correlated with lower teenage pregnancy rates.

INTRODUCTION

Teen pregnancy rates have steadily declined since 1950. As a nation, the birth rate among females aged 15-19 years declined 20.1% during 1991 and 1998 (National Campaign, 2000). Despite these trends, the U.S. still has one of the highest teen pregnancy rates among developed countries (Jordan, Price, & Fitzgerald, 2000). In 2002, 757,000 pregnancies occurred among females aged 15-19 years, resulting in 425,000 births, 215,000 induced abortions, and 117,000 fetal losses (Ventura, Abma, Mosher, Henshaw, n.d.). Nationally, 46.8% of students have had sexual intercourse, with 14.3% reporting four or more partners during their lifetime (CDC, 2006). Among the new 15 million cases of sexually transmitted diseases (STDs) each year in the U.S., 25% occurred among teens (CDC, 2000). Many teens are sexually active despite the fact that they may not be cognitively, emotionally, or financially prepared for the consequences of their behaviors.

Teen pregnancy rates have shown a steady decline, however the National Campaign to Prevent Teen and Unplanned Pregnancy (2008) reported that "between 2005 and 2006, the national teen birth rate increased three percent-the first increase in fifteen years" (p. 1). Numerous studies have been conducted in an attempt to determine the most effective way to educate youth about sexuality, personal responsibility, and pregnancy prevention. Comprehensive sexuality education (CSE) is advocated to be most effective in teaching teens about the knowledge, skills, and values related to their sexual health (Moore & Rienzo, 2000), however such programs have received insufficient support and funding from the federal government thereby limiting schools' ability to implement comprehensive sexuality education (National Campaign, 2008). Research is limited on the extent to which CSE is implemented in public schools' sex education curricula and what relationship, if any, exists between teen pregnancy rates and the CSE offered to students. CSE is a valuable component of sex education curricula. In order to advocate for its inclusion in all curricula, it would be beneficial to know if CSE is negatively correlated with teen pregnancy, especially since the U.S.'s teen birth rates have recently risen. Such findings would support efforts to ensure all students receive comprehensive education regarding sexual health and pregnancy prevention.

The purpose of this study was to measure the sexuality topics emphasized in a sample of public high school sex education classes, and to assess whether the level of CSE was related to the counties' teen pregnancy rates. By investigating CSE, the school health discipline will learn more about teachers' attitudes and beliefs as well as perceived barriers to teaching CSE. Examining the relationship between CSE and teen pregnancy may help identify deficiencies that exist in school-based sex education.

This study aimed to answer the following questions:

1. What is the teen (15-19 years) pregnancy rate in each of the counties surveyed?

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2. What sexuality topics, as defined by SIECUS's *Guidelines for Comprehensive Sexuality Education*, taught in public high schools commonly receive major emphasis, minor emphasis, or no emphasis?

3. Is there a negative correlation between the scope of sexuality topics emphasized in high school sex education and the pregnancy rate for the county?

4. Is there a correlation between the amount of time spent on sex education during 9-12th grade and the teen pregnancy rate among the 10 counties?

5. What are frequently reported barriers to teaching sex education to high school students, as reported by sexuality educators?

SIECUS: The Guidelines for Comprehensive Sexuality Education (The Guidelines). Sexuality Information and Education Council of United States (SIECUS) has developed guidelines specifically for sex education. The *Guidelines* are centered upon the following four goals:

> 1) *Information*: Sexuality education seeks to provide accurate information about human sexuality, including growth and development, human reproduction, anatomy, physiology, masturbation, family life, pregnancy, childbirth, parenthood, sexual response, sexual orientation, gender identity, contraception, abortion, sexual abuse, HIV/AIDS, and other sexually transmitted diseases.
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> 2) *Attitudes*, *Values, and Insights*: Sexuality education seeks to provide an opportunity for young people to question, explore, and assess their own and their community's attitudes about society, gender, and sexuality. This can help young people understand their family's values, develop their own values, improve critical thinking skills, increase self-esteem and self-efficacy, and develop insights concerning relationships with family members, individuals of all genders, sexual partners, and society at large. Sexuality education can help young people understand their obligations and responsibilities to their families and society.
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> 3) *Relationships and Interpersonal Skills*: Sexuality education seeks to help young people develop interpersonal skills, including communication, decision-making, assertiveness, and peer refusal skills, as well as the ability to create reciprocal and satisfying relationships. Sexuality education programs should prepare students to understand sexuality effectively and creatively in adult roles. This includes helping young people develop the capacity for caring, supportive, noncoercive, and mutually pleasurable intimate and sexual relationships.
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> 4) *Responsibility:* Sexuality education seeks to help young people exercise responsibility regarding sexual relationships by addressing such issues as abstinence, how to resist pressures to become involved in unwanted or early sexual intercourse, and the use of contraception and other sexual health measures (SIECUS, 2004, p. 19).

In addition to the goals mentioned above, The *Guidelines* include six key concepts and corresponding topics. The *Guidelines* include the following:

> Key Concept 1: *Human Development*. Topics include: Reproductive and Sexual Anatomy and Physiology, Puberty, Reproduction, Body Image, Sexual Orientation, and Gender Identity.
>
> Key Concept 2: *Relationships*. Topics include: Families, Friendship, Love, Romantic Relationships and Dating, Marriage and Lifetime Commitments, and Raising Children.
>
> Key Concept 3: *Personal Skills*. Topics include: Values, Decision-making, Communication, Assertiveness, Negotiation, and Looking for Help.
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> Key Concept 4: *Sexual Behavior*. Topics include: Sexuality Throughout Life, Masturbation, Shared Sexual Behavior, Sexual Abstinence, Human Sexual Response, Sexual Fantasy, and Sexual Dysfunction.
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> Key Concept 5: *Sexual Health*. Topics include: Reproductive Health, Contraception, Pregnancy and Prenatal Care, Abortion, Sexually Transmitted Diseases, HIV and AIDS, and Sexual Abuse, Assault, Violence and Harassment.
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> Key Concept 6: *Society and Culture*. Topics include: Sexuality and Society, Gender Roles, Sexuality and the Law, Sexuality and Religion, Diversity, Sexuality and the Media, and Sexuality and the Arts (SIECUS, 2004, p. 15-18).

To date, research on the scope of CSE is limited. To measure sex education effectiveness, Klein, Goodson, Serrins, Edmundson, and Evans (1994) conducted a content analysis of 10 nationally known sex education curricula using SIECUS's *Guidelines* as criteria for assessment. Of the 10 curricula analyzed, only six curricula addressed at least one-half of the 36 topics recommended by SIECUS. One limitation to their study was that only the number of topics addressed was measured, not the extent to which topics were covered (Klein et al. 1994).

Moore and Rienzo (2000) looked at sex education offered in public high schools and assessed the relationship between the number of topics (in the *Guidelines*) taught and the level of importance that the teachers assigned to the topics. Moore and Rienzo found a mean of 25 of the 36 topics were reportedly taught by the teachers surveyed. Common topics taught were "abstinence, decision-making,

STDs/HIV, communication, values and finding help;" neglected topics included: "abortion, sexuality and religion, sexuality and the law, shared sexual behavior, diversity, masturbation, fantasy, sexual dysfunction, and sexuality and the arts" (Moore & Rienzo, 2000, p. 59).

CSE offered to children throughout their education provides students with essential information. Although teen sexual activity is influenced by a variety of factors, providing sexuality information to students is crucial in educating students about protecting their sexual health and reducing risk of pregnancy and STDs including HIV. This study attempted to determine the extent to which specific sexuality topics (as recommended by SIECUS) were emphasized in sex education classes and whether or not a relationship existed between county teen pregnancy rates and CSE offered in schools.

METHODS

PARTICIPANT SELECTION

Prior to data collection, approval from the university's Institutional Review Board was obtained. From the population of all public high school sex educators in MN, the participants of this study represented the sex educators of 10 randomly selected counties. All Minnesota counties were identified and pooled. The first 10 counties drawn from the pool were selected for this study.

All public high schools within each selected county were identified through the MN Department of Education (Districts by County Contact Listing, n.d.). For each of the 10 counties, every public school serving grades 9-12 was contacted by telephone. The educators' names and specific disciplines were collected. Educators representing Health, Physical Education, Family Consumer Science, Home Economics, Child Development and Family Life were included in the sample. An online search was also conducted to further identify current sex educators. Educators representing the disciplines mentioned above received a cover letter, the Sexuality Educator Survey (SES), and a postage-paid, self-addressed return envelope. The cover letter described the study's purpose and listed the participating counties. The envelopes were coded to track returns and provide information on who should receive a follow-up mailing.

DATA COLLECTION

Teen pregnancy rates were taken from the Center for Health Statistics, MN Department of Health. The teen pregnancy rate represented the number of pregnancies per 1,000 females aged 15-19 years, for a three-year period (2003-2005) within each of the 10 counties. Data for this study was collected using the SES, a survey designed to assess the level of emphasis placed upon each of the 39 sexuality topics (*Guidelines*) during sex education classes. Information regarding the teachers' qualifications, training, and experience teaching sexuality was obtained. In addition, participants were asked about perceived barriers of teaching sexuality and personal beliefs regarding sex education. Data was collected Spring 2007.

INSTRUMENTATION

A 26-item survey was developed based on a comprehensive literature review and SIECUS's *Guidelines*. The survey was designed with reference to Moore and Rienzo's (2000) study that used the *Guidelines* to "access the scope of sexuality education topics taught by teachers" and their "rated importance of these topics in public high school" (p. 57). The content and format of Moore and Rienzo's survey was taken from the "Survey of School Sexuality Education," developed by Yarber, Torabi and Haffner (1997). Moore and Rienzo's survey assessed topics taught and teachers' ratings of importance for each topic. For this study, participants were asked the level of emphasis that each of the sexuality topics received, rather than the teachers' perceptions of importance. The topics were listed randomly, in no particular order.

Assessing content validity for the survey involved two stages: Developmental Stage and Judgment-Quantification Stage (Lynn, 1986). A thorough review of literature and item selection took place during the Developmental Stage. The Judgment-Quantification Stage involved asking professional experts to review the SES for content validity. The SES was sent to a panel (convenience sample) of experts within the field of sex education (n=6) for content validity. Based on the suggestions given, the final version of the SES consisted of 26 items. Results of a reliability analysis were .869 Cronbach alpha for the topic items and .835 Cronbach alpha for the teaching barrier items.

Demographic questions included gender, ethnicity, and age. Additional items included teachers'education and certification attained, and experience teaching sex education. Participants were asked to rate their level of confidence in teaching sex education. Participants were asked to estimate the total number of weeks that 9th-12th graders in their school received sex education.

Participants were instructed to read five statements and indicate whether or not they agreed with each statement. The questions related to personal beliefs regarding the qualities of effective sex education. Next, using a table format, participants were asked to indicate the biggest barrier to teaching each of the following: abstinence, HIV/AIDS, assertive-

ness skills, contraception, abortion, teen parents, sexual orientation, body image, and decision making skills. Finally, participants were asked to indicate the level of emphasis that each of the 39 sexuality topics experienced during their sex education course.

DATA PROCESSING AND ANALYSES

Analyses were conducted separately, according to county. Data was documented and analyzed using SPSS. Descriptive statistics were used to describe the demographical results as well as the background and beliefs of the participants. Pearson product-moment correlation coefficient was used to measure the degree of relationship between the teen pregnancy rate and total number of sexuality topics emphasized, as well as the relationship between teen pregnancy rate and average time spent on sex education during high school. The level of significance used for this study was $p < .05$.

RESULTS

This study measured the extent to which CSE was reportedly offered in MN public high schools and assessed whether there was a correlation between the extent of CSE offered and teen pregnancy rates. Surveys were sent to 104 presumed sexuality educators within a sample of 10 counties in MN. The initial response rate was 33% (n=34). Of 34, 29 educators were currently teaching sex education and therefore qualified for this study, representing a 28% response rate.

DEMOGRAPHIC RESULTS

Thirty-eight percent of the educators surveyed were male (n=11) and 62% were female (n=18). All respondents (n=29) were Caucasian. The mean age of the educators surveyed was 46 years, with a range of 29-58 years. Eighty-three percent (n=24) of the educators reported completing a college academic course on sexuality. Thirty-two percent of the educators (n=9) reported that 10th grade was the grade level at which they most frequently taught sex education. The mean hours spent teaching sexuality within a semester/quarter was 23.5 hours (s.d. 35.98), ranging from 2 to 160 hours, with 85% (n=23) of educators reporting less than 20 hours. When asked if their sex education course was required, 59% (n=17) reported yes and 41% (n=12) answered no.

Table 1. Total Pregnancies per 1,000 Females Aged 15-19 years

County	Pregnancy Rate
Benton	42.3
Clearwater	41.7
Hubbard	29.6
Kittson	Not available
Lake of the Woods	Not available
Lyon	23.2
Swift	32.5
Todd	38.9
Wabasha	30.7
Watonwan	53.1

(MN County Health Tables, 2006)

Table 2. Reported Topics Most Commonly Receiving Major Emphasis, All Counties

Topic	Percentage	Number
Communication	62%	(n=18)
STDs	62%	(n=18)
Sexual Abstinence	59%	(n=17)
HIV and AIDS	48%	(n=14)
Reproduction	45%	(n=13)
Values	41%	(n=12)
Pregnancy & Prenatal Care	41%	(n=12)
Love	41%	(n=12)
Sexual Abuse, Assault, Violence & Harassment	41%	(n=12)

Educators reported a mean of 15.54 years experience teaching sex education, with a range of 4 to 34 years. Overall, 86% (n=25) of the educators felt confident or very confident teaching sexuality, with 7% (n=2) of the educators reported feeling unconfident. Educators were asked how committed their school was in providing CSE, using a scale of one to 10 with 10 being most committed; the mean score was 6.6. Eighteen percent (n=5) of the educators stated that they used a standardized sex education curriculum, versus 27% (n=7) who used an abstinence-only curriculum.

PREGNANCY RATES

To answer the first research question, teen pregnancy rates of the 10 counties selected were taken from MN Department of Health (MN County Health Tables, 2006). Rates represented pregnancies per 1,000 females aged 15-19 years old during 2003-2005. Teen pregnancy rates for the 10 counties are displayed in Table 1.

SEXUALITY TOPICS EMPHASIZED

To assess the second research question, a frequency table was used to tally the total of sexuality topics receiving major, minor, and no emphasis. The extent of emphasis for each topic was assessed for each county in order to evaluate if a correlation existed between the number of total topics emphasized and the county teen pregnancy rate. Of the 39 topics listed in the *Guidelines*, a mean number of 12.6 topics received minor emphasis, 11.6 topics received major emphasis, and 9.9 topics received no emphasis.

Table 2 highlights the topics most frequently reported to receive major emphasis, these include decision-making at 66% (n=19), communication at 62% (n=18), STDs at 62% (n=18), and sexual abstinence at 59% (n=17). Topics most likely to receive no emphasis included sexual fantasy, masturbation, sexuality and religion, human sexual response, and sexual orientation. Table 3 displays the topics most likely to receive no emphasis.

Table 4 displays the number of educators that reported major, minor, or no emphasis for each of the 39 topics included in the *Guidelines*. The topics are displayed by key concept. Tests of significance of binomial proportions were conducted to determine if significant differences were observed among the key concept categories (Human Development, Relationships, Personal Skills, Sexual Behavior, Sexual Health, and Society and Culture) reportedly receiving major emphasis compared to those receiving minor/no emphasis. For all categories, the observed proportion of major emphasis was significantly different that the observed proportion of minor/no emphasis at the 0.05 level (2 tailed). See Table 5 for further details.

TEEN PREGNANCY RATE AND SEXUALITY TOPICS EMPHASIZED

The third research question sought to determine if a correlation existed between the average number of topics emphasized during sex education and the teen pregnancy rate for each of the counties. Using Pearson product-moment correlation coefficient, no significant correlation $r(7) = 0.50$, $p = .915$ was found between pregnancy rates and the average number of sexuality topics reported to receive emphasis in class.

TIME SPENT ON SEX EDUCATION AND TEEN PREGNANCY

The fourth research question asked if a correlation existed between the amount of time spent on sex education during 9th-12th grades and the teen pregnancy rate among the 10 counties. Using Pearson product-moment correlation coefficient, no significant correlation $r(7) = .001$, $p = .998$ was found between the pregnancy rates of the 10 counties and the mean total weeks reportedly spent on sex education during grades 9-12. Therefore, for

Table 3. Reported Topics Most Commonly Receiving No Emphasis, All Counties

Topic	Percentage	Number
Sexual Fantasy	76%	(n=22)
Masturbation	66%	(n=19)
Sexuality & Religion	48%	(n=14)
Human Sexual Response	48%	(n=14)
Sexual Orientation	48%	(n=14)
Negotiation	41%	(n=12)
Abortion	41%	(n=12)
Gender Identity	41%	(n=12)
Sexuality & the Law	38%	(n=11)

Table 4. Total Number of Educators That Reported Major, Minor, or No Emphasis n=29

Topic	Major Emphasis	Minor Emphasis	No Emphasis
Human Development			
Reproductive Sexual Anatomy &Physiology	11 (38%)	9 (31%)	1 (3%)
Reproduction	13 (45%)	9 (31%)	0
Puberty	10 (34%)	8 (28%)	3 (10%)
Body Image	7 (24%)	11 (38%)	4 (14%)
Sexual Orientation	1 (3%)	8 (28%)	14 (48%)
Gender Identity	1 (3%)	10 (34%)	12 (41%)
Total	**43 (33%)**	**55 (42%)**	**34 (26%)**
Relationships			
Families	10 (34%)	9 (31%)	3 (10%)
Friendship	9 (31%)	11 (38%)	2 (7%)
Romantic Relationships & Dating	11 (38%)	8 (28%)	3 (10%)
Love	12 (41%)	7 (24%)	4 (14%)
Marriage & Lifetime Commitments	9 (31%)	12 (41%)	2 (7%)
Raising Children	9 (31%)	9 (31%)	4 (14%)
Total	**60 (45%)**	**56 (42%)**	**18 (13%)**
Personal Skills			
Values	12 (41%)	11 (38%)	0
Decision-making	19 (66%)	5 (17%)	0
Communication	18 (62%)	5 (17%)	0
Assertiveness	9 (31%)	11 (38%)	2 (7%)
Negotiation	3 (10%)	6 (21%)	12 (41%)
Looking for Help	6 (21%)	6 (21%)	9 (31%)
Total	**67 (50%)**	**44 (33%)**	**23 (17%)**
Sexual Behavior			
Sexuality Throughout Life	4 (14%)	7 (24%)	12 (41%)
Masturbation	0	3 (10%)	19 (66%)
Shared Sexual Behavior	4 (14%)	8 (28%)	10 (34%)
Sexual Abstinence	17 (59%)	7 (24%)	0
Human Sexual Response	0	8 (28%)	14 (48%)
Sexual Fantasy	0	0	22 (76%)
Sexual Dysfunction	0	4 (14%)	18 (62%)
Total	**25 (16%)**	**37 (24%)**	**95 (61%)**
Sexual Health			
Contraception	9 (31%)	11 (38%)	2 (7%)
Abortion	1 (3%)	9 (31%)	12 (41%)
Pregnancy & Prenatal Care	12 (41%)	7 (24%)	4 (14%)
STDs	18 (62%)	4 (14%)	1 (3%)
HIV & AIDS	14 (48%)	9 (31%)	1 (3%)
Sexual Abuse, Assault, Violence & Harass.	12 (41%)	8 (28%)	3 (10%)
Reproductive Health	8 (28%)	13 (45%)	1 (3%)

Total	**74 (47%)**	**61 (38%)**	**24 (15%)**
Society and Culture			
Sexuality & Society	6 (21%)	14 (48%)	3 (10%)
Gender Roles	9 (31%)	11 (38%)	3 (10%)
Sexuality & the Law	2 (7%)	10 (34%)	11 (38%)
Diversity	2 (7%)	10 (34%)	10 (34%)
Sexuality & Religion	1 (3%)	6 (21%)	14 (48%)
Sexuality & the Arts	0	0	22 (76%)
Sexuality & the Media	4 (14%)	11 (38%)	7 (24%)
Total	**24 (15%)**	**62 (40%)**	**70 (45%)**

Table 5. Binomial proportions

Key Concept	Major emphasis vs minor/no emphasis	Major/minor vs. no emphasis
Human Development	.041*	.038*
Relationships	.043*	.029*
Personal Skills	.043*	.033*
Sexual Behavior	.029*	.039*
Sexual Health	.04*	.028*
Society & Culture	.029*	.04*

*Binomial proportion significant at the 0.05 level (2-tailed).

this study, there was no relationship between teen pregnancy rates and amount of time spent on sex education during grades 9-12.

BARRIERS TO TEACHING SEX EDUCATION

The fifth research question was in regards to the most frequently reported barriers in teaching certain sexuality topics. Educators were asked to indicate the biggest barrier for teaching the following topics: abstinence, HIV/AIDS, assertiveness skills, contraception, abortion, teen parents, sexual orientation, body image, and decision-making skills. Overall, the most reported barriers to providing sex education included lack of time, lack of materials, topic not included in required curriculum, and topic uncomfortable for students. Sexual orientation 79% (n=23), abortion 62% (n=18), HIV 55% (n=16), and contraceptives 55% (n=16) were most often reported to have barriers.

SEX EDUCATORS' BELIEFS

Sex educators were also asked whether or not they agreed with five different statements related to sex education. Twenty-four percent (n=7) of educators agreed with the statement that if a teacher is generally an effective teacher, he or she will make an effective sex educator. Fifty-nine percent (n=17) disagreed with the statement that providing contraceptive information to students may promote early sexual involvement. Seventy-five percent (n=21) educators disagreed that abstinence-only programs were the best approach. Forty-six percent (n=13) agreed that emphasizing negative outcomes (STDs, pregnancy, etc.) of sexual involvement was an effective way to promote abstinence. Ninety-six percent of educators agreed that continuing education was important, yet only 28% (n=7) reported continuing education within the past 12 months.

DISCUSSION

This study aimed to determine which sexuality topics received major, minor or no emphasis in high school sex education. Using the SIECUS's *Guidelines* as a standard, the participants surveyed reported a mean of 12.6 (32%) sexuality topics receiving minor emphasis, 11.6 (30%) topics receiving major emphasis, and 9.9 (25%) topics receiving no emphasis. When combining the mean number of sexuality topics receiving major and minor emphasis for all counties, a mean 24.3 (62%) topics were reportedly emphasized, at some level. This finding is similar to a study conducted by Moore and Rienzo (2000) who found a mean of 25 sexuality topics reportedly taught by educators.

The topics most commonly receiving major emphasis included decision-making (66%), STDs (62%),

abstinence (59%), communication (62%), and HIV and AIDS (48%). In comparison, Darroch, Landry and Singh (2000) reported that sex educators were more likely to teach abstinence, STDs, and resisting peer pressure. Considering that one in four sexually active high school students has a STD (Kirby, 2001), it is essential that prevention, detection, and treatment of STDs and HIV infection be taught in all sex education courses. Although abstinence was reportedly emphasized by 83% of the educators surveyed, only 21% reported that the sexuality topic of "finding help" received major emphasis in their sex education course, with 31% of the educators reportedly placing no emphasis at all on the topic. According to Kaiser Family Foundation research, teens stated that they wanted more information about locating resources regarding reporting rape, STD and HIV testing, and how to talk to a partner about birth control and STDs (Darroch, Landry, & Singh, 2000).

Sexual orientation is often neglected in sex education. Telljohann, Price, Pouresiami, and Easton (1995) found that less than one half (46%) of sex educators addressed homosexuality. Over 10 years later, results of this study found that 48% of educators stated that they did not emphasize sexual orientation (which encompasses homosexuality).

For this study, 46% percent of educators agreed that emphasizing negative outcomes (STDs, pregnancy, etc.) of sexual involvement was an effective way to promote abstinence among high school students. However, researchers Wiley and Terlosky (2000) emphasized that sexuality programs should eliminate stereotypes, biases, and scare tactics. Considering how common STDs are among young people, over-emphasis on negative consequences could foster an environment of embarrassment and shame and actually prevent students from participation in STD screenings and partner notification.

TIME SPENT ON SEX EDUCATION

For this sample, the mean amount of sex education received during grades 9-12 was 4.23. There was no significant correlation between the mean number of weeks spent on sex education and teen pregnancy rates. Research is limited regarding this relationship however it has been strongly recommended that adequate time be designated for sex education (Kirby, 1995). Kirby (1995) stated that short-term sex education should not be assumed to have a significant impact on adolescent sexual behaviors but rather sexuality programs need to be extensive and of substantial duration. Also, Kirby (2001) recommended that sex education programs last a sufficient length of time (i.e. more than a few hours). However, the ideal amount of time designated for total sex education as well as recommended time spent on different topics has not yet been established.

BARRIERS

Since sex education is a controversial subject, barriers need to be overcome in order to provide CSE. Similar to findings by Haignere et al (1996), educators in this study's sample reported lack of time and lack of materials as the two most common barriers in providing sex education. Researchers Tappe, Galer-Unti and Bailey (1997) also reported that lack of time was a major barrier in implementing CSE. One possible explanation for this is that emphasis is increasingly placed on academic courses (math, science, etc.) within schools and often health and physical education courses are shortened in length or frequency. Perhaps, if schools offered truly CSE programs, sexuality topics and issues could be integrated into courses that do not traditionally address sexuality. For example, a social studies class could investigate the social impact of teen pregnancy or a speech course could incorporate assertiveness skill training and practice in its curriculum. Indeed, there is limitless potential to expand the amount of sex education offered in schools if sexuality topics were addressed by non-health disciplines.

LIMITATIONS OF THE STUDY

The limited sample size (ten counties) combined with the low response rate (29%) limits the generalizations that can be made from the results of this study. A second limitation to this study relates to the sexuality topics with which educators were asked to indicate the amount (major, minor, or none) of emphasis they placed on each topic. Educators were not provided with a description of the topics and therefore may not have understood the related issues surrounding each topic. Another limitation that may make it difficult to determine the exact amount of sexuality topics emphasized in sexuality education is the reliance of self-reports.

For this study, the mean amount of time spent on sexuality throughout high school was 4.23 weeks, ranging from 1 to 12 weeks. One difficulty in assessing the total time spent on sexuality education relates to the variety of classes that may address sexuality. For example, some educators may teach courses which do not address all 39 sexuality topics. This factor may contribute to the wide range of time reportedly spent on sexuality education among respondents. In addition, courses other than health or family consumer science may also address one or more of the 39 sexuality topics throughout a child's education. Topics such as values, communication, and decision-making may be implemented in other courses and therefore it may be difficult to assess the total amount of time spent on sexuality topics.

IMPLICATIONS

This study examined the relationship between CSE and county teen pregnancy rates. Comprehensive school-based education is advocated by many as a necessary strategy needed to decrease the negative, unwanted consequences associated with teen sexuality activity. Although this study did not find a significant relationship between CSE and teen pregnancy rates, there is need for further study. Identifying positive outcomes that impact society as a result of CSE would serve a strong argument to advocate the inclusion of CSE within public schools.

There was great variation regarding the total amount of time that students received sex education in grades 9-12. Such variation further calls attention to the need for a standardized sexuality curriculum to be implemented in public school settings. Establishing standards related to content, amount of time spent, and teacher qualifications would help to ensure that all students receive a more CSE and that adequate time is designated for such learning. In addition, standardization and consistency would allow a more accurate assessment of impact and perhaps provide insight into what role CSE may have in the prevention of teen pregnancy.

CONCLUSIONS

This study aimed to identify the extent at which CSE was offered in public high schools and if the amount of sex education was correlated to teen pregnancy rates. Using the recommended topics included in SIECUS's *Guidelines* as a reference, no significant correlation was found between teen pregnancy rates and the number of sexuality topics that received emphasis during sex education.

This study demonstrated that a mean of 24 of the 39 SIECUS *Guidelines*' key sexuality topics were addressed among the sample of high schools. Topics that most frequently received major emphasis included decision-making, STDs and HIV infection, abstinence, and communication. Further research to determine why topics such as sexuality and the arts, sexual dysfunction and masturbation are not as frequently addressed, is needed.

This study found that lack of time and lack of materials were the two most commonly reported barriers in providing CSE. Perhaps establishing specific standards and guidelines for each grade level and developing an age appropriate, universal curricula would help to alleviate these barriers and ensure that all students receive the necessary information to help them protect their sexual health and relationships.

Based on results of this study, inclusion of CSE into sex education courses was not correlated with lower teen pregnancy rates. SIECUS recommends that sex education courses address key topics to qualify as comprehensive. Since there are no national standards or curricula requirements for school-based sex education, the amount of sex education offered will continue to vary. Increased training for educators as well as community advocacy for CSE is needed to ensure that students receive sufficient information and knowledge in order to prevent teen pregnancies.

Identifying what role sex education plays in the prevention of teen pregnancy will provide direction for both sex educators and community health professionals in developing teen pregnancy prevention strategies. Based on the findings of this study, a future recommendation would be to use a larger sample size. Also, it may be beneficial to use stratified sampling according to county population size since teenage pregnancy rates are influenced by population size. Furthermore, research is needed to determine the reasons why topics such as masturbation and sexuality and the arts are often neglected in sexuality educations courses in order to identify effective methods to help prepare educators to provide CSE. In addition, it may be beneficial to research the manner in which the topics are addressed (positively or negatively). Certain topics (i.e. masturbation, homosexuality, etc.) may receive only negative emphasis and although these topics are addressed in class, the content may not be representative of CSE.

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