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Sexual Health Education from the Perspective of School Staff: Implications for Adoption and Implementation of Effective Programs in Middle School

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Introduction

U.S. teens are having sex early. By sixth grade, almost one in 10 students is sexually experienced, [1] and this percentage increases to 32% by the ninth grade.[2] These statistics are disturbing since early initiation of sexual behavior is a risk factor for teen pregnancy and sexually transmitted infections (STIs).[3,4] The U.S. has one of the highest teen birth rates of all developed countries,[5,6] and children born to teen mothers are more likely to perform poorly in school, are at greater risk of abuse and neglect, and are more likely to become a teen parent themselves.[7] In 2008, teen pregnancy cost U.S. taxpayers more than $10 billion.[8]Adolescents and young adults (13 to 29 years of age) accounted for more than one-third of all new HIV infections in 2006,[9] with estimated lifetime treatment costs of $355,000 per person infected.[10] Compared to all other age groups, young people (ages 15-24) also have the highest rates of gonorrhea and chlamydia, and almost one in four adolescent females (ages 14-19) is infected with human papilloma virus (HPV).[11]

Given that youngsters are initiating sexual behavior early, sex education programs need to start as early as middle school, and there are several middle school-based programs that show evidence of delaying sexual behavior, improving condom use, and/or reducing teen pregnancy.[12-25] Unfortunately, the vast majority of middle and high schools do not implement evidence-based programs.[26] Moreover, pregnancy and HIV prevention are not required health topics in many schools (40% and 25%, respectively).[27] Additionally, more than one in three teens does not receive any formal education on contraception,[28] and 40% of sexual education teachers do not teach about the subject or teach that contraceptives, including condoms, are ineffective.[29]

While research on developing adolescent sexual health interventions has increased, an understanding of why schools are not adopting and implementing programs shown to be effective is needed. Social cognitive theory [30] provides a useful theoretical framework for understanding some of these reasons. According to social cognitive theory, personal factors (e.g., knowledge, skills, perceived self-efficacy, outcome expectations) can increase or decrease the likelihood of someone engaging in a particular behavior. School staff may be less likely to adopt and implement sexual health education (SHE) programs if they lack skills, confidence, and training,[31-37] have negative attitudes towards sex education,[38] and perceive negative support from others for implementing programs.[36,38-40] Unfortunately, limited empirical data[34,41] exists concerning how U.S. middle school staff, in particular, perceive

these factors. To our knowledge, there are no studies that include other staff such as school administrators and non-sexual health education teachers in their sample. It is important to elicit the views of all members of the school staff regarding SHE because research has shown that school-wide support is essential for adoption and implementation of effective sex education practices.[40]

The current study addresses this shortfall by examining middle school staff's knowledge, attitudes, barriers, self-efficacy, and perceived support for sexual health education in a large urban school district in Texas. The purpose of this study is to describe the prevalence of these psychosocial variables and assess whether they vary by demographic factors including school position, experience teaching sex education, gender, race/ethnicity, age, highest completed degree, and years in education. This information will advance the understanding of potential strategies that can be used to influence middle schools in the U.S. to adopt and implement evidence-based SHE programs.

Methods

Subjects

Professional school staff (n=604) were recruited from 33 middle schools in a large urban school district in southeast Texas as part of the baseline assessment of a pilot study to evaluate strategies for disseminating It's Your Game…Keep it Real, an effective middle school HIV, STI, and pregnancy prevention program.[13] For this study, professional staff included all physical education (PE)/health teachers (n=127), all administrators, nurses and counselors (n=248), and a random sample of non-PE/non-health teachers (n=229). Of those sampled, 56% completed a survey (n=337). Response rates varied by staff position (79% of PE/health teachers, 58% for administrators, nurses, and counselors, and 37% for non-PE/non-health teachers). Seven surveys containing no data were excluded from analysis leaving a sample size of 330. This study was approved by the University of Texas – Institutional Review Board.

Instruments

Participants completed a self-administered internet-based survey. Non-respondents to the internet-based survey were given the opportunity to respond to a paper-based survey. Independent variables included school position (administrator, PE/health teacher, non-PE/non-health teacher, counselor/nurse, or other), experience teaching sex education (dichotomized into 0 years versus 1 or more years), gender, race/ethnicity

(black, Hispanic, white, other), age, and years in education. Age and years in education were analyzed as continuous variables.

Psychosocial variables (dependent variables) included knowledge of policy and curricula related to sexual health (three items, each with four-point Likert scale ranging from “not at all true” to “very true”),[42] attitudes and perceived barriers towards SHE (four items, five -point Likert scale, “strongly disagree” to “strongly agree”),[43] self-efficacy for facilitating discussion of sexual health topics with students and relevant teaching methods (five items, five-point Likert scale, “strongly disagree” to “strongly agree”), perceived administrator support for general SHE, relevant teaching methods, and education that included information on condoms and contraception (five items, five-point Likert scale, “strongly disagree” to “strongly agree”),[40] and support for SHE that focused on abstinence but also addressed condoms and contraceptives (i.e., comprehensive SHE) from parents, community leaders, teachers (PE/health and non-PE/non-health), district officials, and the state educational agency (six items, six-point Likert scale, “not at all supportive” to “extremely supportive”).[43] Table 2 provides each item.

Procedures

Letters of information about the study were distributed to sampled participants via email and school mailbox during fall 2008. Within each email, a unique hyperlink to the self-administered survey was embedded. Participants who clicked on the hyperlink were directed to the survey. To protect confidentiality, emails did not contain private information nor could recipients see who else was on the mailing list. Participants who did not respond to the electronic survey had the option of participating in a paper-based survey. Of participants who completed the survey, 84.3% completed the survey online and 15.7% completed the survey on paper. Data collected from the web-based survey were securely downloaded and transferred into a secured database. Data collected from paper surveys were double entered into a password-protected database by two project staff members and discrepancy tests were conducted to detect data entry errors. All participants were assigned unique identifiers. Participants received a $5 incentive for their participation in the survey.

Data Analysis

Descriptive statistics were computed to describe the sample. Differences in experience with teaching sex education by staff position were also examined. Prevalence estimates were computed for the total sample to summarize prevalence of awareness, attitudes, self-efficacy, and

perceived support towards SHE. Next, chi-square analyses were conducted to examine the differences in psychosocial constructs by school position, experience teaching sex education, gender, race/ethnicity, and highest completed degree. Participants in the "other" categories for school position and race/ethnicity were not included in chi-square analyses due to their small sample sizes. A *t*-test was conducted to examine the mean differences for age and years in education. To ensure adequate sample size for chi-square and *t*-test analyses, responses for psychosocial items were dichotomized. Knowledge items were dichotomized into slightly/somewhat/very true versus not at all true. Attitudes, perceived barriers, self-efficacy, and perceived administrator support items were dichotomized into agree/strongly agree versus strongly disagree/disagree/neither agree nor disagree. Perceived support was dichotomized into supportive/very supportive/extremely supportive versus not at all supportive/somewhat supportive/don't know. Staff with missing data on the psychosocial variables (knowledge, attitudes, perceived barriers, self-efficacy, perceived support) under study, were excluded from analysis, leaving a total sample size of 262. With the exception of differences by race/ethnicity, there were no other significant differences in demographic factors between participants in the analytic sample versus participants who were excluded (due to missing data). Participants who were missing data were significantly more likely to be black as compared to white or Hispanic.

Results

Almost 70% of participants were female, 37% were white, 42% were black, and 16% were Hispanic. Over half of participants reported a masters or doctorate degree as their highest completed degree. About 60% of participants were teachers, with approximately equal proportions teaching PE/health and non-PE/non-health classes. One in five participants was an administrator, and 15% were nurses or counselors. About one-third of participants reported one or more years of experience teaching sexual health. Mean age of participants was approximately 43 years old (SD = 10.9) and mean educational tenure (years in education) was about 15 years (SD = 9.54). (See Table 1) The majority of staff with SHE teaching experience were health/PE teachers (74%), followed by counselors/nurses (35%), administrators (18%), and non-PE/non-health teachers (13%).

Table 1: Sample Characteristics (n=262)

	n	%
Sex		
Male	84	(32.1)
Female	178	(67.9)
Race/Ethnicity		
White	96	(36.6)
Black	109	(41.6)
Hispanic	43	(16.4)
Other†	12	(4.6)
Missing	2	(0.8)
Highest Educational Degree		
Associate's	3	(1.1)
Bachelor's	109	(41.6)
Master's or Doctorate	141	(53.8)
Missing	9	(3.4)
School Position		
Administrator	52	(19.8)
Counselor/nurse	40	(15.3)
Non-PE/non-health teacher §	82	(31.3)
PE/health teacher §	72	(27.5)
Other staff type	13	(5.0)
Missing	3	(1.1)
Yrs Teaching Sex Education		
0 years	164	(62.6)
1 or more years	84	(32.1)
Missing	14	(5.3)
Age, years, mean (SD), [Range]	42.78 (10.94)	[23.08-73.5]
Years in Education, mean (SD), [Range]	14.88 (9.54) [1-51]	

† Other race/ethnicity includes Asian/Pacific Islander, American Indian/Native American, or other non-specified

§ PE refers to physical education

n=25 missing for age, n=12 missing for years in education

More than 75% of staff reported being aware of available SHE curricula, where to find curricula or the district's sexual health policy, and the vast majority of respondents were in favor of middle school SHE (more than 90%). Further, although some participants (18%-23%) perceived barriers to adopting a sexual health curriculum and implementing SHE that discussed contraceptives, many participants disagreed that these were barriers. More than 60% of participants expressed confidence in their ability to talk comfortably about sexuality in the classroom, use small groups for teaching sex education, and discuss contraception. Over 50% expressed confidence in their ability to facilitate role-playing exercises for sex education and assignments that involved students talking to their parents about sex. The perceived support of administrators in teaching SHE in the classroom and of relevant teaching methods varied (28%-56%); only 20% reported their administrators to be supportive of teachers who discuss condoms and contraception in the classroom. Participants also indicated varying levels of support for comprehensive sex education from parents (42%), community leaders (53.1%), and school officials (50%). Some participants, however, perceived somewhat to no support from these sources (26%-43%).

Across all categories, some participants expressed a neutral view or a lack of knowledge on these topics. For example, more than half of participants reported neither agreeing nor disagreeing with statements regarding administrator support for SHE or discussion of contraception in the classroom. More than one-third of participants neither agreed nor disagreed with statements regarding perceived barriers, and more than one in five participants neither agreed nor disagreed with statements regarding self-efficacy to discuss sexuality and contraception in the classroom. One quarter of staff reported not knowing whether their district officials or state educational agency perceived support for comprehensive sex education. (See Table 2)

Compared to non-PE/non-health teachers, PE/health teachers, administrators, and nurses/counselors were significantly more likely to be aware of available SHE curricula or of the district's sexual health policy. PE/health teachers reported the highest levels of awareness of curricula (over 90%), knowledge of where to find curricula (89%), and policy (86%). Similarly, PE/health teachers, administrators, and nurses/counselors were also more likely to report self-efficacy related to discussing sexuality and contraception, delivering relevant teaching methods for SHE, and getting students to do a parent-child assignment about sex compared to

Table 2: Knowledge, Attitudes, Perceived Barriers, Self-Efficacy and Perceived Support for Sexual Health Education in Middle School among Middle School Professional Staff (n=262)

	n (%)		
	Slightly, Somewhat, or Very True		**Not at all True**
Knowledge			
Aware of curricula which addresses sexual health education for middle school students	203 (77.5)		59 (22.5)
Know where to find sexual health education curricula for middle school students	193 (73.7)		69 (26.3)
Aware of district policy towards sexual health education for middle school students	193 (73.7)		69 (26.3)
	Strongly Agree/Agree	**Neither Agree nor Disagree**	**Strongly Disagree/ Disagree**
Attitudes			
Sexual health education should be taught in middle schools	245 (93.5)	14 (5.3)	3 (1.1)
PE/health[§] teachers can play an important role in informing students about risks associated with sex	242 (92.4)	15 (5.7)	5 (1.9)

Perceived Barriers			
My school has too many other priorities that would act as barriers to adopting a new sexual health education curriculum	47 (17.9)	88 (33.6)	127 (48.5)
A sexual health education curriculum that teaches about contraceptives would be difficult to implement in my school	61 (23.3)	100 (38.2)	101 (38.5)
	Strongly Agree/Agree	**Neither Agree nor Disagree**	**Strongly Disagree/ Disagree**
Self-Efficacy			
Can talk comfortably about sexuality in the classroom	166 (63.4)	56 (21.4)	40 (15.3)
Can successfully facilitate role-playing exercises for sexual health education curriculum activities in the classroom	147 (56.1)	65 (24.8)	50 (19.1)
Can effectively use small groups for sexual health education curriculum activities	178 (67.9)	53 (20.2)	31 (11.8)
Can discuss contraceptive practices comfortably in the classroom	159 (60.7)	56 (21.4)	47 (17.9)
Can get students to do an assignment that involves	133 (50.8)	86 (32.8)	43 (16.4)

them talking with parents about sexual topics			
Perceived School Administrator Support			
Administrators support teachers who teach about sexual health education in the classroom	93 (35.5)	143 (54.6)	26 (9.9)
Assigning homework activities on sexual health education that students do with their parents would be encouraged by administrators	107 (40.8)	123 (46.9)	32 (12.2)
Administrators support the idea of using role-play activities in the classroom as a method to teach students to delay sex	73 (27.9)	160 (61.1)	29 (11.1)
Doing small group activities in the classroom is a teaching method that is acceptable by administrators	147 (56.1)	97 (37)	18 (6.9)
Administrators support teachers who teach about condoms and other contraceptives	49 (18.7)	181 (69.1)	32 (12.2)

Perceived Support for Comprehensive* Sex Education from Other Sources	Supportive/Very Supportive/ Extremely Supportive	Not at all Supportive/ Somewhat supportive	Don't Know
Parents	110 (42)	112 (42.7)	40 (15.3)
Community leaders	139 (53.1)	75 (28.6)	48 (18.3)
PE/health teachers §	223 (85.1)	23 (8.8)	16 (6.1)
Other teachers besides PE/health §	194 (74)	37 (14.1)	31 (11.8)
Officials in my district	131 (50)	67 (25.6)	64 (24.4)
State educational agency	128 (48.9)	62 (23.7)	72 (27.5)

*Comprehensive sex education refers to sex education that focuses on abstinence but also addresses condoms and contraception.

§ PE refers to physical education

non-PE/non-health teachers. Analogous results for awareness and self-efficacy were observed when participants with one or more year's SHE experience were compared to those with no experience teaching SHE. For example, 75% of participants with experience teaching SHE reported self-efficacy for discussing contraception in the classroom compared to only 53% of participants who lacked this experience. Nurses/counselors (40%) perceived significantly more barriers to implementing SHE that included information on contraception compared to PE/health teachers (26%), administrators (19%), and non-PE/non-health teachers (15%).

Administrators were more likely to perceive administrative support for SHE, delivering relevant teaching methods for SHE, and discussion of contraceptive practices when compared to other staff positions; non-PE/non-health teachers perceived the lowest levels of support. Similar patterns were observed for perceived support for comprehensive SHE from parents. For example, almost 60% of administrators perceived support from parents compared to only 37% of non-PE/non-health teachers, 35% of PE/health teachers, and 40% of nurses/counselors. Participants with one or more years of experience teaching SHE perceived greater administrative support for SHE (46%) compared to those with no experience (30%); similar patterns were observed for administrator support for SHE teaching methods. Staff with one or more years of SHE teaching experience (82%) were also significantly more likely to perceive that non-PE/non-health teachers were supportive of comprehensive SHE compared to staff without this experience (70%). (See Table 3)

With the exception of knowledge of where to find a middle school sexual health curriculum (males 82%, females 70%), there were no significant differences across constructs for gender. Regarding race/ethnicity differences, 61% of blacks reported that they could get students to do an assignment about sexual topics with their parents, compared to only 48% of whites and 35% of Hispanics. A similar pattern, though not statistically significant, was observed when comparing black staff to Hispanic staff for other self-efficacy constructs (for discussion of sexual health and contraceptives, doing role-plays). Staff who were younger and reported fewer years of experience in education were significantly less likely to perceive barriers to implementing a curriculum that discusses contraception compared to staff who were older and reported more years of experience. A similar pattern for educational tenure was observed for self-efficacy to facilitate role-plays. No other statistically significant differences were observed by age and years in education. (See Tables 4 and 5)

Table 3. Percent of Middle School Professional Staff Responding Positively Towards Items on Knowledge, Attitudes, Barriers, Self-Efficacy, and Perceived Support for Sexual Health Education by Position and Years Teaching Sex Education

n (%)

Variable	Position (n=246)				Years Teaching Sex Education (n=248)	
	Admin. §	Non-PE/non-health teacher §	PE/health § teacher	Nurse/ counselor	0 years	1 year or more
Knowledge†						
Aware of curricula which addresses sexual health education for middle school students	41 (78.8)*	50 (61.0)*	67 (93.1)**	34 (85.0)**	112 (68.3)**	78 (92.9)**
Know where to find a sexual health education curricula for middle school students	42 (80.8)**	45 (54.9)**	64 (88.9)**	32 (80.0)**	107 (65.2)**	76 (90.5)**
Aware of district policy towards sexual health education for middle school students	44 (84.6)**	49 (59.8)**	62 (86.1)**	30 (75.0)**	105 (64.0)**	76 (90.5)**

Perceived Barriers††						
My school has too many other priorities that would act as barriers to adopting a new sexual health education curriculum	5 (9.6)	14 (17.1)	13 (18.1)	11 (27.5)	32 (19.5)	13 (15.5)
A sexual health education curriculum that teaches about contraceptives would be difficult to implement in my school	10 (19.2)*	12 (14.6)*	19 (26.4)*	16 (40.0)*	33 (20.1)	23 (27.4)
Self-Efficacy††						
Can talk comfortably about sexuality in the classroom	34 (65.4)**	37 (45.1)**	53 (73.6)**	33 (82.5)**	88 (53.7)**	69 (81.0)**
Can successfully facilitate role-play exercises for sexual health education in the classroom	32 (61.5)**	26 (31.7)**	49 (68.1)**	32 (80.0)**	72 (43.9)**	67 (79.8)**
Can effectively use small groups for sexual health education curriculum	36 (69.2)**	41 (50.0)**	60 (83.3)**	32 (80.0)**	93 (56.7)**	74 (88.1)**

activities						
Can discuss contraceptive practices comfortably in the classroom	34 (65.4)**	37 (45.1)**	51 (70.8)**	30 (75.0)**	87 (53.0)**	63 (75.0)**
Can get students to do an assignment that involves them talking with parents about sexual topics	34 (65.4)**	25 (30.5)**	44 (61.1)**	22 (55.0)**	73 (44.5)*	50 (59.5)*
Perceived Administrator Support††						
Administrators support teachers who teach about sexual health education in the classroom	27 (51.9)**	17 (20.7)**	31 (43.1)**	15 (37.5)**	49 (29.9)**	39 (46.4)**
Assigning homework activities on sexual health education that students do with their parents would be encouraged by administrators	34 (65.4)**	24 (29.3)**	30 (41.7)**	15 (37.5)**	60 (36.6)	41 (48.8)
Administrators support the idea of using role-play	20 (38.5)*	13 (25.9)*	25 (34.7)*	14 (35.0)*	33 (20.1)**	33 (39.3)**

activities in the classroom as a method to teach students to delay sex						
Doing small group activities in the classroom is a teaching method that is acceptable to administrators	37 (71.2)*	37 (45.1)*	44 (61.1)*	21 (52.5)*	81 (49.4)**	57 (67.9)**
Administrators support teachers who teach about condoms and other contraceptives	17 (32.7)**	7 (8.5)**	16 (22.2)**	9 (22.5)**	25 (15.2)	21 (25.0)
Perceived Support for Comprehensive Sex Education‡						
Parents	30 (57.7)*	30 (36.6)*	25 (34.7)*	16 (40.0)*	69 (42.1)	32 (38.1)
Community leaders	31 (59.6)	36 (43.9)	41 (56.9)	20 (50.0)	82 (50.0)	47 (56.0)
PE/health teachers §	47 (90.4)*	61 (74.4)*	63 (87.5)*	37 (92.5)*	138 (84.1)	73 (86.9)

Teachers other than PE/health teachers [§]	44 (84.6)**	48 (58.5)**	57 (79.2)**	31 (77.5)**	114 (69.5)*	69 (82.1)*
Officials in my district	28 (53.8)	32 (39.0)	40 (55.6)	20 (50.0)	76 (46.3)	45 (53.6)
State educational agency	25 (48.1)	33 (40.2)	40 (55.6)	18 (45.0)	76 (46.3)	42 (50.0)

[§] Admin. refers to school administrators; PE refers to physical education
[†] Number of participants who responded slightly true, somewhat, or very true
[††] Number of participants who responded agree or strongly agree
[‡] Number of participants who responded supportive, very supportive, or extremely supportive; comprehensive sex education focuses on abstinence but also addresses condoms and contraception
* $p \leq 0.05$ ** $p \leq 0.01$

Table 4. Percent of Middle School Professional Staff Responding Positively Towards Items on Knowledge, Attitudes, Barriers, Self-Efficacy, and Perceived Support for Sexual Health Education by Gender, Race/Ethnicity, and Highest Completed Degree

	n (%)						
Variable	Gender (n=262)		Race/Ethnicity (n=248)			Highest Completed Degree (n=250)	
	Male (n=84)	Female (n=178)	White (n=96)	Black (n=109)	Hispanic (n=43)	BA/BS (n=109)	Master's/ Doctorate (n=141)
Knowledge†							
Aware of curricula which addresses sexual health education for middle school students	67 (79.8)	136 (76.4)	72 (75.0)	84 (77.1)	34 (79.1)	88 (80.7)	106 (75.2)
Know where to find a sexual health education curricula for middle school students	69 (82.1)*	124 (69.7)*	68 (70.8)	83 (76.1)	30 (69.8)	80 (73.4)	105 (74.5)
Aware of district policy towards sexual health education for middle school students	66 (78.6)	127 (71.3)	70 (72.9)	79 (72.5)	31 (72.1)	78 (71.6)	106 (75.2)

Perceived Barriers††							
My school has too many other priorities that would act as barriers to adopting a new sexual health education curriculum	14 (16.7)	33 (18.5)	12 (12.5)	27 (24.8)	7 (16.3)	22 (20.2)	22 (15.6)
A sexual health education curriculum that teaches about contraceptives would be difficult to implement in my school	15 (17.9)	46 (25.8)	23 (24.0)	27 (24.8)	10 (23.3)	24 (22.0)	34 (24.1)
Self-Efficacy††							
Can talk comfortably about sexuality in the classroom	51 (60.7)	115 (64.6)	62 (64.6)	74 (67.9)	21 (48.8)	67 (61.5)	90 (63.8)
Can successfully facilitate role-play exercises for sexual health education in the classroom	41 (48.8)	106 (59.6)	53 (55.2)	66 (60.6)	17 (39.5)	54 (49.5)	85 (60.3)
Can effectively use small groups for sexual health	54 (64.3)	124 (69.7)	65 (67.7)	76 (69.7)	25 (58.1)	70 (64.2)	99 (70.2)

education curriculum activities							
Can discuss contraceptive practices comfortably in the classroom	45 (53.6)	114 (64.0)	59 (61.5)	73 (67.0)	20 (46.5)	66 (60.6)	84 (59.6)
Can get students to do an assignment that involves them talking with parents about sexual topics	43 (51.2)	90 (50.6)	46 (47.9)*	66 (60.6)*	15 (34.9)*	48 (44.0)	76 (53.9)
Perceived Administrator Support††							
Administrators support teachers who teach about sexual health education in the classroom	30 (35.7)	63 (35.4)	33 (34.4)	40 (36.7)	17 (39.5)	36 (33.0)	54 (38.3)
Assigning homework activities on sexual health education that students do with their parents would be encouraged by administrators	38 (45.2)	69 (38.8)	39 (40.6)	45 (41.3)	17 (39.5)	37 (33.9)*	66 (46.8)*

Administrators support the idea of using role-play activities in the classroom as a method to teach students to delay sex	24 (28.6)	49 (27.5)	24 (25.0)	31 (28.4)	14 (32.6)	27 (24.8)	41 (29.1)
Doing small group activities in the classroom is a teaching method that is acceptable to administrators	42 (50.0)	105 (59.0)	61 (63.5)	53 (48.6)	27 (62.8)	58 (53.2)	81 (57.4)
Administrators support teachers who teach about condoms and other contraceptives	16 (19.0)	33 (18.5)	15 (15.6)	22 (20.2)	11 (25.6)	17 (15.6)	29 (20.6)
Perceived Support for Comprehensive Sex Education‡							
Parents	37 (44.0)	73 (41.0)	42 (43.8)	44 (40.4)	17 (39.5)	44 (40.4)	59 (41.8)
Community leaders	44 (52.4)	95 (53.4)	43 (44.8)	62 (56.9)	24 (55.8)	56 (51.4)	73 (51.8)

PE/health teachers	71 (84.5)	152 (85.4)	80 (83.3)	92 (84.4)	38 (88.4)	89 (81.7)	122 (86.5)
Teachers other than PE/health teachers	61 (72.6)	133 (74.7)	69 (71.9)	81 (74.3)	33 (76.7)	77 (70.6)	106 (75.2)
Officials in my district	46 (54.8)	85 (47.8)	40 (41.7)	62 (56.9)	19 (44.2)	50 (45.9)	72 (51.1)
State educational agency	45 (53.6)	83 (46.6)	40 (41.7)	61 (56.0)	17 (39.5)	52 (47.7)	66 (46.8)

[§] Admin. refers to school administrators; PE refers to physical education
[†] Number of participants who responded slightly true, somewhat, or very true
[††] Number of participants who responded agree or strongly agree
[‡] Number of participants who responded supportive, very supportive, or extremely supportive; comprehensive sex education focuses on abstinence but also addresses condoms and contraception
* $p \leq 0.05$ ** $p \leq 0.01$

Table 5. Mean Differences in Levels of Knowledge, Attitudes, Barriers, Self-Efficacy, and Perceived Support for Sexual Health Education by Age and Years in Education

	Mean (SD)			
Variable	Age (n=237)		Years in Education (n=250)	
	Not at all true	Slightly to very true	Not at all true	Slightly to very true
Knowledge†				
Aware of curricula which addresses sexual health education for middle school students	41.32 (10.82)	43.21 (10.96)	13.14 (8.60)	15.39 (9.77)
Know where to find a sexual health education curricula for middle school students	40.93 (10.70)	43.46 (10.97)	12.83 (8.78)*	15.61 (9.72)*
Aware of district policy towards sexual health education for middle school students	41.16 (11.22)	43.37 (10.80)	13.43 (9.48)	15.41 (9.53)

Perceived Barriers††				
My school has too many other priorities that would act as barriers to adopting a new sexual health education curriculum	42.93 (10.58)	41.97 (12.72)	15.32 (9.17)	12.82 (11.01)
A sexual health education curriculum that teaches about contraceptives would be difficult to implement in my school	41.69 (10.35)**	46.82 (12.17)**	13.71 (8.52)**	18.95 (11.66)**
Self-Efficacy††				
Can talk comfortably about sexuality in the classroom	42.53 (11.11)	42.91 (10.87)	15.17 (8.76)	14.71 (10.0)
Can successfully facilitate role-play exercises for sexual health education in the classroom	41.29 (10.89)	43.91(10.88)	13.40 (8.45)*	16.04 (10.20)*
Can effectively use small groups for sexual health education curriculum activities	42.67 (11.36)	42.83 (10.78)	14.06 (8.76)	15.26 (9.89)

Can discuss contraceptive practices comfortably in the classroom	42.70 (10.98)	42.82 (10.95)	15.23 (8.38)	14.65 (10.25)
Can get students to do an assignment that involves them talking with parents about sexual topics	43.71 (11.71)	41.83 (10.06)	14.76 (9.64)	15.0 (9.47)
Perceived Administrator Support††				
Administrators support teachers who teach about sexual health education in the classroom	42.61 (10.89)	43.06 (11.09)	14.71 (9.43)	15.18 (9.79)
Assigning homework activities on sexual health education that students do with their parents would be encouraged by administrators	42.25 (11.09)	43.54 (10.72)	14.5 (9.75)	15.44 (9.25)
Administrators support the idea of using role-play activities in the classroom	41.94 (10.96)	44.95 (10.66)	14.29 (9.34)	16.46 (9.97)

as a method to teach students to delay sex				
Doing small group activities in the classroom is a teaching method that is acceptable to administrators	42.63 (10.75)	42.88 (11.11)	13.72 (9.26)	15.79 (9.69)
Administrators support teachers who teach about condoms and other contraceptives	43.08 (11.09)	41.56 (10.32)	15.08 (9.67)	13.98 (8.97)
	Not at all/somewhat supportive/don't know	Supportive/very or extremely supportive	Not at all/somewhat supportive/don't know	Supportive/very or extremely supportive
Perceived Support for Comprehensive Sex Education‡				
Parents	42.53 (11.80)	43.11 (9.70)	14.90 (10.14)	14.84 (8.66)
Community leaders	43.27 (11.81)	42.35 (10.16)	15.46 (9.98)	14.33 (9.12)
PE/health teachers §	44.40 (13.45)	42.52 (10.51)	17.38 (11.50)	14.42 (9.09)

Teachers other than PE/health teachers §	43.40 (11.67)	42.57 (10.71)	15.18 (10.64)	14.77 (9.13)
Officials in my district	42.25 (11.34)	43.32 (10.52)	14.19 (10.03)	15.62 (8.97)
State educational agency	42.59 (11.19)	42.98 (10.69)	14.56 (9.85)	15.24 (9.21)

SD = Standard Deviation
§ PE refers to physical education
‡ Comprehensive sex education focuses on abstinence but also addresses condoms and contraception
* $p \leq 0.05$ ** $p \leq 0.01$

Discussion

Implementation of evidence-based SHE programs in middle school is one key strategy for delaying the onset of sexual activity and preventing teen pregnancy and STIs.[23] Consistent with studies of teachers only,[44] our results suggest that there is overwhelming support for SHE in middle school across all staff positions. In addition to the strong support expressed by participants, data reveal several characteristics of school staff (e.g., knowledge, self-efficacy, etc.) that could facilitate their adoption and implementation of evidence-based SHE programs in schools. For example, the majority of staff in this study was aware of curricula for middle school sex education. It is not known, however, whether staff members were aware of *evidence-based* curricula in particular. Similarly, most staff members were aware of the district policy towards SHE for middle school students. This finding is not surprising as study participants were from a district with a clear sex education policy. Often, however, school district policies do not specify the use of evidence-based programs, are difficult to locate, unavailable, or not formally documented.[45, 46] Associated with these issues is potential confusion and fear regarding what can be taught and discrepancies in teaching practices.[45, 46] Compounding these concerns is the fact that state sex education policies are often ambiguous [47] with respect to whether schools are permitted to discuss contraception. Even with a clear policy, one-quarter of staff in this study were not aware of it. Therefore, a school's sex education policy must specify implementation of evidence-based SHE programs and should be clear about its support, or lack thereof, for education that includes instruction on condoms and contraception. This policy must also be effectively disseminated to all staff [37] using for example, a written letter from the district's superintendent sent to all school staff, coverage of the policy in staff in-services, and prominent posting of the policy on the district intranet.

Regarding self-efficacy, most staff perceived confidence in their ability to discuss SHE and to use relevant teaching methods. Although similar findings were reported among a sample of 8th-grade teachers who taught a sexual health program,[48] another study suggests that some teachers perceive the need for additional assistance in teaching topics related to contraceptive methods and refusal skills.[31] Other studies also find that teacher self-efficacy is low in relation to facilitating student role plays in SHE.[33, 36, 48] Some of the teachers in the current study may not have recognized the complexities associated with teaching SHE (e.g., balancing personal values and beliefs with those of the curriculum,

facilitating interactive strategies, such as role-plays and small group discussions, in traditional classroom settings).[32, 48]

Overall, staff perceived that some, but not all internal (e.g., administrators) and external (e.g., parents) stakeholders, were supportive of SHE. For example, more than one-third of staff perceived administrators to be supportive of teachers who teach SHE in the classroom. Further, administrators perceived higher levels of other administrator support for sex education and instruction for condoms and contraception compared to other staff positions. Previous studies suggest that teachers who perceive negative community support for sex education were less likely to teach about birth control methods or more likely to highlight their failure rates.[39] It is, therefore, critically important for school administrators to convey their support for sex education to potential program implementers to help ensure the delivery of evidence-based SHE programs.

In the current study, almost half of staff perceived parents to be supportive of comprehensive sex education. National-, state-, and county-level surveys, however, suggest even higher levels of parental support for sex education.[49-53] For example, according to a recent survey of more than 1000 parents in Harris County, TX, more than 90% believed that schools should include instruction on sex education, and more than 75% believed that sex education should begin in middle school or earlier.[53] Interestingly, administrators in the current study reported the highest levels of perceived parental support for comprehensive sex education when compared to staff in other positions. This finding is counter to what we would expect; previous data suggest that school administrators, in particular, perceive a high level of negative parental support for comprehensive sex education programs which deters administrators from adopting and implementing programs.[54] It is critical that this strong positive parental support for comprehensive SHE be communicated to individuals (e.g., state boards, school health advisory councils, other administrators) who make decisions about adoption and implementation of SHE programs in schools.

It is important to note that a large percentage of staff expressed uncertainty or ambivalence regarding perceived self-efficacy, barriers, and support for SHE. For example, many neither agreed nor disagreed with statements relating to perceived barriers for adopting a SHE curriculum (34%), administrator support for sex education in the classroom (54%), and administrator support for teachers who teach about condoms and contraception (69%). This result was likely because a large number of staff in our sample is inexperienced in teaching SHE. However, it also may highlight the lack of emphasis that schools place on health education

because of a competing push towards school accountability through increased academic testing.[37, 55] Policymakers should be informed of the strong link between teen pregnancy, academic achievement, and school drop-out [7] so that greater school-wide support for sex education can be achieved.

Non-PE/non-health teachers and staff who reported no experience teaching SHE reported the lowest levels of awareness, self-efficacy, and perceived support for sex education when compared to staff in other positions (administrators, PE/health teachers, nurses/counselors) and those with one or more years of SHE teaching experience. Similar results were observed in another study: health education teachers with an academic degree in health education expressed greater confidence for teaching health education than those teachers without this degree.[56] While differences were observed across staff position, with the exception of a few constructs, few significant differences were identified by other demographic factors (gender, race/ethnicity, highest completed degree, age, and years in education). In this study, younger and more inexperienced (in education) staff were more likely to disagree or express a neutral opinion towards barriers to implementing a SHE program that involved discussion of contraceptives. These results may reflect the fact that older teachers, who may have been in education longer, may have had more time to experience barriers associated with implementing a SHE program. In an evaluation of the Safer Choices program (high school SHE program), individuals with fewer years of teaching experience were also more likely to complete lessons with fidelity.[40] Additional training activities that include opportunities for staff to recognize and develop skills for overcoming barriers to implementation of SHE programs may be needed. Regarding race/ethnicity, Hispanic staff reported the lowest levels of self-efficacy for teaching about sex education compared to black and white staff which may reflect the need for more culturally-appropriate training in SHE.

The findings from the current study highlight the importance of identifying the most appropriate individuals to teach adolescent sexual health and providing them with adequate training.[32, 57] Only staff comfortable teaching this sensitive topic should teach these programs; if funds are available, schools should hire outside facilitators if teachers are uncomfortable. Although many PE/health teachers in the current study reported high self-efficacy regarding teaching sex education, it is important to note that almost 25% perceived a lack of confidence or were ambivalent towards their ability to talk comfortably about sexuality in the classroom. Regardless of past experience, once schools have identified the SHE

teacher, he/she must receive culturally-sensitive training on adolescent sexual health in addition to training specific tor the selected curriculum prior to program implementation. Studies consistently demonstrate the importance of training for increasing teacher knowledge, self-efficacy, comfort, and positive attitudes related to teaching sexual health [36, 40, 58-60] and actual program implementation.[34] Unfortunately, training on sexual health is not routinely provided to teachers.[41] Components of effective training programs include topics such as overview and theoretical rationale of effective programs, program core components, models of early users' teaching the program, skills practice of teaching strategies (e.g., role plays), values clarification, dealing with sensitive issues and questions, strategies for fitting the program within existing school constraints (e.g., academic testing), advocacy training, and availability of community resources.[41, 59, 60] It is important that SHE teachers be provided with ongoing support, training, and technical assistance.[36, 41] These resources are important given that the most likely implementers of sex education programs (e.g., nurses/counselors, PE/health teachers) in the current study perceived more barriers to program implementation than staff from other positions.

Some study limitations should be noted. The current study is primarily descriptive in nature; therefore, no conclusions about temporality or causality can be established. The survey response rate was lower than desired (56% completed surveys and only 43% of staff sampled were analyzed for the current study). These response rates, however, are similar to estimates from other teacher samples.[44, 61] Study findings may also only be generalizable to staff in large urban school districts. Finally, the current study focused solely on individual-level barriers to adoption and implementation of sex education programs. Other organizational barriers (e.g., lack of funds for program materials, teacher training) may also be present.[62, 63]

Although these limitations may be present, study findings enhance our understanding of the factors that influence middle school staff to adopt and implement effective middle school SHE programs. Few other studies [34, 41] have sampled middle school staff. Furthermore, previous studies sample only health or sex education teachers, and our results include staff from other disciplines. School-wide support is essential for adoption and implementation of effective sex education practices;[40] therefore, it is critical that we understand the factors that influence adoption and implementation from the perspectives of all school staff.

Overall study results were extremely positive, which may reflect a high level of readiness among school staff for adopting and implementing

effective SHE programs in middle school. To effectively capitalize on this readiness, study results highlight the importance of several key action items for schools. Initially, schools should document a clear sex education policy that specifies the need for implementation of SHE programs that are evidence-based and is clear about the school's support, or lack thereof, for education which includes discussions of condoms and contraception. Secondly, schools should ensure that the sex education policy is effectively disseminated to school staff involved in decision making related to adoption of a SHE curriculum, implementing a SHE curriculum, and supporting those teaching the curriculum. Additionally, schools should convey the strong support received from key stakeholders, including school staff and parents, for sex education to important decision-makers (e.g., state legislative officials, school board members, superintendents, school health advisory councils). Finally, schools should identify and train the most appropriate individuals to teach sex education and create a culture of safety and support for them to successfully implement a sexual health curriculum.

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