



The Impact of Middle School Principals on Adoption of Abstinence-Only-Until-Marriage Programs in their School's Curriculum

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ABSTRACT

Background: Diffusion of Innovations theory has been used to predict rates of adoption for a variety of programs. **Purpose:** The purpose of this study was to assess indicators that influence adoption of abstinence-only-until-marriage education as an innovation by middle school principals in Texas (N=433) as well as their likelihood of adopting such programs. **Methods:** This study utilized a paper survey that was mailed to principals. **Results:** Findings regarding characteristics of abstinence-only-until-marriage education: relative advantage, compatibility, complexity, trialability, and observability are analyzed and discussed. In addition, a series of multiple regression models to predict the likelihood of adoption are presented. **Discussion:** Findings indicated that middle school principals most willing to adopt abstinence-only-until-marriage education programs strongly believed that abstinence education provided important advantages, and perceived abstinence-only-until-marriage education to be consistent with his or her beliefs and values. Controlling for demographics, religious preferences and behavior, and the perceptions of the attributes of abstinence-only-until-marriage education, the principals' religious beliefs/practices, complexity and trialability remained significantly associated with the likelihood to adopt. **Translation to Health Education Practice:** Rates of adoption by school administrators should be considered when implementing a new health curriculum or health-related educational program, especially when it is a sensitive subject such as sexuality.

BACKGROUND

The most recent controversy surrounding sexuality education is not concerned with whether to teach sexuality education, but what kind of sexuality education to teach.¹⁻² Abstinence-only-until-marriage, abstinence-based education, comprehensive sexuality education, and youth development programs offer a variety of educational approaches.³⁻⁴ Controversy is compounded by school administrators refraining from expressing their opinions related to beliefs and practices about sexuality education.⁵

Principals have identified that some form of sexuality education is taught in a vast ma-

majority of public secondary schools, which is also reflected in curricula and teaching strategies.^{3,6} Thirty-four percent of the principals surveyed by the Kaiser Foundation indicated support for abstinence-only education and 58% indicated that their sexuality education programs were comprehensive.⁶

Teachers provide students with a broad range of content crucial to their personal development and sexual health.⁷⁻⁸ Curricula also may cover contraceptive methods, adolescent pregnancy, HIV infection, and other STIs.⁹⁻¹⁰ Educators may focus on effective communication, coping and decision-making skills to prevent risky behaviors.^{8,11}

However, due to the lack of carefully designed evaluation studies, the impact of sexuality education programs,¹² and more

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specifically abstinence education programs, is unclear.¹³

Abstinence-only-until-marriage education became popular with Social Services Block Grant, Title V monies from the Welfare Reform Act of 1996.^{2,14} The provisions also required states to spend funds on services for children or families whose income was at or below 200 percent of the federal poverty level.¹⁵ Additionally, services are expected to adhere to the (a)-(h) definition of abstinence education (Table 1).¹⁶ Specifically, in Texas, Title V monies have been distributed through the Texas Department of State Health Services.

Health educators tend not to support exclusive abstinence-only-until-marriage education programs, without providing appropriate prevention information and skills, and identify a variety of reasons for non-support, including few rigorous evaluations of abstinence education programs.¹⁷ Some professionals also discredit abstinence education because they feel it withholds appropriate and life-saving information from

school-aged youth.^{15,18}

One of the factors that influence the adoption of abstinence education programs by local schools is support of school administrators. Little is known about principals' influence and support for abstinence-only-until-marriage programs; therefore, research is needed to help educators understand the influence of administrators' adoption of abstinence education. However, principal support can greatly influence the decision to adopt and implement a curriculum. Principal support is an important first step in establishing priorities and commitment to program implementation.^{10,19} Further, principals are adopting and implementing curricula or programs that take a first step in establishing practices to enhance protective factors for youth and to reduce their risk for unwanted outcomes.¹⁹

PURPOSE

The primary purpose of this study was to assess indicators that influence the adoption of abstinence-only-until-marriage educa-

tion as an innovation by a sample of middle school principals in the state of Texas. This study also assessed school principals' likelihood of adopting such programs.

Theoretical Framework

The Diffusion of Innovations theory,²⁰ along with a review of the literature, helped to guide this study. This theory proposes that diffusion occurs within a social system and that several factors influence the process. Diffusion is a process in which an innovation (new idea, practice or object) is imparted through specific channels over time. For Rogers, there are four main elements in the diffusion of innovations: the innovation, the communications channels, time and a social system. In this study authors looked at how the following characteristics of abstinence education influence its rate of adoption: relative advantage, compatibility with personal and professional beliefs, complexity, trialability, and observability.²⁰

According to Rogers²⁰, there are five perceived attributes of an innovation important in adoption rate. These are perceptions of

Table 1. Title V Definition of "Abstinence Education"

- "Abstinence education" means an educational or motivational program which—
- (A) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity;
 - (B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;
 - (C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;
 - (D) teaches that mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity;
 - (E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;
 - (F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;
 - (G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and
 - (H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.

Source: Welfare Reform Law, 1996.



the degree to which an innovation is: better than the idea it supersedes (relative advantage), consistent with existing values and past experiences, needs of potential adopters (compatibility), difficult to understand and use (complexity), able to be experimented with on a limited basis (trialability), and visible to others (observability).²⁰

Diffusion of Innovations is a general model that has been applied to school programs concerning public health, technology and education. Research has been conducted in school management concerning the value of the innovation, the cost of adoption, and the influence of accountability and standardized testing.²¹ Given the complex nature of school-based programs, as well as the complexity involved in their adoption, understanding the diffusion characteristics of abstinence education within a middle school environment will help address the potential needs of sexuality education, health education or youth development, as abstinence education is integrated into U.S. school's curricula.

METHODS

Sampling and Procedure

Texas has a large population of middle schools, as well as large dollar amounts for funding abstinence-only-until-marriage education efforts. In 2005, Texas received the highest funding amount for any state receiving total federal funds for abstinence-only-until-marriage education.²² Middle school principals in Texas were the sample selection based on the purpose of the study.

The survey instrument was pre-tested in a pilot study. The sample consisted of a random sample of public junior high school principals (typically serving 7th through 9th grade) in Texas schools. Two-hundred names were randomly selected from junior high school principals.

In August 2003, a confidential survey was mailed to a random sample of middle school principals (N=904), following approval from the Institutional Review Board for the Protection of Human Subjects. There were 1,105 middle school principals in Texas, and a random proportional sample of public school

principals from the 20 Education Service Center Regions (geographical subsections of the state of Texas) was randomly selected. In Texas, a middle school's target population is typically 6th through 8th grade. The sample received a pre-notice letter notifying participants of their selection for the study; first round of survey distribution; a thank you/reminder postcard; and a second wave of survey distribution that was only sent to non-respondents.

Any questionnaires that were 50% incomplete were deleted from the study. Because the missing data were few (less than 5%) and seemed not to be a problem, the items with missing data were left as "missing" because they would affect the final sample size substantially.

Instrument

The instrument used in this study was constructed to measure the characteristics of abstinence-only-until-marriage education as an innovation. Questions were scaled together for the following variables: relative advantage (14 questions); compatibility (32 questions); complexity (10 questions); trialability (4 questions); and observability (8 questions). The survey also assessed the likelihood of adoption of these programs (7 questions). Fifteen additional questions were asked related to demographics and abstinence education funding.

The adopters' "perceptions" of an innovation were operationalized and measured in this study as "attitudes." An individual's attitude consisted of two dimensions: his/her beliefs, or outcome expectations, and his/her values, or outcome expectancies, regarding the characteristics of the innovation of abstinence education.²³ The attitudes regarding each of the five characteristics, relative advantage, compatibility, complexity, trialability and observability, were assessed by measuring respondents' expectations and expectancies regarding that characteristic.

Items for the survey instrument were generated using findings from a qualitative study, a review of the literature, and the Diffusion of Innovations theory. The qualitative study included interviews with program directors that revealed several barriers and fa-

cilitators for abstinence-only-until-marriage program implementation. This led to the interviews of supportive and non-supportive school administrators. The purpose of the interview was to learn about the administrator's beliefs regarding abstinence-only-until-marriage education and its role in the public school.²⁴ Drafts of the survey instrument for this study were reviewed for content validity by an expert panel consisting of health educators, principals and professionals in abstinence education. Based on the content review and pilot-test of the instrument, minor changes were made to the final version of the instrument.

For the scaled variables, a scale with Cronbach alpha above 0.70 was considered good reliability. The scaled variables relative advantage ($\alpha=0.87$), personal compatibility ($\alpha=0.92$), professional compatibility ($\alpha=0.94$), complexity ($\alpha=0.86$), trialability ($\alpha=0.81$), and observability ($\alpha=0.82$). The likelihood of adoption scale had an alpha level of 0.82. Additionally, a factor analysis was conducted for the final study to determine if the perceived attribute items were measuring the items as expected.

The factor analysis for relative advantage revealed two factors within the attribute. The items developed to measure relative advantage were based on goals and objectives for abstinence-only-until-marriage programs reported by abstinence education program directors in the state of Texas. Factor one items assessed relative advantage from a population-based standpoint (i.e., advantages related to effects at a population level such as reduction rates for unwanted pregnancies or STI/STDs). Factor two assessed relative advantage from an individual-level perspective (i.e., advantages related to effects on individual youth, such as increasing decision-making skills).

Compatibility was proposed as a latent variable, measured by asking the respondent about personal and professional beliefs. The compatibility questions utilized a five-point Likert scales. A higher score on these scale items indicated a stronger perception of the compatibility of abstinence-only-until-marriage education with profes-



sional and personal beliefs of the middle school principals.

Responses to survey questions consisted of a 5-point Likert scale. Agreement on belief questions ranged from “strongly agree” to “strongly disagree” for four of the attributes (complexity ranged from “very easy” to “very difficult”). Outcome expectancy (likelihood of adoption) responses ranged from “extremely important” to “not important at all.” The dependent variable, likelihood of adopting abstinence-only-until-marriage education, was operationalized with seven questions and included an ‘I already do’ response option. The questions asked about how the likely was the respondent to apply for grant funding, purchase curricula, hire staff, and allow an outside-of-school program to be presented in the school to support abstinence-only-until-marriage education.

RESULTS

Sample Characteristics

Principals from the 20 Texas Education Service Center Regions responded to the questionnaires mailed out (N=903). The response rate from within each Education Service Center Region ranged from 36%-70%. The state (total responses) yielded a response rate of 48% (N=433). One-hundred-five (20.8%) respondents were from rural counties and 398 (79.1%) were from urban counties. There was a significant difference between responders and non-responders from rural or urban areas [$F=9.156, p=.003$]. Principals in urban counties were more likely to respond than principals in rural counties.

The age range for respondents was 25 to 68 years (Mean Age= 46.54, SD=8.18). Almost 65% of the principals were between the ages of 40-54. There were 245 (57.4%) males and 182 (42.6%) females who returned completed surveys (Table 2).

Table 2 also shows the respondents' identified ethnicity. The majority (73%, n=312) of the respondents were “white.” Hispanics (15.2%, n=65) comprised the next highest ethnic group. African Americans, Asian and American Indians, combined, represented

Table 2. Frequency Distribution of Selected Demographic Characteristics of Final Study Participants

Variable	N	%
Gender		
Male	245	57.4%
Female	182	42.6%
Current Age		
29 years and under	4	1.0%
30 years – 39 years	75	17.8%
40 years – 54 years	273	64.8%
55 years and over	69	16.4%
Mean Age 46.54 (Standard Deviation=8.18)		
Ethnicity		
White	312	73.1%
African American/Black	40	9.4%
Hispanic	65	15.2%
Asian, Oriental, or Pacific Islander	4	0.9%
American Indian	5	1.2%
Years of Principalship at any School		
7 years or less	265	63.7%
8 or more years	151	36.3%
Year Current Principalship Started		
1973-1989	16	4.0%
1990-1999	147	36.5%
2000-2003	239	59.5%

almost 12% of the sample.

Sixty-three percent reported having been principals for seven years or less. Some started their current principalship as recently as 2003, while one respondent started in 1958. Eighty-five percent identified themselves as middle school principals and 4% were assistant principals. Some surveys were distributed to other professionals (once the survey was received by a principal), and they included school counselors (n=4), principals of another grade/school level (n=17) and one assistant superintendent (n=1). For the participants who did not identify themselves as middle school principals, their data were aggregated with the middle school principal respondents.

The Prevalence of Abstinence Education Programs

Participants were asked about the prevalence of abstinence-only-until-marriage education programs in their school's geographic area (Table 3). Thirty-one (7%) principals reported receiving Title V funds for abstinence education. Forty-eight percent (n=205) of respondents were not receiving funds and forty-four (n=187) did not know if their school received funding. Monies other than Title V funds were reported in 60 (14%) schools, and 145 (34%) principals did not know if they had access to other funds for abstinence education. Thirty-three principals (7.8%) indicated they had a Title V or Texas Department of State Health Ser-



Table 3. Distribution of Responses Indicating the Existence of Abstinence-Only-Until-Marriage Programs in the Participants School or Local Area

Question	n	%
Does your school receive Title V abstinence-only-until-marriage education funding from the Texas Department of Health?		
Yes	31	7.3
No	205	48.5
I don't know	187	44.2
Does your school receive any other abstinence-only-until-marriage education funding?		
Yes	60	14.2
No	218	51.4
I don't know	145	34.2
Do you know if there is a Title V or Texas Department of Health funded abstinence-only-until-marriage education program close to you?		
Yes, utilize services	33	7.8
Yes, don't utilize services	10	2.4
No	23	5.5
I don't know	355	84.3

vices sponsored program they considered geographically close to them and they used their services. Ten principals (2.4%) indicated they had such a program “close” to them, but they did not utilize their services. Many participants (n=205, 48.5%) denoted not having a Title V or Texas Department of Health sponsored program “close” to them, and 355 (84%) did not know if there was a program in the area (Table 3).

Perceived Relative Advantage of Abstinence Education

A majority of middle school principals agreed that abstinence-only-until-marriage education provided a relative advantage reflective of the items provided on the survey. Over 98% of respondents agreed that reducing the number of unwanted pregnancies and sexually transmitted infections among youth were relative advantages. At least 90% of the principals also agreed that other advantages included increasing youth self-esteem and decision-making skills. Approximately 80% of the principals

agreed self-efficacy, communication skills, and leadership skills were advantages of abstinence-only-until-marriage education (Table 4).

Identified relative advantages of abstinence-only-until-marriage education were “extremely important” or “important” for 98% of respondents. For one potential outcome of abstinence-only-until-marriage education, reducing pregnancy, all (100%) respondents agreed that it was an “extremely important” or “important” advantage (Table 4).

Perceived Compatibility with Personal and Professional Beliefs

The degree to which abstinence-only-until-marriage education is consistent with current values, experiences, and beliefs of adopters measured compatibility. The majority (over 90% for each component) of the middle school principals agreed that the (a)-(h) definition was consistent with their *professional* and *personal* beliefs. Most respondents “strongly agreed” or “agreed” with the standards identified by the per-

sonal beliefs expectation items. Ninety-two percent of the respondents felt the personal belief expectancy items were “extremely important” or “important.” Almost half of the respondents “strongly agreed” to items that were compatible with their professional beliefs and values and felt they were “very important” (Table 4).

The items respondents found *least important* in terms of being compatible with personal beliefs were “sexual activity outside the context of marriage is likely to have harmful psychological and physical effects” (6%) and “bearing children out-of-wedlock is likely to have harmful consequences for the child, the child’s parents, and society” (4%). Five percent of principals “disagreed” that the statements “sexual activity outside the context of marriage is likely to have harmful psychological and physical effects” and “attaining self-sufficiency before engaging in sexual activity is important” (4%) were compatible with their professional beliefs/values. The expectancy items “sexual activity outside the context of marriage is likely to have harmful psychological and physical effects” and “attaining self-sufficiency before engaging in sexual activity is important” had similar responses (5%, 4% respectively) (Table 4).

Perceptions of Abstinence Education as a Complex Innovation

Complexity was measured to find out how abstinence-only-until-marriage education is seen as difficult to understand and to use. Over 90% of principals felt that it was important to locate a variety of sources to implement abstinence-only-until-marriage education and 80% found it easy to understand policies regarding abstinence-only-until-marriage education. However, 15% of respondents felt it was “somewhat difficult” or “very difficult” for them to find resources, and about 20% felt it was “somewhat difficult” or “very difficult” to find funding or acquire curricula to promote the abstinence message. (Table 4).

Perceptions of Abstinence Education’s Trialability

Eighty percent (80%) of the principals agreed that abstinence-only-until-marriage



education could easily be incorporated into their school's curriculum (Table 4), while 90% believed "easily" incorporating abstinence education was "extremely important" or "important."

Perceptions of Abstinence Education's Observability

Respondent's perceptions of the observability of abstinence-only-until-marriage education programs are presented. Over two-thirds of the respondents observed their colleagues at the state level were adopting abstinence-only-until-marriage education into their school's curriculum. However, approximately 25% of principals disagreed that other principals were incorporating abstinence education at the district, region, state and national levels. With over 60% of principals observing the abstinence-only-until marriage education being adopted, many (80%) felt it was "important" to observe what other colleagues were accepting and adopting into their school's curricula (Table 4).

Likelihood of Adopting Abstinence Education

Table 4 shows the likelihood of principals adopting abstinence-only-until-marriage education into their school's curriculum and elements of abstinence education that principals already incorporated into their school. This table indicates 3% of principals applied for a grant, purchased abstinence curricula (without additional funding), and hired staff capable of promoting the abstinence message. Most respondents were not likely to do these things. For those who have not already received grant support for abstinence-only-until-marriage education, respondents indicated that if they had funding (54%) they were more likely to purchase curricula than without grant funding (33%). For the likelihood of adoption items, principals were most likely to allow state or federally funded programs to be offered and presented in their schools (72.3%, $n=301$). On the other hand, almost 70% were not likely to hire staff without additional funding or allow a faith-based program to present in their school.

Prediction of Likelihood of Middle School Principals Adopting Abstinence Education

Multiple regression analysis was performed to analyze the data and search for predictive associations. The likelihood of adoption of abstinence-only-until-marriage education by middle school principals was the dependent variable. Demographic variables, the interaction of rural/urban counties, age, and religion, as well as the perceived relative advantage, compatibility, complexity, trialability and observability were independent variables.

A series of multiple regression models is presented. The models estimated the effects of the perceived characteristics of abstinence education on the likelihood of adoption. *Model 1* showed the likelihood of adoption as a function of demographic factors, exclusively. In *Model 2*, the interaction of rural/urban counties and age was added as a predictor. Religion was added as a predictor in *Model 3*. *Models 4 and 5* contained relative advantage as predictor variables, from the population and individual perspective. *Model 6* included compatibility, and *Model 7* added complexity as a predictors. Trialability and observability were included as predictors in *Models 8 and 9*, respectively (Table 5).

Two of the demographic variables, age and rural/urban counties, were significant predictors of the likelihood to adopt abstinence education in *Model 1*. People between ages of 30 and 39 years and 55 years or older ($\beta=-.124$, $p=.022$), and living in rural areas ($\beta=-.162$, $p=.005$) were most likely to adopt. When variables entered *Model 2*, age ($\beta=-.074$, $p=.629$) and rural/urban counties ($\beta=-.217$, $p=.198$) they lost their statistical association with the dependent variable. In *Model 3*, religion was added as a predictor variable ($\beta=.233$, $p=.000$). Throughout the remaining five Models, religion maintained its significant association with likelihood to adopt abstinence education. However, as each perceived characteristic was added to the regression, religion's significance was slightly affected by other variables (*Model 9* [$\beta=.152$, $p=.002$]).

In *Model 4*, relative advantage, from the population perspective, was associated with the likelihood to adopt abstinence education ($\beta=.200$, $p=.000$). Relative advantage, from the individual level, was a predictor in *Model 5* ($\beta=.262$, $p=.000$) and maintained its prediction through *Model 8* ($\beta=.121$, $p=.042$). Complexity maintained its prediction in *Model 7* ($\beta=.407$, $p=.000$) through *Model 9* ($\beta=.178$, $p=.004$). In *Models 8 and 9*, trialability was a predictor ($[\beta=.395$, $p=.000$]; $[\beta=.376$, $p=.000$], respectively) of the likelihood to adopt abstinence education.

In the final model, *Model 9*, religion ($\beta=.152$, $p=.002$), complexity ($\beta=.178$, $p=.004$), and trialability ($\beta=.376$, $p=.000$) were shown as predictors for principals' likelihood of adopting abstinence education. Therefore, when controlling for demographics, religious preferences and behavior, and the perceptions of the attributes of abstinence as an innovation, only the respondents' religious beliefs/practices, complexity and trialability remained significantly associated with the dependent variable, likelihood to adopt abstinence education.

DISCUSSION

The typical participant in this study was a Texas public middle school principal whose school was located in an urban county. The "average" respondent was not presently receiving, or did not know if his school was receiving, Title V funds to promote abstinence-only-until-marriage education. Additionally, the typical respondent did not know if there was a Texas Department of State Health Services or federally funded abstinence-only-until-marriage education program close to his school.

Findings from this study indicated that the middle school principal who was most willing to adopt abstinence-only-until-marriage education programs into his or her school's curriculum strongly believed that abstinence education provided important advantages (at the population-level and individual-level) for youth, and strongly perceived abstinence-only-until-marriage education to be consistent with his or her professional and personal beliefs and val-



Table 4. Percent Distribution of Middle School Principal's Responses to Perceptions of the Characteristic of Abstinence Education

Relative Advantage	I believe one of the advantages of abstinence-only-until-marriage education is to...				How important is it for you to be able to...			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Extremely Important	Important	Not Very Important	Not Important At All
Reduce the number of unwanted pregnancies among youth.	61.6	37.0	1.4	0.0	77.5	22.5	0.0	0.0
Reduce the number of sexually transmitted infections/diseases among youth.	66.0	32.6	0.7	0.0	82.6	16.7	0.5	0.0
Increase youth's self esteem.	39.3	52.5	7.5	0.0	71.8	28.0	0.2	0.0
Increase youth's self-efficacy.	31.8	57.4	10.3	0.0	63.6	34.5	1.7	0.0
Increase youth's communication skills.	19.0	63.9	15.0	0.0	60.2	38.4	0.7	0.0
Increase youth's decision-making skills.	45.9	46.6	6.1	0.0	79.8	20.0	0.0	0.0
Increase youth's leadership skills.	27.4	56.9	13.6	0.0	65.7	32.9	0.9	0.0
Compatibility	How compatible is the following statement with your personal standards?				How important is it for the following statement to be consistent with your personal standards?			
Personal	Strongly Agree	Agree	Disagree	Strongly Disagree	Extremely Important	Important	Not Very Important	Not Important At All
Social, psychological, and health gains are realized when youth abstain from sexual activity.	53.7	42.6	3.5	0.0	50.5	46.7	2.1	0.0
Abstinence from sexual activity outside marriage should be the expected standard for all school age children.	63.3	35.0	0.9	0.0	60.0	38.1	0.9	0.0
Abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems.	65.9	30.9	1.6	0.0	61.3	35.1	2.6	0.0
A mutually faithful monogamous relationship in the context of marriage is the expected standard of human sexual activity.	60.9	36.3	1.6	0.0	57.2	39.1	2.6	0.0



Table 4. Percent Distribution of Middle School Principals' Responses to Perceptions of the Characteristic of Abstinence Education (con't)

Sexual activity outside the context of marriage is likely to have harmful psychological and physical effects.	43.5	46.7	7.7	0.0	49.4	43.0	5.9	0.0
Bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society.	53.2	42.1	4.4	0.0	58.3	37.0	3.8	0.0
Young people should reject sexual advances and know how alcohol and drug use increases vulnerability to sexual advances.	67.5	32.3	0.2	0.0	64.5	34.6	0.7	0.0
Attaining self-sufficiency before engaging in sexual activity is important.	54.2	41.2	4.4	0.0	53.4	41.4	4.7	0.0
Professional	How consistent is the following statement with your professional standards?				How important is it for the following statement to be consistent with your professional standards?			
Social, psychological, and health gains are realized when youth abstain from sexual activity.	59.5	38.2	2.1	0.0	55.4	41.5	2.1	0.0
Abstinence from sexual activity outside marriage should be the expected standard for all school age children.	65.9	31.1	2.3	0.0	60.6	36.1	2.4	0.0
Abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems.	66.8	30.2	1.9	0.0	61.5	34.3	3.3	0.0
A mutually faithful monogamous relationship in the context of marriage is the expected standard of human sexual activity.	57.4	39.1	2.6	0.0	55.9	40.4	2.6	0.0
Sexual activity outside the context of marriage is likely to have harmful psychological and physical effects.	49.0	44.5	4.9	0.0	48.9	44.4	5.2	0.0
Bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society.	60.2	36.8	2.8	0.0	57.1	38.2	4.0	0.0



Table 4. Percent Distribution of Middle School Principals' Responses to Perceptions of the Characteristic of Abstinence Education (con't)

Young people should reject sexual advances and know how alcohol and drug use increases vulnerability to sexual advances.	71.5	27.6	0.9	0.0	65.6	32.7	1.2	0.0
Attaining self-sufficiency before engaging in sexual activity is important.	58.0	37.6	4.2	0.0	54.8	39.8	4.5	0.0
Complexity	How easy or difficult is it for you to...				How important is it for you to be able to...			
	Very Easy	Some-what Easy	Some-what Difficult	Very Dif-ficult	Extremely Important	Impor-tant	Not Very Important	Not Important At All
Find resources to deliver the abstinence-only-until-marriage education message?	17.7	58.3	14.6	0.0	38.4	53.6	4.5	0.0
Find funding to support the abstinence-only-until-marriage message?	7.3	54.8	20.1	0.0	39.2	50.8	6.4	0.0
Acquire curriculum to teach abstinence-only-until-marriage education?	13.9	58.5	18.2	0.0	36.9	53.7	5.7	0.0
Find people skilled and capable of promoting the abstinence-only-until-marriage message?	15.6	56.7	13.5	0.0	44.5	47.2	4.7	0.0
Understand policies regarding abstinence-only-until-marriage education?	22.6	57.5	14.5	0.0	45.5	46.7	4.5	0.0
Trialability	How easy or difficult is it for you to...				How important is it for you to be able to...			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Extremely Important	Impor-tant	Not Very Important	Not Important At All
Abstinence-only-until-marriage education can easily be incorporated into your school's curriculum.	21.3	58.6	14.0	0.0	34.7	56.1	7.3	0.0
Your school's curriculum cannot easily incorporate elements of abstinence-only-until-marriage education.	7.3	20.9	14.4	36.2)	17.5	32.8	17.3	21.0
Observability	How much do you agree with the following...				How important is it that....			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Extremely Important	Impor-tant	Not Very Important	Not Important At All
I have seen or heard of other principals in my district adopting abstinence-only-until-marriage education into their school's curriculum.	13.4	51.6	23.3	0.0	19.8	64.5	6.8	0.0



Table 4. Percent Distribution of Middle School Principals' Responses to Perceptions of the Characteristic of Abstinence Education (con't)

I have seen or heard of other principals in my region adopting abstinence-only-until-marriage education into their school's curriculum.	10.5	53.2	26.5	0.0	13.3	68.4	8.0	0.0
I have seen or heard of other principals across Texas adopting abstinence-only-until-marriage education into their school's curriculum.	8.6	57.8	26.1	0.0	11.9	68.5	8.5	0.0
I have seen or heard of other principals across the nation adopting abstinence-only-until-marriage education into their school's curriculum.	8.9	56.5	27.2	0.0	11.4	67.6	8.3	0.0
Likelihood of Adoption	How likely are you to...							
	Extremely Likely	Somewhat Likely	Not Likely	Not Likely At All	I Already Do			
Apply for a grant to fund abstinence-only-until-marriage education in your school.	8.1	37.7	36.5	14.8	2.9			
Purchase curricula to teach abstinence-only-until-marriage education with grant funding.	16.6	38.0	28.5	13.8	3.1			
Purchase curricula to teach abstinence-only-until-marriage education without grant funding.	5.2	27.3	43.2	19.5	4.8			
Hire staff/teachers skilled and capable of promoting the abstinence-only-until-marriage message with grant funding.	16.2	30.4	31.8	19.0	2.6			
Hire staff/teachers skilled and capable of promoting the abstinence-only-until-marriage message without grant funding.	6.9	19.1	39.9	27.9	6.2			
Allow a state or federally funded abstinence-only-until-marriage education program be presented in your school.	29.8	42.5	12.5	8.4	6.7			
Allow a faith based abstinence-only-until-marriage education program be presented in your school.	9.0	22.5	39.0	28.1	1.5			



Table 5. Beta Coefficients for Predictors of Likelihood of Middle School Principals Adopting Abstinence-Only-Until-Marriage, According to Nine Different Regression Models

Predictor	Model 1		Model 2		Model 3		Model 4		
	Adjusted R ² =.050		Adjusted R ² =.048		Adjusted R ² =.091		Adjusted R ² =.142		
	Effect Size f ² =.0526		Effect Size f ² =.0504		Effect Size f ² =.1001		Effect Size f ² =.1655		
	β	p	β	p	β	p	β	p	
Constant		.010		.009		.088		.586	
Gender	-.038	.467	-.037	.474	-.026	.606	-.040	.427	
Age	-.124	.022	-.074	.629	-.063	.673	-.083	.571	
Time of Principalship	-.015	.780	-.017	.760	-.007	.892	-.005	.930	
White	.018	.898	.016	.913	.096	.515	.301	.124	
Black	-.066	.519	-.068	.507	.032	.763	.178	.188	
Hispanic	.015	.902	.013	.916	.054	.674	.209	.209	
Asian	-.028	.597	-.026	.617	-.049	.348	.303	.605	
American Indian	-.019	.720	-.019	.716	.012	.811	.016	.261	
Rural/Urban	-.162	.005	-.217	.198	-.172	.298	-.176	.274	
Principal/Not Principal	-.017	.175	-.069	.192	-.060	.250	-.052	.313	
Region	-.012	.817	-.011	.832	-.012	.820	-.003	.952	
School Size	-.093	.113	-.093	.115	-.072	.209	-.074	.191	
Interaction Rural/Urban			-.076	.726	-.096	.650	-.082	.692	
Religion					.233	.000	.212	.000	
Relative Advantage Population							.200	.000	
Relative Advantage Individual									
Compatibility									
Complexity									
Trialability									
Observability									
*p<.05		**p<.01							

ues. While the average principal did not perceive abstinence-only-until-marriage to be extremely complex, the more complex they perceived it to be, the less likely they were to adopt the innovation. The typical respondent agreed that elements of abstinence-only-until-marriage education could

be easily tried in the school, and considered it important to observe other principals prior to adopting the innovation into their school's curriculum. This study also found most middle school principals were likely to allow an abstinence-only-until-marriage education program

to be present in their school (79.1%), and principals were inclined to purchase curricula with abstinence funding (57.7%). Nearly half of the sampled principals were likely to apply for a grant to support abstinence education (48.7%) and hire staff with funding resources for abstinence education.



Table 5. Beta Coefficients for Predictors of Likelihood of Middle School Principals Adopting Abstinence-Only-Until-Marriage, According to Nine Different Regression Models (con't)

Predictor	Model 5		Model 6		Model 7		Model 8		Model 9		
	Adjusted R ² =.188		Adjusted R ² =.194		Adjusted R ² =.335		Adjusted R ² =.416		Adjusted R ² =.412		
	Effect Size f ² =.2315		Effect Size f ² =.2407		Effect Size f ² =.5038		Effect Size f ² =.7123		Effect Size f ² =.7007		
	β	p	β	p	β	p	β	p	β	p	
Constant		.617		.049		.981		.929		.900	
Gender	-.056	.262	-.036	.481	-.035	.453	-.018	.706	-.024	.611	
Age	-.074	.612	-.141	.341	-.252	.067	-.254	.060	-.262	.056	
Time of Principalship	-.026	.622	-.028	.597	-.022	.648	-.040	.405	-.044	.371	
White	.272	.154	.242	.205	.228	.194	.090	.595	.081	.634	
Black	.163	.220	.118	.377	.107	.385	.057	.627	.057	.621	
Hispanic	.209	.201	.181	.269	.176	.244	.078	.597	.072	.629	
Asian	.021	.722	.002	.977	-.009	.868	-.025	.649	-.020	.713	
American Indian	.063	.245	.048	.392	.028	.592	.067	.164	.058	.232	
Rural/Urban	-.157	.330	-.093	.568	-.006	.970	.076	.601	.090	.539	
Principal/Not Principal	-.061	.234	-.062	.229	-.060	.204	-.080	.089	-.085	.074	
Region	-.020	.682	-.015	.773	-.067	.162	-.064	.175	-.072	.131	
School Size	-.078	.165	-.098	.124	-.103	.053	-.066	.208	-.064	.228	
Interaction Rural/Urban	-.043	.833	.039	.850	.199	.303	.255	.171	.270	.155	
Religion	.183	.000	.170	.001	.146	.003	.152	.002	.152	.002	
Relative Advantage Population	.056	.308	.004	.942	-.007	.896	.009	.869	.008	.880	
Relative Advantage Individual	.262	.000	.215	.001	.138	.019	.121	.042	.113	.064	
Compatibility			.117	.072	.037	.540	-.056	.374	-.049	.445	
Complexity					.407	.000	.198	.001	.178	.004	
Trialability							.395	.000	.376	.000	
Observability									.082	.096	
*p<.05		**p<.01									

Principals were less likely to purchase curricula or hire staff without funding.

Religion was found to be a factor in the final multiple regression analysis that influenced the likelihood of adoption. Curiously, although the principal's own religiosity played a significant role in the likelihood

of adopting abstinence-only-until-marriage education programs, 67% were not likely to allow faith-based abstinence-only-until-marriage education programs to be present in their school. However, the more "religious" a person was, the more likely he/she was to adopt abstinence-only-

until-marriage education into his/her school's curriculum.

For the middle school principals who participated in this study, abstinence-only-until-marriage education would be incorporated into their school's curriculum on a gradual basis. However, the benefit



of any public health intervention is partially determined by the extent to which it is appropriately adopted.²³ Principals may consider adopting portions of an abstinence-only-until-marriage education program before committing to an entire program. If the program is implemented in pieces, or on a trial basis, the principal has time to make sure the message is appropriate for youth in the school to gradually involve stakeholders. Those involved in any sexuality-based education need to understand that a principal may not be willing to automatically adopt an entire curriculum or program into his or her school. They should structure their program so it can be implemented appropriately on a gradual basis, if the principal is interested in doing so.

Most of the respondents perceived their colleagues as adopting abstinence-only-until-marriage education programs into schools' curricula. Adoption was being observed at almost the same level within the school's local district (65%) as with schools nation-wide (66%). If a principal knows that one of his or her colleagues is implementing abstinence programs in their school, he or she may use that colleague as a resource for issues involved in program implementation. Coordinators of abstinence-only-until-marriage education programs may consider using principals as advocates for facilitating the programs and dissemination.

This study investigated what factors and perceived attributes influenced the likelihood of adoption of abstinence-only-until-marriage education. Religion was found to be a factor in the final multiple regression analysis that influenced the likelihood of adoption. The more "religious" a person identified themselves, the more likely he or she was to adopt abstinence-only-until-marriage education into his or her school's curriculum. In 1998, more than one-in-ten federally funded dollars were used for faith-based initiatives.²⁴ The persistent connection between abstinence and issues related to the separation between church and state lends importance to the finding regarding religion.²⁵ Because this study found religion to be a factor in the likelihood of adopting

abstinence-only-until-marriage education programs, educators and researchers need to be sensitive to the role of religion in curriculum adoption. Further, the principal also needs to be cognizant of how his or her personal religious beliefs influence the school's curriculum.

Additionally, many states mandate some form of sexuality education; however regulations are rarely enforced. Teachers, along with administrators, set priorities of what needs to be done in the school classroom. With the school reform agendas, accountability issues, and standardized testing rarely is the school's focus on health or sexuality education. Efforts to implement school health programs indicate that the key to a successful program is a principal who recognizes the importance and value of the program.²⁶⁻²⁸ However, principals often fail to support the sexuality mandates established by the states, which is a signal that sexuality education is not a priority.²⁹

Limitations

The contextual political and social issues surrounding abstinence-only-until-marriage education were not explored in depth. Nevertheless, given the lack of empirical data on abstinence education, this study represents a contribution to the understanding of factors influencing principals' decisions to adopt this innovation. While this study examined a sample of middle school principals in the state of Texas, one of its limitations was the possibility that principals responding to the survey had more knowledge of abstinence education than non-respondents, or stronger concern for the issue. Another limitation of the study was that some principals transferred the survey to a different school staff member (such as a counselor or assistant principal) to complete. The non-principal participants' data were aggregated with the middle school principal respondents. Although this data was slight, this may give a false sense of principals' perceptions. Further, because the study only included middle school principals in Texas, the results cannot be applied to principals at the elementary or secondary level or outside the state of Texas.

There are several other factors in the Diffusion of Innovation theory that might be examined to understand the adoption process. The statistical model accounted for 41% of the variance in the multiple regression analysis. In consideration of the principal's schedule, it was essential to keep the survey brief; therefore, the study only examined the perceived characteristics of abstinence education. Furthermore, little is known about these characteristics and principal adoption of sexuality based programs in the scientific literature. Other factors of the adoption process, such as the innovation-decision process or communication channels, could account for the variance in adopting abstinence-only-until-marriage education.

TRANSLATION TO HEALTH EDUCATION PRACTICE

The debate about abstinence-only-until-marriage education has been prominent among health educators involved in sexuality-based education. It is imperative, given the fluctuations in political agendas and current federal funding support for abstinence-only-until-marriage education, that health educators understand the principal's roles in the integration of abstinence-only-until-marriage education into their school's curricula.

The current study, which suggests how attributes of an innovation predict the likelihood of adoption, could fill an important void in the literature. The findings on self-reported perceptions about the adoption of abstinence-only-until-marriage education may indicate key factors that influence a school principal to adopt or reject a program. With the increased debate surrounding sexuality education, findings from this study may provide health educators with an understanding of how to influence principals regarding the adoption of sensitive health-related curriculum or programs, especially abstinence-only-until-marriage education.

Because of study limitations, findings must be interpreted cautiously. However, future study of the adoption of abstinence-



only-until-marriage education programs should investigate the elements presented in this study. This study suggested how attributes of an innovation predict the likelihood of adoption; however, there are many other factors involved in the adoption process. Further research is necessary studying the principal's direct role in abstinence-only-until-marriage education integration, with attention focused on how and to what extent principals support educators and instructors in the incorporation of abstinence education into the classroom. Additional research studies could focus on other individuals' roles in abstinence education adoption, such as school board members or the school health advisory council. The interactions among decision makers, and how these interactions affect the decision-to-adopt process, also might be relevant for future exploration. Finally, this study could also be expanded outside the state of Texas and beyond the middle school principal population, given that the findings' external validity needs to be established.

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ERRATUM

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Two numbers were transposed in Table 2 (page 69). Specifically, the numbers of males and females should have been 111 and 353 respectively (the table reflects a reversal of this ordering). Whereas this error was made by the authors, no other table values or results were affected. None of the verbiage in the results or discussion sections was affected.