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Context, Delivery, and Providers' Perspectives of Family Life Education in TN, USA

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Context, Delivery, and Providers' Perspectives of Family Life Education in TN, USA

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ABSTRACT

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In 2015, TN had the 9th highest teen birth rate in the United States. School-based sex education programs have shown promise in curbing teen pregnancy rates. In TN public schools, sex education could be taught by teachers of subjects like biology, health education, or invited guests from ministries, or national or local nonprofit agencies. The content, rigor, and approach of sex education taught by these diverse groups of providers remains unknown. This pilot study tested a survey questionnaire and methodology, while providing information on the providers' sex education practices and perspectives.

We adapted validated measures from past sex education surveys to reflect the context of TN. The survey items were reviewed and refined by diverse groups of experts on school-based health education, teen pregnancy prevention programs, and adolescent health. The survey was created and distributed via a web-based tool. A recruitment email or letter with a weblink to the survey was sent to 3,249 potential sex education providers, from April to June 2017. Of all contacts, 509 completed the survey, yielding a response rate of 15.7%. Of those who completed the survey, 137 taught sex education in the 2015-2016 school year to any of grades 5 through 12 students. Survey responses were analyzed using descriptive tests.

Abstinence (83.9%) was taught by most respondents, by grade 12, but far less respondents taught topics related to birth control (65.0%) and condoms: how to use condoms (22.6%), how to use

and where to get other birth control (31.4%). Providers with more years of experience, and those who expressed that they had received enough training, were more likely to teach more number of topics, including controversial topics, such as condoms and birth control. Most providers indicated that sex education topics should be taught in earlier grades.

This study identified the job titles of providers, content being taught, approach to teaching, and how providers would want to teach sex education. Identifying providers is crucial to designing sex education training programs, tracking program effectiveness, and changes in practices over time, to achieve the goal of curbing TN teen pregnancy rates through quality sex education.

DEDICATION

I dedicate this dissertation to all those who care for sexual and reproductive health of young people, and those who are passionately working in this field.

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CHAPTER 1

INTRODUCTION

Background of the Study

In Tennessee (TN), the legislature, school districts, schools, and pregnancy prevention programs provide a set of prescriptions for practicing school-based sex education, known as Family Life Education (FLE), in their jurisdictions. Providers of sex education are the personnel responsible for implementing the prescribed sex education in classrooms. Providers are also the ones interacting closely with students on sex education topics. In TN, like in any other state, the person responsible for teaching sex education varies from school to school (Darroch, Landry, & Singh, 2000). They could be teachers of subjects like biology, health education, family and consumer sciences, or physical education; school counselors; school nurses; coordinated school health coordinators (CSHC); or personnel from external public health agencies like public health educators (PHE) from Tennessee Department of Health (TDH); or guest speakers from national nonprofit agencies, such as Centerstone, Inc.,[1] or nonprofit religious agencies, such as Cumberland Crisis Pregnancy Center,[2] or Life Choice Ministries.[3] The content, rigor, and approach of sex education taught by these diverse groups of providers in public schools of TN remains unknown. We conducted a study with groups of providers (school teachers of four subjects in which sex education is most likely taught, PHE, CSHC, school counselors, and school

[1] Centerstone of Tennessee, Inc. is a national nonprofit provider of professional behavioral health services and advanced programs to treat mental illness and substance abuse problems in Florida, Illinois, Indiana, Kentucky and Tennessee, located in Nashville, Tennessee.
[2] Cumberland Crisis Pregnancy Center is a nonprofit that provides presentations about teen pregnancy, STIs, and positive decision making to public and private schools, churches, and community groups, in addition to resources and support for young women and families facing challenges of an unplanned pregnancy.
[3] Life Choices Ministries is a nonprofit pregnancy resource center that provides educational programs in public schools along with pregnancy testing, emotional support, parent education and facilitates private adoption.

nurses) to test a survey questionnaire and methodology, as well as provide information on the practices of individuals who provide sex education in TN public schools. In follow-up studies, the results of this study can be used for implementing a representative population survey of school-based sex education providers on the practice of sex education.

The proposed survey is the first of its kind to assess detailed practices of sex education providers in TN public schools. Most surveys on sex education in the past are either national surveys or surveys in other states that have focused on public and parents' opinions on school-based sex education (Bleakley, Hennessy, & Fishbein, 2006; Chappell, Maggard, & Gibson, 2010; Herrman, Solano, Stotz, & McDuffie, 2013; Howard-Barr, Moore, Weiss, & Jobli, 2011; Ito et al., 2006). A few national surveys of teachers of sex education are dated (1988, 1999, 2000, and 2004), and may not represent the current context of the state of TN that mandates abstinence-centered sex education (Darroch et al., 2000; Hoff, Greene, McIntosh, Rawlings, & D'Amico, 2000; Kennedy, 2004). Other state-level surveys of teachers in Florida, Illinois, and Minnesota underscore teachers' expression of the need for more comprehensive sex education (CSE) at earlier grades for their students (Dodge et al., 2008; Eisenberg, Madsen, Oliphant, & Sieving, 2013; Lindau, Tetteh, Kasza, & Gilliam, 2008).

The Centers for Disease Control and Prevention (CDC) has collaborated with state education and health agencies to conduct biennial School Health Profiles (Profiles) surveys since 1996 to assess school health policies and practices. The principal and a lead health education teacher of each sampled school in a state are surveyed. TN has participated in all the Profiles surveys. However, in sexual health education, the Profiles survey makes inquiry about the following only: a) whether teachers in the school taught individual sex education topics as part of a required health education course, b) whether teachers in the sampled schools assessed students'

comprehension, analytical skills, interpersonal skills, and decision-making skills in preventing HIV, other Sexually Transmitted Infections (STIs) and pregnancy, and c) whether the surveyed teacher received professional development like workshops and in-service education on teaching sex education topics such as HIV, other STIs, pregnancy prevention, and human sexuality. Unlike the Profiles survey, we developed a detailed survey questionnaire focused on sex education that maximizes comparability to the existing literature on school-based sex education in TN, other states, and the nation.

We hypothesized that the group of sex education providers surveyed in this study are informed by their current experience of teaching sex education in schools. They represent sex education providers in TN public schools to a large extent, and they can make suggestions for the future of sex education in TN schools to the best interest of their students.

Study Goal

To inform program planners on the comprehensive picture of current school-based sex education practices in Tennessee with the intent to improve upon ongoing teen pregnancy prevention efforts and guide future sex education policies.

Significance of the Study

Information about providers' delivery of school-based sex education will help to identify if current practices align with the prescriptions made by the state, local district, school policy, and adolescent pregnancy prevention program guidelines. Influencing factors of sex education can help in identifying ways to fill gaps between the prescriptions made by policy and program planners and the actual practice of sex education. Providers' perspectives on sex education can

provide feedback to propose changes to the policy at the local school, school district, and state level.

Research Questions

Research Question 1

What is the current context of school-based sex education in TN?

Research Question 2

How is sex education delivered in the schools of TN?

2a. What is the content, method, and tone of school-based sex education in TN?

2b. What factors (e.g. personal beliefs, providers' characteristics, regional differences) influence the delivery of sex education in TN?

Research Question 3

What do providers think school-based sex education should look like in TN?

CHAPTER 2

LITERATURE REVIEW

Sex Education Programs in the U.S.

Types of Sex Education Programs

Historically, two distinct types of sex education programs have existed in the US: abstinence-only and comprehensive sex education (CSE) (Hall, McDermott Sales, Komro, & Santelli, 2016). Abstinence-only programs emphasize abstinence from all sexual activity. The abstinence approach emphasizes health gains to be realized by delaying sexual activity as defined by Section 510(b) of the Social Security Act (Family and Youth Services Bureau, 2016). While the guidelines on comprehensive sex education (CSE) content vary greatly, federally funded programs through the Family and Youth Services Bureau (FYSB) educate young people on both abstinence and contraception (Family and Youth Services Bureau, 2016; Lindau et al., 2008).[4] Whether contraception is covered by programs has been a criterion most widely used to distinguish abstinence-only programs from comprehensive programs for program evaluation purposes. The FYSB uses the term 'personal responsibility education' in lieu of 'comprehensive sex education'.

Terminologies Used in Sex Education Programs

Programs that emphasize the benefits of abstinence have been termed as abstinence-centered, abstinence-based, abstinence-focused, or abstinence-plus programs, referred to as abstinence programs hereafter. These programs may include information on other sexual behaviors than intercourse, contraception, and/or other pregnancy and disease prevention

[4] FYSB is a federal program under the Administration for Children and Families division of United States Department of Health and Human Services that supports organizations and communities working to end youth homelessness, adolescent pregnancy and domestic violence.

methods, while abstinence-only programs generally do not. The proponents of abstinence programs address teen sex as a risky behavior, and compare abstinence messaging for general teen population to anti-smoking campaign. In recent years, more abstinence programs have resigned to using the term "Sexual Risk Avoidance" (SRA) that resonates with their education strategy claiming that SRA empowers students to make sexual decisions that remove all risk, as opposed to only reducing the consequences of risky behavior (Ascend, 2017).[5] The proponents of SRA aim to shift cultural messaging around teen sex by advocating abstinence from non-marital sexual activity as a primary prevention strategy and a foundational component of healthy relationships. The long-term goals of SRA strategy are forming healthy marriages and safe and stable families for all youth (Ascend, 2016b; Sen. Lindsey Graham [R-SC]).

The SRA proponents refer to any programs beyond the scope of abstinence programs, i.e. CSE programs, as "Sexual Risk Reduction" programs arguing that these programs focus on teaching skills to reduce physical consequences of teen sexual behavior by promoting contraceptives use and access, instead of eliminating the risk altogether (Ascend, 2016b). They indicate that CSE programs are "pleasure-based", and fail young people in guaranteeing highest standards of living.

Conversely, the proponents of CSE argue that abstinence-only programs have a fear-based and shame-based messaging, and they fail to include gender nonconforming youth. According to Sexuality Information and Education Council of the United States (SIECUS) guidelines for CSE, "quality CSE programs are defined as age-appropriate, evidence-based or evidence-informed, and medically accurate information on a broad set of topics related to

[5] Ascend, formerly the National Abstinence Education Association, is a leading association dedicated to championing Sexual Risk Avoidance (SRA) education strategy and provides SRA training and certification.

sexuality including human development, relationships, personal skills, sexual behaviors including abstinence, sexual health, and society and culture (National Guidelines Task Force, 2004)."[6] In school settings, CSE should start by kindergarten and continue through 12th grade. The CSE proponents advocate that sex education programs should provide students with opportunities for learning information, exploring their attitudes and values, and developing skills (Sexuality Information and Education Council of the United States). The proponents of CSE claim that SRA programs are the same abstinence-only programs disguised under a new name (Sexuality Information and Education Council of the United States, 2016).

Discussion of Abstinence and Condoms in SRA and CSE Programs

SRA education programs emphasize that although condoms and contraception can reduce the risk of pregnancy or STIs, abstinence is the only way to avoid all possible risks associated with sexual activity. The SRA proponents claim that their programs provide evidence-based education, with information on the use and effectiveness of various methods, including condoms. According to the SRA proponents, CSE programs omit providing information on the limits of contraceptives in preventing STIs and convey a false assurance of "safety" for sex with a condom (Ascend, 2016a). They highlight the fact that condom does not fully protect from getting two of the four most common STIs (human papillomavirus (HPV), chlamydia, herpes simplex virus (HSV), and trichomoniasis) among teenage girls between ages 14 and 19, i.e. HPV and HSV (Centers for Disease Control and Prevention, 2017b, 2017c; National Center for HIV/AIDS, 2008). The evidence that CSE programs withhold information on risks of contracting the two common STIs with sex using a condom could not be found in the literature.

[6] Sexuality Information and Education Council of the United States (SIECUS), founded in 1964, is a national nonprofit organization that advocates for the right of all people to accurate information, CSE, and sexual and reproductive health services.

Both the SRA and CSE proponents concur with the belief that young people deserve medically accurate information on contraception so that they can make informed choices for achieving optimal sexual health (Ascend, 2017; Sexuality Information and Education Council of the United States). However, a clear distinction exists in their approach to teaching condom use. SRA programs make distinction between "giving factual information and advocacy of use", and resort to providing facts about condoms, but do not distribute condoms or demonstrate its use. SRA programs consider condom distribution and/or demonstration as "condom advocacy sessions" and refer CSE programs that do such demonstration as "condom-centric".

Conversely, the proponents of CSE programs state that CSE programs are evidence-based interventions that include information on abstinence, condoms, and contraception, and do not withhold information about effectiveness and benefits of correct and consistent use of condoms and other contraceptives. CSE programs may teach skills in condom use, depending on the curriculum.

History of Sex Education Programs

Sex education paved its way to formal instruction in schools after the widespread concerns about non-marital adolescent pregnancy in the 1960s and the pandemic of HIV/AIDS after 1981 (Hall et al., 2016). In the late 1980s and 1990s, sex education programs mainly focused on contraception, condoms, and STIs. Abstinence-only sex education gained traction after The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PL 104-193) added a separate Abstinence Education Grant Program (AEGP) to Title V. The AEGP, an Abstinence-Only-Until-Marriage (AOUM) approach to sex education, started in fiscal year 1998, and allocates funds to applicant states to enable them to provide abstinence education, including mentoring, counseling, and adult supervision, to promote abstinence from sexual activity. It is

specifically focused on groups at risk of non-marital childbearing. For every $4 of federal funds, states are required to provide a match of $3.

Title V AEGP is administered by FYSB within Administration for Children and Families (ACF) of U.S. Department of Health and Human Services (HSS). AEGP provides an eight-point definition for "abstinence education" that states should adhere to in order to qualify for funding (see appendix A for the list). The AEGP requires teaching that a mutually faithful, monogamous relationship in the context of marriage is the expected standard, and abstinence from sexual activity is the only certain way to avoid non-marital pregnancy, STIs, and other harmful psychological and physical effects. The AEGP prohibits teachers from discussing contraceptive methods or safer-sex practices. In FY 2016, the U.S. Congress increased AEGP funding from $50 million to $85 million annually. The FYSB awarded a total of $70 million to the Title V AEGP and Sexual Risk Avoidance Education Grant Program (SRAE) in FY 2017 (Sexuality Information and Education Council of the United States, 2018a).

Federal Funding of Sex Education Programs in TN

The TN Department of Health received $1,654,551 in Title V AEGP funding in FY 2017 (Sexuality Information and Education Council of the United States, 2018b). Other state and local agencies in TN received funding from three other federal programs, namely, Teen Pregnancy Prevention Program (TPPP), the Division of Adolescent and School Health (DASH) program, and the Personal Responsibility Education Program (PREP), in FY 2017. Nationally, these programs received $104.8 million, $33.1 million, and $75 million, respectively, for FY 2017 (Sexuality Information and Education Council of the United States, 2018a).

TPPP Tier 1B was the largest stream of federal funding in TN in FY 2017. TPPP is administered by the Office of Adolescent Health (OAH) within the U.S. Department of Health and Human Services (HSS). Tier 1B of TPPP aims to replicate evidence-based TPP programs to scale in communities with the greatest need. Through this funding stream Centerstone of Tennessee, Inc.,[7] Douglas-Cherokee Economic Authority, Inc.,[8] and Le Bonheur Community Health and Well-Being[9] were granted $2 million, $999,999, and $1,230,000, respectively, summing to a total of $4,229,999 in FY 2017 (Sexuality Information and Education Council of the United States, 2018b).

The TN Department of Children's Services received $962,052 for PREP, which is administered by the Family and Youth Services Bureau (FYSB) within the Administration for Children and Families (ACF) of the U.S. Department of Health and Human Services (HSS) (Sexuality Information and Education Council of the United States, 2018b). PREP supports evidence-based programs that provide young people with medically accurate and age-appropriate information for the prevention of unintended pregnancy, HIV, and other STIs.

The TN Department of Education and Shelby County Board of Education received $378,750 and $75,000, respectively, for DASH program administered by the CDC, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) (Sexuality Information and Education Council of the United States, 2018b). The DASH supports state and

[7] Centerstone of Tennessee, Inc. is a national nonprofit provider of professional behavioral health services and advanced programs to treat mental illness and substance abuse problems in Florida, Illinois, Indiana, Kentucky and Tennessee, located in Nashville, Tennessee.
[8] Douglas-Cherokee Economic Authority, Inc. is a nonprofit Community Action Agency serving low-income families to improve their lives by providing them with assistance and services. It serves in six rural Appalachian counties in East Tennessee: Cooke, Grainger, Hamblen, Jefferson, Monroe and Sevier.
[9] Le Bonheur Community Health and Well-Being is a community service initiative of Le Bonheur Children's Hospital, Memphis. It is involved in community outreach to address the social, economic, and environmental factors threatening children's health and wellbeing. It serves in Memphis and Shelby counties.

local agencies in implementing exemplary sexual health education that emphasizes HIV and other STIs prevention, increasing access to sexual health services, and establishing safe and supportive environments, to better student health.

All four federal programs (Title V AEGP, TPPP, DASH, and PREP) were being concurrently implemented in the 2015-2016 school year, the timeline indicated in the survey for this study.

Current State of Sex Education Policy in the U.S. and TN

The most recent Guttmacher Institute report on Sex and HIV Education in the U.S. noted that 24 states and the District of Columbia mandate sex education, 34 states and the District of Columbia mandate HIV education, 39 states require abstinence information be provided, and among these, 27 states require that abstinence be stressed. Only 20 states require information on condoms or contraception be provided. Twenty-seven states have general requirements to be followed when sex and HIV education is provided. Of these, 13 states mandate instruction be medically accurate, and 26 states and the District of Columbia require that it be age-appropriate. Additionally, eight of these 27 states require that it be appropriate for students' cultural background and not biased against race, sex, or ethnicity, and two states prohibit promoting religion (Guttmacher Institute, 2016).

The state of TN mandates sex education for one year for counties in which pregnancy rate for 15- to 17-year-olds is higher than 19.5 per 1,000 females in the most recently published data (Guttmacher Institute, 2016; "Tennessee Annotated Code. "Family Life Curriculum." 49-6-1301 through 49-6-1307," 2012). When sex education is provided, abstinence has to be stressed. Also, the importance of sex only within marriage, the negative outcomes of teen sex, and life

skills on avoiding coercion, healthy decision making and family communication has to be included. HIV education is also mandated in TN. The HIV education must be age-appropriate, stress abstinence and not include information on condoms.

TN Health Education Standards

In TN Health Education Standards Grades 3 – 5, factual information about HIV/AIDS, instruction on how lifestyle behaviors can lead to communicable disease such as STIs, and risk-reduction behaviors that can prevent transmission of STIs and HIV are included (Tennessee State Board of Education). Beginning in 6th grade, the standards include abstinence from all genital contact as the only sure method of preventing sexual transmission of STIs and HIV/AIDS, and expect students will learn to "identify abstinence from sexual activity as the responsible and preferred choice for adolescents" (Tennessee State Board of Education). Physical and emotional changes in puberty are also included.

The TN Lifetime Wellness Curriculum Standards Grades 9 – 12 includes Sexuality and Family Life as one of the seven course standards that students must complete in order to graduate high school. The standards describe abstinence as a "positive choice", and identify the potential outcomes of engaging in sexual behaviors (e.g., pregnancy, STIs including HIV/AIDS, emotional). The standards also include comparison of various contraceptive methods and discussion on the alternatives of an unplanned pregnancy (e.g., adoption, single parenting, marriage, abortion) (Tennessee State Board of Education, 2016).

Sex Education and Adolescent Health

In the U.S., adolescents may receive formal sex education in a structured setting such as a school, youth center, church, or a community-based location (Guttmacher Institute, 2017). Apart from such formal instruction, adolescents may also receive information on sex education topics

from parents, health care providers, and/or digital media, among others. Sex education in formal settings has been effective in curbing pregnancy and STI rates among young people (Manlove, Fish, & Moore, 2015). Previous studies have indicated the beneficial effects of school-based sex education in addressing key determinants of pregnancy and STIs i.e. delaying first sex, reducing the number of sexual partners, and increasing contraceptive use among sexually active young people in the U.S. and other nations (Bourke, Boduszek, Kelleher, McBride, & Morgan, 2014; Kirby, 2007; Suellentrop, 2011). A study based on a nationally representative sample of 15- to 24-year-old males and females from the 2006-2010 NSFG indicated that formal instruction on abstinence and birth control was associated with healthier sexual behaviors and outcomes (Lindberg & Maddow-Zimet, 2012). Female respondents who received sex education were 42% less likely to initiate sex before age 20, more likely to use any contraception (73%) or condom (69%) at first sex, and 33% less likely to have an age-discrepant partner. The benefits of sex education for male respondents were much higher than for females (Lindberg & Maddow-Zimet, 2012).

In a review of evaluations of programs to improve adolescent sexual and reproductive health in the U.S., the authors found that compared to abstinence-based education programs (5 effective, out of 14 programs), more of CSE programs were effective (21 effective, out of 47 CSE programs) (Manlove et al., 2015). CSE programs were associated with delayed initiation of intercourse, reduced frequency of sexual activity, reduced number of sex partners, reduced frequency of unprotected sexual activity, increases in self-reported use of protection against pregnancy and STIs, reduced incidence of self-reported or clinically documented STIs, and increased use of condoms among sexually active adolescents (Community Preventive Services Task Force, 2012; Manlove et al., 2015). Based on the evidence from an extensive review of 62

studies of comprehensive education and 21 studies of abstinence education, the Community Preventive Services Task Force recommends comprehensive sex education. The state of TN requires abstinence be stressed when sex education is provided (Donaldson, Lindberg, Ellen, & Marcell, 2013; Guttmacher Institute, 2016).

Burden of Pregnancy and STIs Among Young People in the U.S. and TN

In 2015, TN had the 9th highest teen birth rate in the United States, with a rate of 30.5 births per 1,000 young women ages 15-19, compared to the national rate of 22.3; 15th highest rate of reported cases of chlamydia, with an infection rate of 2,104.1 cases per 100,000, compared to the national rate of 1,857.8 per 100,000 among young people ages 15-19; and, 14th highest rate of reported cases of gonorrhea, with an infection rate of 404.7 cases per 100,000, compared to the national rate of 1,698 per 100,000 among young people ages 15-19 (National Center for HIV/AIDS Viral Hepatitis STD and TB Prevention, 2017; Office of Adolescent Health, 2017).

In the U.S., sex education topics are typically taught in secondary schools i.e. grades 6 through 12, more so in high school (Darroch et al., 2000; Division of Adolescent and School Health, 2016). Tennessee Health Education Standards set by the State Board of Education include information on STIs including HIV/AIDS beginning in 3rd grade, include abstinence beginning in 6th grade, whereas, contraception is included beginning in 9th grade. It is critical to provide instruction on more topics in sex education, including contraception to earlier grades, and, if possible, before ages 11 to 13 years (i.e. grade 6 and 7) in middle school so that all adolescents get sex education before their first sexual experience.

Adolescents' Sexual Behavior in the U.S. and TN

In the US, by age 15, 18% of males and 13% of females have had sexual intercourse according to the 2006-2010 NSFG data (Martinez & Abma, 2015). By age 17, this percentage increases to 44% for males and 43% for females, and by age 19 it reaches to 69% for males and 68% for females. Most importantly, around 2 in 10 students will likely have had first sex by their sophomore year in high school.

According to the Youth Risk Behavior Survey (YRBS) data, in 2013, more male high school students in TN reported ever having had sexual intercourse (50.7% vs. 47.5%), and even more reporting having had sexual intercourse before age 13 (13.6% vs. 8.3%), compared to high school students nationwide (Centers for Disease Control and Prevention, 2017a). For female high school students, less percentage reported having ever had sexual intercourse in TN (44.4% vs. 47.5%), but more of them reporting having had sexual intercourse by age 13 (4.3% vs. 3.1%), compared to female high school students nationwide. Additionally, higher percentages of male (16.1% vs. 11.5%) and female (20.6% vs. 15.7%) high school students reported not using any method to prevent pregnancy during last sexual intercourse compared to male and female high school students nationwide.

Adolescents' Receipt of Sex Education

According to responses from a nationally representative sample of young people in the U.S. (National Survey of Family Growth, NSFG 2011-2013), about one-fourth of young people ages 15 to 19 reported not having any formal instruction on either of two birth control topics: where to get birth control and how to use condoms. More than half of the adolescents (54% males and 69% females) received instruction on where to get birth control only after sexual

debut; 40% of females and 22% of males received instruction on where to get birth control from parents (Lindberg, Maddow-Zimet, & Boonstra, 2016).

When sex education is taught in schools, the time allocated to these courses is almost null. According to the CDC's School Health Policies and Practices study in 2014, high school courses required, on average, only 6.2 hours of instruction on human sexuality with 4.2 hours on pregnancy prevention, 3.2 hours on HIV prevention, and 3.5 hours on other STI prevention during 2013-2014 school year; in middle school, these courses required 5.4 hours, 2.4 hours, 2.1 hours, and 2.6 hours, respectively (Centers for Disease Control and Prevention, 2014). Also, four in five high schools and middle schools allow parents or guardians to exclude their children from human sexuality classes, and 69.4% of high schools and 86.7% of middle schools notify parents or guardians before students receive these instructions (Centers for Disease Control and Prevention, 2014).

Approach of Past Sex Education Surveys

History of Sex Education Surveys and Their Objectives

National Surveys. The first sex education survey that involved providers of sex education dates back to 1977 and was conducted by the National Institute of Education (Orr, 1982). The survey was conducted in two parts: the first survey, referred to as High School Survey, was sent to the principals of randomly sampled public secondary schools with a 12^{th} grade; the second survey, referred to as Sex Education Survey, was sent to one sex education instructor per school that was identified as teaching sex education as a separate course in the first part. This was the first national survey of providers to study the practice of school-based sex education programs and to document the scope of the sex education.

Another national survey was conducted by the Urban Institute and the National Association of State Boards of Education in the year 1982 with the administrators of large city school districts with populations of at least 100,000 (Sonenstein & Pittman, 1984). These administrators included associate superintendents, directors of instructional services, curriculum specialists with titles such as supervisor of health and physical education, director of homemaking, or coordinator of family life education. The objective was to explore the extent of sex education provided either as a separate course or integrated into other subjects.

The Alan Guttmacher Institute conducted two surveys, one in 1988 and one eleven year later in 1999. The National Survey of Teachers, referred to as the Guttmacher survey hereafter, involved 7^{th} -12^{th} grade public school teachers responsible for the school subjects that usually include sex education in the US. Their objective was to document what is taught in classrooms, and to report the frequency of sex education in grades 7-12 and some of the topics covered. The study also explored institutional and other obstacles that may impede such instructions.

A national survey named Sex Education in America was conducted by the Princeton Survey Research Associates (PSRA) and Kaiser Family Foundation (KFF) in the years 1999 and 2003, referred to as the KFF survey hereafter. In the 1999 survey, it included students, parents, teachers and principals of public middle, junior, and senior high schools enrolling grades 7 through 12 to document what is happening in classrooms on sex education, what do parents want, what do students need, and who influences what gets taught. In the 2003 follow-up, they surveyed just the principals and general public/parents.

Another national survey is the School Health Profiles Survey (Profiles), which is a biennial system of surveys implemented by state education and health agencies from year 1996

onwards to assess school health policies and practices. Schools that serve students in grades 6 through 12 in each jurisdiction are the unit of analysis. TN has participated in all the Profiles surveys. The survey is not specific to sex education, but provides information on whether a few sex education topics were taught in schools.

State-Level Surveys. The Supplemental Sex Education (SSX) Survey was conducted in Minnesota in the year 2013 with 368 middle and high school teachers in mainstream and alternative schools (Eisenberg et al., 2013). Sampled participants from the Profiles survey received an additional 1-page questionnaire specific to sex education. The authors examined specific topics teachers included in their sex education classes, topics they thought should be included, the barriers they identified to teaching sex education, and how these barriers were associated with the topics they taught.

Lindau et al. conducted a survey with 209 Illinois public school sex education teachers who taught during the 2003-2004 school year (Lindau et al., 2008). The authors examined the content, quality of, and influences on sex education, and determined predictors of comprehensive sex education in public schools.

A state-wide study was conducted by Dodge et al. (2008) in Florida among public middle and high school teachers in the year 2007. The authors applied a staged approach to first determine if sex education was being taught in public school and where it was being taught. Then, they identified the curricula used, content covered, any supplemental materials and outside support used, and the training needs of the school teachers who taught sex education (Dodge et al., 2008).

Universe and Study Population of Past Surveys

The first survey in 1977 done by Orr et al. sampled public high schools and involved administrators in the first stage and a sex education teacher in a school in the second stage. The 1982 survey by Sonenstein sampled city school districts and identified respondents to answer for their respective school district. The KFF survey randomly sampled schools and selected survey participants from the selected schools. A similar strategy is used for the Profiles survey where the principals from the sampled schools answer the survey for the school and also identify a lead health education teacher to answer another survey questionnaire. In the Guttmacher survey, participants were randomly sampled from a pool of all school teachers and school nurses in the nation. Similarly, the Illinois survey sampled sex education teachers from public schools. Past national and state-level surveys have used public schools or individuals responsible for sex education as their universe depending on their study goals.

After the 1977 survey by Orr et al. that obtained information from one sex education teacher from a school, subsequent surveys have involved school teachers as the primary source of information on sex education, except the KFF survey that also involved parents and students, and the Guttmacher survey that included school nurses along with school teachers. These school teachers were primarily assigned to teach subjects like science, biology, physical education, health education, or family and consumer sciences to middle school or high school grades. In most cases, a sex education teacher for a school was identified by the principal of the school (Orr 1982, KFF survey) or the lead health education teacher (SSX survey in Minnesota).

Limitations of Past Surveys

All past national and state-wide surveys had difficulty identifying the sampling frame of sex education providers. This is because sex education or FLE has been historically taught by

anybody in the school without any designated position like a subject teacher. More than one school teacher and some guest speakers may be simultaneously involved in teaching sex education to the same or different groups of students in a school. Surveys that have used schools as sampling unit and obtained information from one representative of a school may not appropriately represent the diversity in the delivery of sex education within a school.

Most sex education surveys are broad and have not measured details about the content and emphasis on particular topics of instruction (Darroch et al., 2000; Eisenberg et al., 2013). Lindau et al. (2008) noted that over two-thirds of Illinois sex education teachers provided information on more than just abstinence despite reporting use of an abstinence-only curriculum. Among all teachers who taught abstinence as the only means of preventing STIs and pregnancy, 40% also taught that birth control can be effective in preventing pregnancy or that condoms can be effective in preventing HIV and STIs (Darroch et al., 2000).

Most past surveys have failed to explore the influencing factors for differences observed in what is prescribed to teach in curriculum or policy and what providers actually taught. Only the study by Lindau et al. explored the role of suspected predictors such as training, experience, age, sex, policy and availability of curricular material on covering four of the topics identified as comprehensive sex education (abstinence, HIV/AIDS, other STIs, and contraception). Male sex education teachers and those who were trained on teaching sex education topics were found to cover more of the comprehensive sex education topics (Lindau et al., 2008). Darroch et al. (2000) suggested that the differences in practice and prescription could be because of two major reasons: either the survey questions could not measure the nuances in prescriptions for teaching such controversial topics such as birth control; or providers were bending policies to take into account student needs or concerns from other groups.

The results from national and state-level surveys may not represent the state of sex education in TN. Southern states are known for their conservative beliefs on sex. In the past (1999 public poll of 1,050 adults aged 18 or older), the South has been found to differ significantly from the Northeast in the percentage of people who believe sex should occur only in marriage (South, 40% vs Northeast, 26%), and the percentages who agree that by grades 11-12 contraception (90% vs 94%) and condoms (89% vs 93%) are appropriate to be taught (Landry, Darroch, Singh, & Higgins, 2003).[10]

Despite the observed differences in public opinion, the South did not differ from the Northeast region in the percentage of sexually experienced 20- to 24-year-old women who had had sex by age 17 (1995) and the rate of pregnancies, births and abortions per 1,000 women aged 15-17 (1996). Similar public polls for more recent years have not been found.

Conclusion

No study has explored sex education practices in TN. National surveys in the past have tailored their study objectives and survey questionnaires according to contextual knowledge on sex education. The sample populations of these surveys are generally school teachers of subjects in which sex education is most likely to be taught, e.g. biology, and at times, school nurses. Earlier surveys (Sex Education Survey by the National Institute of Education in 1978 and the 1988 Guttmacher survey) focused on describing the content of sex education. Later surveys delved into factors predicting comprehensiveness of the instruction or the extent of topics

[10] **South**—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. **Northeast**—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. **Midwest**—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, and Wisconsin. **West**—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

covered. These surveys in public schools inquired into the tone or the manner in which contraception, birth control, and abstinence were taught in addition to listing the topics, skills, and concepts. Information on the most controversial topics (sex before marriage, birth control, abortion, masturbation, homosexuality) have been used to delineate the type (abstinence or comprehensive) and the extent (breadth and tone of topics) of sex education offered. Differences have been found in what is prescribed to teach and what providers actually taught about controversial topics, however, the reasons for these differences are unknown.

CHAPTER 3

METHODS

Introduction

Operational Definitions

Sex Education. Sex education, also known as Family Life Education (FLE), is defined as any classes or talks in school that discuss relationships, how babies are made, abstinence, AIDS, pregnancy prevention, birth control, puberty, and the like. These topics may be taught in a separate sex education course, as part of another course, like health or science, or as independent lessons in the school auditorium or gym.

Providers of Sex Education. Sex education providers are either school personnel or guest speakers who teach human sexuality content in any of the middle or high school grades (grades 5 through 12) as a separate sex education course, as part of another course, or as specific lessons taught independent of any other course. School personnel may include teachers of subjects like biology, physical education, health education, family and consumer sciences, and school nurses.

Guest speaker. For this study, a guest speaker is a sex education provider who comes from an external agency to teach all or part of sex education content (see item 23 in Appendix E for the wording of this question). They can either be invited by the school administration or the subject teacher or they may offer to provide sex education content in TN public schools. They may include public health educators (PHE) or abstinence contract educators (ACE) from the TN Department of Health (TDH); coordinated school health coordinators (CSHCs) from the Tennessee Department of Education (TDOE); or educators from national nonprofit agencies,

such as Centerstone, Inc.,[11]; or personnel from nonprofit religious agencies, such as Cumberland Crisis Pregnancy Center,[12] or Life Choice Ministries[13], among others.

Current practices. Current practices refer to the practice of sex education in the most recent school year (i.e. 2015-2016).

Context of sex education. Context of sex education is defined as: the grades in which sex education is taught in provider's school; whether the school, the school district or the county has policy or prescription on sex education, parental consent requirement, and/or teaching birth control; and providers' adherence to prescriptions on sex education curricula.

Sex education content. For this study, sex education content refers to the list of 22 sex education topics, skills and concepts (see appendix B for the list) that are likely discussed in sex education or FLE classes. These topics was prepared by examining the topics used in other surveys and from the feedback of experts in teen pregnancy prevention and sex education programs at the TDH and the TDOE.

Selected and controversial topics. These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature: birth control, how to use condoms, how to use and where to get other birth control, abstinence, homosexuality, and abortion (Canan & Jozkowski, 2017; Kohler, Manhart, & Lafferty, 2008; Landry et al., 2003; Sonenstein & Pittman, 1984). They are termed

[11] Centerstone of Tennessee, Inc. is a national nonprofit provider of professional behavioral health services and advanced programs to treat mental illness and substance abuse problems in Florida, Illinois, Indiana, Kentucky and Tennessee, located in Nashville, Tennessee.
[12] Cumberland Crisis Pregnancy Center is a nonprofit that provides presentations about teen pregnancy, STIs, and positive decision making to public and private schools, churches, and community groups, in addition to resources and support for young women and families facing challenges of an unplanned pregnancy.
[13] Life Choices Ministries is a nonprofit pregnancy resource center that provides educational programs in public schools along with pregnancy testing, emotional support, parent education and facilitates private adoption.

controversial because they least likely to be taught, and/or when taught the message given to students varies depending on the provider.

Method. Eleven question items in method section focused on how the teaching was conducted in a sex education class in the grade in which they taught sex education most often. These items included: whether sex education was taught as a separate sex education course or as a part of another course; sources of teaching materials, i.e. materials developed by the state, school district, school, commercial material, or materials they developed themselves; name of sex education curricula used; average number of students in the session; whether the session was provided in a class period or throughout a school year; the average amount of time spent in each sex education session; whether the class was co-educational or not; the teaching strategies used, i.e. lecture or student participation; the strategy used to answer students' questions in the classes, i.e. answered by the provider or referred to parents, another teacher, or health professional; whether guest speakers were also involved in teaching sex education classes, and, if so, the reasons for including guest speaker talk (see items 13, 14, 15, 17 through 23, in Appendix E for the wording of these questions).

Tone. The delivery tone is referred as sex education providers' message when teaching the seven most controversial topics of sex education to the grade they taught most often in the 2015-2016 school year. These controversial topics included: abstinence, sex taught as normal part of life over something to avoid or fear, condoms, birth control, abortion, masturbation, and homosexuality (Canan & Jozkowski, 2017; Darroch et al., 2000; Kohler et al., 2008; Sonenstein & Pittman, 1984). For instance, in the content section the providers can just mention whether they taught abortion or not from the list of 22 sex education topics. But, with the tone item they

can indicate whether they taught about abortion as a personal matter or as something that is immoral or wrong (see items 25 through 31 in Appendix E for the wording of these questions).

Design

A cross-sectional study design was applied. This study design has been applied successfully to previous sex education surveys. The survey questionnaire was piloted to 52 randomly selected participants at the end of February and March 2017. Minor errors in formatting and typos were corrected before the survey was rolled out in early April. Most selected participants received a recruitment letter and a weblink to the survey questionnaire via email; non-respondents were sent a reminder email along with the survey weblink at one-week intervals for seven subsequent weeks on Tuesdays. A letter with a survey link was sent via postal service to those who did not have a valid email address at the beginning of May; of these, non-respondents were sent a reminder letter via postal service in early June. The data collection lasted approximately 3 months for survey weblink sent via email, and two months for survey weblink sent via postal service.

Study Population and Participating Organizations

A diverse group of sex education providers were included in the study. This was to ensure that the study population reflects the population of sex education providers in public schools in TN. The groups surveyed in this study included school teachers of subjects that are most likely to teach sex education (biology, physical education, health education, family and consumer sciences) (email, n=1,707; mail, n=867), school nurses (email, n=232; mail, n=182), and probable guest speakers invited to teach sex education classes in schools. These guest speakers can either be invited by the schools or they offer to provide sex education in schools. The guest speakers surveyed in this study included public health educators (PHE, n=103) and

abstinence contract educators (ACE, n=21) from the TN Department of Health (TDH), and coordinated school health coordinators (CSHC, n=137) from the Department of Education (TDOE).

Inclusion and Exclusion Criteria

All school teachers of four subjects, namely, biology, health education, physical education, family and consumer sciences for grades 5 through 12, and school nurses, all PHE and ACE currently employed by the TDH, and all CSHC currently employed by the DOE were included in the study.

Response rates were calculated using the entire population to whom the survey was sent. Only those who taught sex education in the 2015-2016 school year to any of the grades 5 through 12 were eligible for analysis.

Participant Recruitment and Data Collection

An introductory email or letter (see Appendix C) were used as the primary recruitment tool. The introductory email was sent to all selected participants along with the weblink to the survey. The mailed letter with the survey weblink was sent only to those for whom a valid email address could not be traced.

The survey was created and distributed via a web-based tool named Research Electronic Data Capture (REDCap). A web-based survey is a novel data collection strategy in the field of sex education surveys as surveys in the past have either used mail-based surveys or telephone-based surveys.

We purchased emails (1,939 contacts) and mailing addresses (1,049 contacts) of school teachers of selected subjects and school nurses in TN from a commercial firm, Market Data

Retrieval (MDR). Mailing addresses were purchased separately only for those school teachers and school nurses who did not have valid email addresses. The MDR maintains and updates the list of school teachers continually during the year. A list of names and contact emails of all PHE and CSHC were obtained from the TDH and the TDOE, respectively.

Data Collection Instrument

As this study is the first sex education survey in TN, the investigators adapted validated measures used in past national and state-level surveys on sex education so that items and responses reflected the context of TN and responses could be compared to earlier studies. The survey items used in this study were reviewed and refined by diverse groups of experts in the field of health education in schools, teen pregnancy prevention programs, and adolescent health researchers.

The survey was structured in two parts. The first part identified the position/job title of the respondents, county/counties of jurisdiction, and whether they taught sex education to grades 5 through 12 in the 2015-2016 school year. The second part focused on context, delivery, and providers' perspectives of sex education. This part was completed only by the respondents who taught sex education in the 2015-2016 school year to grades 5 through 12.

Measures

A student in a public school can receive sex education in any or multiple school grades from different sources. These sources could be a biology teacher or a school nurse or somebody invited from an external agency to teach the sex education course and they are termed as a sex education provider for the purposes of this study. The topics covered in a sex education course, the tone of instruction, and the teaching method could vary by person teaching the class, the

school or district policy, and the grade in which sex education was taught. Similarly, a sex education provider could teach in multiple grades of a school or in multiple schools across multiple counties. When doing so, they may employ different content, tone, and method by grade level depending on the school or district policy, or their personal beliefs.

The focus of this study was the individuals who provide sex education to grades 5 through 12 in TN public schools. Past national and state-level sex education surveys have successfully used a similar approach (Forrest & Silverman, 1989; Landry et al., 2003; Lindau et al., 2008). We document the context in which these providers were operating and identified the most common practice of sex education by these providers. Also, we gathered information on their perspectives of what the context and delivery of sex education should look like in TN public schools.

Research Question 1: What is the Current Context of School-Based Sex Education in TN?

Context of Sex Education. Providers who taught in only one school answered questions specific to that school. Providers who taught in more than one school in a county answered context items for any of the schools in the county. County-level results were aggregated into metros and seven rural regions defined by the TDH, namely, West, Mid-Cumberland, South Central, Southeast, Upper Cumberland, East, Northeast (see Appendix D for the map of TDH regions and a list of counties in each region).

For providers who taught sex education in different counties, questions describing the context were specific to each county. For these providers, responses to context items for different counties were examined to note similarities or differences. Since these responses were similar,

only the response for the first county was included in analysis. All counties listed by a provider were from a specific TDH region.

Sex education providers were asked about grades in which sex education is taught in school(s), whether any school district in the county has a policy on sex education, school policies on parental consent requirement, prescriptions on teaching birth control, and their adherence to school guidelines on sex education curricula.

Objectives. To determine whether or not sex education is offered in various public middle and high schools of TN counties and, if so, to what grades sex education is taught, and whether or not the school district has a policy to teach sex education. To identify the guiding policies on parental consent requirement, and restrictions to teaching birth control. To determine how strictly the providers followed school guidelines on sex education curriculum. To determine who teaches sex education, and in which subject areas it is taught.

Reporting of results. Number and percentage of respondents for each of the items listed in Table 1.

Table 1

Measure for Each of the Context Specific Items Explored

Measure	**Context specific items**
Number and percentage of respondents	• who specified all the grades from 5 to 12 in which sex education was taught in their school(s)
	who are in a county that has any school district with • a policy on sex education, or • the decision is left to individual schools, or • the decision is left to individual teachers
	who are in a county in which school(s) • require parents to be notified about sex education topics, • require written parental permission for attending sex education class, • inform parents of the option of removing their child from sex education classes,

	• allow parents to review the curriculum, • require use of a specific sex education curriculum
	who are in a county in which they are mostly told either • to teach and to answer students' questions about birth control, or • to teach but not to answer students' questions about birth control, or • not to teach but to answer students' questions about birth control, or • not to teach and not to answer students' questions about birth control
	who are in a county in which following different levels of strictness were required while following school's sex education curricula • teach pretty much what they wanted, or • some guidelines, or • strict guidelines

Research Question 2: How is Sex Education Delivered in the Schools of TN?

2a. What is the Content, Method, and Tone of School-Based Sex Education in TN?

Providers of sex education may teach in more than one grade and may teach different topics, using different methods and in varying tones in different classes. To document the most common practice of sex education, they were asked to identify the grade in which they taught sex education most often in the 2015-2016 school year (Eisenberg et al., 2013). Most method and tone items were asked for that specific grade in which the provider taught most often, but content item was not specific to the grade taught most often.

Content. Providers were asked to mention all the grade(s) in which they taught each of the 22 individual sex education topics (see appendix B for the list). Topics that were taught by less than half of the providers in the grade they taught most often, or topics that are identified as controversial in sex education literature (birth control, how to use condoms, how to use and where to get other birth control, abstinence, homosexuality, and abortion) were identified as "selected and controversial topics"(Canan & Jozkowski, 2017; Kohler et al., 2008; Landry et al., 2003; Sonenstein & Pittman, 1984).

Objectives. To examine the grades in which specific topics were included by providers in their sex education classes. To report on the most commonly discussed topics and only occasionally discussed topics by grade level, i.e. at or before 5th grade, at or before 7th grade, and at or before 12th grade.

Reporting of results. Number and percentage of respondents who taught an individual topic from among all 22 topics by grade level (≤5th grade, ≤7th grade, ≤12th grade).

Method. This section focused on how providers conducted sex education classes in the grade they taught most often (see items 13, 14, 15, 17 through 23, in Appendix E for the wording of these items).

Objectives. To determine the sources of teaching materials and the name of the curricula used by the providers. To identify if sex education was taught as a separate sex education course or as a part of another course, the average number of students in the session, if the session was provided in a class period or throughout a school year, the average amount of time spent in each session, if the class was co-educational or not, the teaching strategies used, and the strategy used to answer students' questions in the classes for the grade in which sex education was taught most often. To determine if guest speakers were also involved in teaching sex education classes, and, if so, the reasons for including guest speaker talk.

Reporting of results. Number and percentage of respondents for each of the response items listed in the objectives.

Tone. The delivery tone questions explored the sex education providers' message when teaching the seven most controversial topics of sex education to the grade they taught most often in the 2015-2016 school year (see items 25 through 31 in Appendix E for the wording of these items). An aggregate variable, i.e. 'method effectiveness and abstinence', was created based on

providers' responses to tone items for abstinence, condoms and birth control. Four categories were created: 1) methods effective, abstinence best, which reflects CSE programs; 2) methods effective, abstinence only; 3) methods ineffective, abstinence best, which can be referred as abstinence-based or SRA programs; 4) methods ineffective, abstinence only, which can be referred as abstinence-only (Landry et al., 2003). Providers not teaching about abstinence were included with "abstinence best"; those not teaching about condoms and birth control methods were included with " methods ineffective". Effective included providers who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STIs or both.

Objectives. To identify the tone of the provider while teaching the most controversial sex education topics in the grade they taught most often.

Reporting of results. Number and percentage who mention: abstinence is one alternative, best alternative, or only alternative; sex is something to avoid and fear, or a healthy and normal part of life; emphasize that condoms can be effective in preventing STIs/HIV, or its ineffectiveness; emphasize birth control can be effective in preventing pregnancy, or their ineffectiveness; abortion is immoral or wrong, or a personal matter; masturbation is immoral or wrong, or a personal matter; homosexuality is immoral or wrong, or homosexuals should not be discriminated against. Number and percentage of providers who responded abstinence-only (methods ineffective, abstinence best), abstinence-based (methods ineffective, abstinence best), or abstinence-only (methods ineffective, abstinence only).

2b. What Factors Influence the Delivery of Sex Education in TN?

Providers' characteristics. Age, sex, race, ethnicity, qualification/education, position/job title, experience teaching sex education, and training on sex education were collected from all

respondents as characteristics of the provider. To assess whether providers had received enough training, they were asked to respond Yes/No/Don't know to the question "*Do you feel you have received enough training to teach sex ed well?*".

Objective. To report on the characteristics of age, sex, race, ethnicity, experience, qualification, position, and training of the providers who responded to the survey. To examine the influence of providers' characteristics on the number of topics covered, whether selected and controversial sex education topics were covered, and the tone of controversial sex education topics.

Reporting of results. The age, sex, and race distribution of respondents were reported as numbers and percentages. The years of experience, qualification of respondents, and whether the provider received any training on sex education were also expressed as numbers and percentages. Providers were categorized into tertiles based on their age (younger, middle age, and older). Similarly, providers were grouped into three categories of number of school years of experience teaching sex education (<5 years, 5-14 years, ≥15 years). The distribution of providers teaching selected and controversial topics, number of topics taught, and the tone of controversial topics by categories of sex, age, experience and training were reported. Differences by race and ethnicity could not assessed because almost all providers were from a specific race and ethnicity (non-Hispanic white). Fewer number of providers in categories of position/job titles and qualifications limited the ability to assess differences by these characteristics.

Perceived influence. Perceived influence consists of a set of two question items. The first item assessed the providers' main reason for not covering a particular topic, skill or concept in the sex education classes. These reasons included feeling of pressure by the community and parents not to teach the topic, school or district policy not to teach it, provider personally felt that

the topic should not be taught, not enough time in the curriculum to teach the topic, abstinence or abstinence-based only class, or because the topic was covered in earlier or later grades. The second item identified factors leading to teaching sex education differently than the providers' preference in the class most often taught in the 2015-2016 school year. These obstacles were either lack of time, financial resources, or curriculum, or concerns about parents', students' or administrations' responses, or school or district policy regarding sex education.

Objectives. To identify reasons for not covering each of the sex education topics in a sex education class. To explore structural obstacles and potential concerns that impeded instruction on sex education in the class most often taught by the provider in the 2015-2016 school year.

Reporting of results. Number and percentage of respondents who quote specific reasons for not teaching a topic. Number and percentage of respondents who expressed specific factors listed in that had influenced their teaching on sex education.

Personal beliefs. One item inquired about providers' personal beliefs about the likelihood that students will initiate sex or use contraception after instruction on either abstinence and/or contraception using statements with which respondents either agreed or disagreed. Another item asked about the importance of sex education in relation to other units taught by the provider.

Objective. To explore providers' personal beliefs on topics such as abstinence, contraception, and the importance of sex education. To explore the association between providers' personal beliefs on contraceptives and abstinence and the actual teaching on selected controversial sex education topics, number of sex education topics taught, and tone of controversial topics.

Reporting of results. The number and percentage of providers who stated that teaching sex education is as important as or more important than teaching other units. The number and

percentage of providers who taught selected controversial sex education topics, number of sex education topics taught, and tone of teaching controversial topics by their personal beliefs on contraceptives and abstinence.

Regional differences. All respondents were asked to identify their county/counties of jurisdiction. Using the information on the county, respondents were categorized into metro and rural regions as defined by the TDH for exploring regional differences.

Objective. To examine whether regional differences exist in the number of topics covered, providers' teaching on specific topics and skills, and the tone of teaching controversial sex education topics.

Reporting of results. Results are reported on significant differences (as calculated by chi-square test) in the number of topics covered, providers' teaching on specific topics and skills, and the tone of teaching controversial sex education topics by geographic region.

Research Question 3. What Do Providers Think School-Based Sex Education Should Look Like in TN?

A total of seven items asked about the providers' view on: what topics should be taught and to what grades; what should be mainly taught about sex before marriage, birth control, and safer sex in schools; policies or standards that would be critical for teaching sex education in schools; time to be spent on sex education; training needs of sex education providers; and, assistance needed for providing sex education.

Objectives. To report on providers' views on topics that should or should not be taught in school. To report providers' views on the main message of sex education as: only have sex when they are married, or use birth control and practice safer sex if they choose not to wait to have sex. To determine whether providers express the need for training on sex education. To report on providers' views on the lowest grades in which sex education topics should be taught. To report

on providers' perception of time spent on sex education in the grade taught most often (enough time, too little time, too much time). To determine any training needs expressed by sex education providers. To determine other assistance (like factual information, teaching materials, teaching strategies) needed for conducting sex education. To compare current practice of teaching sex education topics to different grades with the providers' view of the lowest grade to which it should be taught (taught at right time, should be taught earlier or later than practice).

Reporting of results. The number and percentage of providers who indicated sex education topics not to be taught by grades. The number and percentage of providers who identified the policies or standards critical for teaching sex education in schools such as licensing sex education teachers, school board policy, comprehensive sex education policy, age-appropriate district-wide health education standards, support from the Teachers' Union, health requirement for graduation, and others. The number and percentage of providers who expressed that sex education should teach young people to have sex only after marriage, or should wait to have sex but if they don't they should use birth control and practice safer sex.

Proportion of providers who indicated the minimum grade at which sex education topics should be taught were compared to proportion of providers who taught the sex education topic in that grade. Number and percentage of providers who reported that: the time given to sex education was too little, enough training has been received, they would like to receive more training, and they need assistance with information, teaching materials, or teaching strategies.

Data Analysis

Almost all the variables used in this study were categorical; the continuous variables such as age and number of topics covered in sex education classes were categorized before further

analysis. Descriptive statistics were applied to report on the number and percentage of respondents in each category. The differences among categories were tested using a chi-square tests. Statistical software SAS version 9.4 was used for all analysis.

Results of the study were compared with other national and state-wide surveys.

CHAPTER 4

RESULTS

Introduction

Of the 3,249 potential sex education providers who were sent the survey (2,187 via email and 1,049 via mail), 584 opened, 574 attempted, and 509 completed the survey, yielding a response rate of 15.7%. Sixty-five respondents did not complete the survey, among whom 61 taught sex education and four did not teach sex education. The response rate was higher for those who were contacted via email (22.1% compared to 2.5%). Twenty-six mail surveys (2.5%) were returned to the investigator's address. Some potential participants (n=15, 0.7%) who were contacted via email requested to be removed from the list of contacts.

Providers' characteristics. Among those who completed the survey, 137 taught sex education in the 2015-2016 school year to any of grades 5 through 12 students.

Most of the providers of sex education who responded to this survey were females (79.6%), over the age of 40 (67.2%), non-Hispanic (99.3%), and white (89.1%; Table 2).

Over one-fourth cited a combination of health and physical education as their educational qualification, and only a few mentioned health education or public health or nursing (19%; Table 2).

About half of the providers had between 5 to 14 years of experience teaching sex education. Over one-fourth had less than five years of experience, while 28.2% had over 15 years of experience (Table 2).

Over two-thirds of providers (65%) from rural regions were and the rest from metro regions, with the largest representation from the Mid-Cumberland region (20.4%; Table 2; see Appendix D for list of counties in each region).

About one-third of providers were physical education teachers, 29% were health education teachers, over one-fifth were family, consumer science or home economics teachers, and about 10% were PHE. Very few respondents were biology teacher, CSHC, school nurse, or school counselor (19%; Table 2).

Most providers taught sex education in one school either to multiple grade levels (66.4%) or just one grade level (15.3%), around 17% taught in more than one school within a county, and only two respondents (1.5%) taught in two or more counties (Table 2).

When asked if providers felt that they received enough training to teach sex ed (*Do you feel you have received enough training to teach sex ed well?),* about half of them (45.3%) indicated that they received enough training, two-fifths did not answer to this question (missing), and 10% mentioned they did not receive enough training (Table 2).

Table 2

Demographic Characteristics of Sex Education Providers (N=137)

Characteristics	**n (%)**
Sex	
Female	109 (79.6)
Male	28 (20.4)
Missing	0 (0.0)
Age	
22 to 30	14 (10.2)
31 to 40	31 (22.6)
41 to 50	40 (29.2)
51 to 60	39 (28.5)
61 to 70	13 (9.5)
Missing	0 (0.0)
Ethnicity	
Hispanic or Latino	1 (0.7)
Not Hispanic or Latino	136 (99.3)
Missing	0 (0.0)
Race	
White	122 (89.1)

Table 2 (continued)

Black or African American	13 (9.5)
Asian	1 (0.7)
Other	1 (0.7)
Missing	0 (0.0)
Education	
Health and physical education combined	37 (27.0)
Health Education	10 (7.3)
Physical education	16 (11.7)
Other education degree	8 (5.8)
Kinesiology, exercise science, or exercise physiology	2 (1.5)
Home economics or family and consumer science	28 (20.4)
Biology or other science	9 (6.6)
Nursing	6 (4.4)
Counseling	2 (1.5)
Public health	10 (7.3)
Nutrition	3 (2.2)
Other: Psychology, Sociology, Math, Arts, Critical Care Paramedic	5 (3.7)
Missing	1 (0.7)
No. of school years experience teaching sex ed or family life	
<5 years	51 (26.7)
5-9 years	46 (24.1)
10-14 years	40 (20.9)
15-19 years	27 (14.1)
20 years or more	27 (14.1)
Missing	3 (2.2)
Region	
West	13 (9.5)
Mid-Cumberland	28 (20.4)
South Central	4 (2.9)
Southeast	9 (6.6)
Upper Cumberland	6 (4.4)
East	13 (9.5)
Northeast	16 (11.7)
Metros (6)	48 (35.0)
Missing	0 (0.0)
Job title/Position (multiple response)	
Public Health Educator	13 (9.5)
Coordinated School Health Coordinator	8 (5.8)
Biology teacher	12 (8.8)
Family/consumer science/home economics teacher	30 (21.9)
Health education teacher	39 (28.5)

Table 2 (continued)

Physical education teacher	45 (32.9)
School nurse	5 (3.7)
School counselor	1 (0.7)
Other subject teacher, such as Psychology, STEM	4 (2.9)
Other administrative position, e.g., School Manager, Education Director	4 (2.9)
Scope of teaching	
Teach in one school to one grade level	21 (15.3)
Teach in one school to multiple grade levels	91 (66.4)
Teach in more than one school within a county	23 (16.8)
Teach in more than one school across multiple counties	2 (1.5)
Enough training received	
Yes	62 (45.3)
No	14 (10.2)
Don't know	5 (3.7)
Missing	56 (40.9)

Table 3

Number and Percentage of Sex Education Providers Who Taught 22 Sex Education Topics and Number of Topics Taught by Sex and Age

		Sex			Tertiles of age			
	Total (N=137)	**Male (n=28)**	**Female (n=109)**	**p-value χ2 test**	**Younger (22-41 yrs) (n=48)**	**Middle (42-52 yrs) (n=43)**	**Older (53-70 yrs) (n=43)**	**p-value χ2 test**
	n (%)	**n (%)**	**n (%)**		**n (%)**	**n (%)**	**n (%)**	
Topics, skills and concept								
anatomy	113 (82.5)	23 (82.1)	90 (82.6)	0.9578	37 (77.1)	35 (81.4)	39 (90.7)	0.2177
puberty	122 (89.1)	25 (89.3)	97 (89.0)	0.9644	38 (79.2)	39 (90.7)	43 (100.0)	0.005
healthy relationships	125 (91.2)	26 (92.9)	99 (90.8)	0.7345	44 (91.7)	35 (81.4)	43 (100.0)	0.0102
the basics of how babies are made, pregnancy and birth	102 (74.5)	22 (78.6)	80 (73.4)	0.5753	35 (72.9)	27 (62.8)	38 (88.4)	0.023
birth control, that is methods of preventing pregnancy*	89 (65.0)	21 (75.0)	68 (62.4)	0.212	30 (62.5)	25 (58.1)	32 (74.4)	0.2599
HIV/AIDS	121 (88.3)	26 (92.9)	95 (87.2)	0.4021	40 (83.3)	35 (81.4)	43 (100.0)	0.0131
sexually transmitted infections other than HIV/AIDS, such as herpes	119 (86.9)	25 (89.3)	94 (86.2)	0.6703	38 (79.2)	35 (81.4)	43 (100.0)	0.007
adoption*	66 (48.2)	13 (46.4)	53 (48.6)	0.8357	23 (47.9)	15 (34.9)	26 (60.5)	0.0596
implications of teen parenthood	111 (81.0)	24 (85.7)	87 (79.8)	0.4778	37 (77.1)	31 (72.1)	40 (93.0)	0.0366
media influence	99 (72.3)	21 (75.0)	78 (71.6)	0.7168	32 (66.7)	30 (69.8)	35 (81.4)	0.2619
sexual violence, including dating violence	108 (78.8)	24 (85.7)	84 (77.1)	0.3176	39 (81.3)	29 (67.4)	38 (88.4)	0.0522
how to deal with the emotional issues and consequences of being sexually active	98 (71.5)	24 (85.7)	74 (67.9)	0.0623	31 (64.6)	26 (60.5)	39 (90.7)	0.0032
waiting to have sex until are older or married, that is abstinence*	37 (27.0)	24 (85.7)	91 (83.5)	0.7745	40 (83.3)	32 (74.4)	40 (93.0)	0.0663

Table 3 (continued)

how to deal with pressure to have sex	105 (76.6)	24 (85.7)	81 (74.3)	0.2034	34 (70.8)	29 (67.4)	40 (93.0)	0.0089
how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs	80 (58.4)	22 (78.6)	58 (53.2)	0.0152	23 (47.9)	21 (48.8)	34 (79.1)	0.0035
how to talk with parents about sex and relationship issues	76 (55.5)	19 (67.9)	57 (52.3)	0.1394	25 (52.1)	21 (48.8)	28 (65.1)	0.2722
how to use condoms*	31 (22.6)	7 (25.0)	24 (22.0)	0.7366	8 (16.7)	10 (23.3)	11 (25.6)	0.5598
how to use and where to get other birth control*	43 (31.4)	9 (32.1)	34 (31.2)	0.923	10 (20.8)	13 (30.2)	18 (41.9)	0.0941
how to get tested for HIV/AIDS and other sexually transmitted infections that is STIs	91 (66.4)	21 (75.0)	70 (64.2)	0.2813	27 (56.3)	26 (60.5)	36 (83.7)	0.013
abortion*	35 (25.6)	9 (32.1)	26 (23.9)	0.3697	10 (20.8)	9 (20.9)	15 (34.9)	0.2204
homosexuality and sexual orientation, that is being gay, lesbian, bisexual, transgender or queer*	30 (21.9)	9 (32.1)	21 (19.3)	0.1417	11 (22.9)	5 (11.6)	12 (27.9)	0.1627
what to do if they or a friend has been raped or sexually assaulted	83 (60.6)	22 (78.6)	61 (56.0)	0.029	29 (60.4)	20 (46.5)	32 (74.4)	0.0301
Tertiles of number of topics taught				0.1457				0.0259
< 13 topics	45 (32.8)	5 (17.9)	40 (36.7)		18 (37.5)	19 (44.2)	7 (16.3)	
13 to 17 topics	44 (32.1)	10 (35.7)	34 (31.2)		16 (33.3)	14 (32.6)	14 (32.6)	
18 to 21 topics	48 (35.0)	13 (46.4)	35 (32.1)		14 (29.2)	10 (23.3)	22 (51.2)	

Table 4

Number and Percentage of Sex Education Providers Who Taught 22 Sex Education Topics and Number of Topics Taught by Experience and Training Received

	Total (N=137)	No. of school years experience teaching sex ed or family life				Enough training received[§]		
		<5 years (n=33)	5-14 years (n=62)	≥15 years (n=39)	p-value χ2 test	No / Don't know / Missing	Yes	p-value χ2 test
	n (%)	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)
Topics, skills and concept								
anatomy	113 (82.5)	25 (75.8)	51 (82.3)	35 (89.7)	0.2885	57 (76.0)	56 (90.3)	0.0282
puberty	122 (89.1)	25 (75.8)	59 (95.2)	36 (92.3)	0.0105	63 (84.0)	59 (95.2)	0.0373
healthy relationships	125 (91.2)	29 (87.9)	57 (91.9)	36 (92.3)	0.7625	67 (89.3)	58 (93.6)	0.3850
the basics of how babies are made, pregnancy and birth	102 (74.5)	17 (51.5)	50 (80.7)	33 (84.6)	0.0019	52 (69.3)	50 (80.7)	0.1308
birth control, that is methods of preventing pregnancy*	89 (65.0)	17 (51.5)	42 (67.7)	28 (71.8)	0.1628	47 (62.7)	42 (67.7)	0.5354
HIV/AIDS	121 (88.3)	28 (84.9)	53 (85.4)	37 (94.9)	0.2958	61 (81.3)	60 (96.8)	0.0051
sexually transmitted infections other than HIV/AIDS, such as herpes	119 (86.9)	27 (81.8)	52 (83.9)	37 (94.9)	0.1882	60 (80.0)	59 (95.2)	0.0089
adoption*	66 (48.2)	7 (21.2)	33 (53.2)	24 (61.5)	0.0015	31 (41.3)	35 (56.5)	0.0779
implications of teen parenthood	111 (81.0)	23 (69.7)	52 (83.9)	33 (84.6)	0.1887	57 (76.0)	54 (87.1)	0.0992
media influence	99 (72.3)	16 (48.5)	50 (80.7)	31 (79.5)	0.0019	46 (61.3)	53 (85.5)	0.0017
sexual violence, including dating violence	108 (78.8)	19 (57.6)	52 (83.9)	35 (89.7)	0.0017	51 (68.0)	57 (91.9)	0.0006
how to deal with the emotional issues and consequences of being sexually active	98 (71.5)	19 (57.6)	45 (72.6)	32 (82.1)	0.0699	46 (61.3)	52 (83.9)	0.0036
waiting to have sex until are older or married, that is abstinence*	37 (27.0)	25 (75.8)	52 (83.9)	35 (89.7)	0.2787	56 (74.7)	59 (95.2)	0.0011

Table 4 (continued)

how to deal with pressure to have sex	105 (76.6)	20 (60.6)	49 (79.0)	34 (87.1)	0.0247	47 (62.7)	58 (93.6)	<0.0001
how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs	80 (58.4)	12 (36.4)	38 (61.3)	28 (71.8)	0.0079	33 (44.0)	47 (75.8)	0.0002
how to talk with parents about sex and relationship issues	76 (55.5)	11 (33.3)	37 (59.7)	26 (66.7)	0.0113	27 (36.0)	49 (79.0)	<0.0001
how to use condoms*	31 (22.6)	2 (6.1)	17 (27.4)	10 (25.6)	0.0426	11 (14.7)	20 (32.3)	0.0143
how to use and where to get other birth control*	43 (31.4)	3 (9.1)	20 (32.3)	18 (46.2)	0.0029	17 (22.7)	26 (41.9)	0.0156
how to get tested for HIV/AIDS and other sexually transmitted infections that is STIs	91 (66.4)	16 (48.5)	21 (66.1)	32 (82.1)	0.0109	39 (52.0)	52 (83.9)	<0.0001
abortion*	35 (25.6)	2 (6.1)	17 (27.4)	15 (38.5)	0.0062	16 (21.3)	19 (30.7)	0.2135
homosexuality and sexual orientation, that is being gay, lesbian, bisexual, transgender or queer*	30 (21.9)	4 (12.1)	14 (22.6)	10 (25.6)	0.3371	14 (18.7)	16 (25.8)	0.3145
what to do if they or a friend has been raped or sexually assaulted	83 (60.6)	13 (39.4)	36 (58.1)	32 (82.1)	0.0010	37 (49.3)	46 (74.2)	0.0030
Tertiles of number of topics taught					<0.0001			0.0002
< 13 topics	45 (32.8)	21 (63.6)	16 (25.8)	7 (18.1)		36 (48.0)	9 (14.5)	
13 to 17 topics	44 (32.1)	8 (24.2)	25 (40.3)	11 (28.2)		20 (26.7)	24 (38.7)	
18 to 22 topics	48 (35.0)	4 (12.1)	21 (33.9)	21 (53.9)		19 (25.3)	29 (46.8)	

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

§ Enough training received was assessed based on providers response (Yes/No/Don't know) to question "*Do you feel you have received enough training to teach sex ed well*?".

Sex education topics that most providers taught in any grade were healthy relationships (91.2%), puberty (89.1%), HIV/AIDS (88.3%), STIs (86.9%), abstinence (83.9%), anatomy (82.5%), implications of teen parenthood (81.0%), sexual violence, including dating violence (78.8%), how to deal with pressure to have sex (76.6%), basics of pregnancy and birth (74.5%), media influence (72.3%), how to deal with the emotional issues and consequences of being sexually active (71.5%), and what to do if they or a friend has been raped or sexually assaulted (60.6%). Sex education topics that were taught by least number of providers included: how to use and where to get birth control (31.4%), abortion (25.6%), how to use condoms (22.6%), homosexuality (21.9%), and adoption (48.2%). Adoption was added to the list of "selected and controversial topics" as it was taught by less than half of the providers (Table 3).

No differences were observed in number of topics taught or teaching of selected and controversial topics by sex. Male providers taught a couple of topics more often than female providers: how to talk to a partner about birth control and STIs (78.6%), and what to do if they or a friend has been raped or sexually assaulted (78.6%; Table 3).

Though difference were not observed in number of topics taught by sex, providers in older age group were more likely to teach more number of sex education topics (Table 3). Older providers (53 years or older) taught more number of sex education topics than those who were younger (51.2% taught 18 topics or more). Older providers were more likely to teach 11 of 22 sex education topics. Teaching of selected and controversial sex education topics did not vary by age.

With more experience providers were likely to teach more number of topics (Table 4). Compared to those with less than 5 years of experience, providers with more years of experience were more likely to teach four of seven selected and controversial topics: adoption (61.5%), how

to use condoms (27.4%), how to use and where to get birth control (46.2%), and abortion (38.5%). No difference was observed by years of experience in teaching three other controversial topics, namely, birth control, abstinence, homosexuality. Providers with 5 or more years of experience were more likely to teach 13 of 22 sex education topics (Table 4).

Similarly, providers who expressed that they had received enough training taught more sex education topics (46.8% taught 18 topics or more; Table 4). Providers who said that they had enough training were more likely to teach four of the seven selected and controversial topics: abstinence (95.2%), how to use condoms (32.3%), how to use and where to get birth control (41.9%), and how to get tested for HIV/AIDS and other STIs (83.9%). Compared to those who said they did not have enough training, or they did not know if they had training, or did not provide a response, providers who said they had enough training were more likely to teach 15 of 22 sex education topics.

Research Question 1: What is the Current Context of School-Based Sex Education in TN?

Most providers mentioned that they taught sex education in 9th grade (56.9%), followed by 10th grade (50.4%) and 11th grade (39.4%) in their respective schools. Almost two-fifths of the providers cited 9th grade as the grade in which they taught sex education most often, followed by 8th (19.0%) and 10th grades (17.5%). Few providers taught sex education most often in 5th, 6th or 7th grades (16.1%; Table 5).

Over a half of the providers indicated that their school district had a policy to teach sex education, around one-third did not know if their school district had a policy, and around 10% said that the district leaves these decisions to individual teachers (Table 5).

For the question that asked providers how they are mostly told to cover birth control in their sex education class (*Which of the following best describes how you are mostly told to cover*

birth control in your sex ed or family life classes in name of county?), over one-third mentioned that that they are told to teach and to answer students' questions about birth control suggesting a more comprehensive sex education policy. Fifteen percent of providers said that they are told not to teach but to answer students' questions, that concurs with TN's current FLE policy. Ten percent said that they are told not to teach and not to answer students' questions on birth control, an indication of the school's abstinence-only policy (Table 5).

In response to the question "*How strictly were you required to follow your school's curriculum for sex ed or family life?*", less than two-fifths of providers indicated that there were some guidelines, 27% indicated that they could teach pretty much what they wanted, and 27% said they had strict guidelines (Table 5).

Table 5

Provider's Response to the Context in Which Sex Education Was Taught in 2015-2016 School Year in TN Public Schools
(N=137)

	n (%)
Grade(s) in which providers taught sex ed in school (multiple response)	
5th grade	15 (11.0)
6th grade	36 (26.3)
7th grade	44 (32.1)
8th grade	50 (36.5)
9th grade	78 (56.9)
10th grade	69 (50.4)
11th grade	54 (39.4)
12th grade	50 (36.5)
Don't know	0 (0.0)
Grade taught most often	
5th grade	6 (4.4)
6th grade	11 (8.0)
7th grade	5 (3.7)
8th grade	26 (19.0)
9th grade	54 (39.4)
10th grade	24 (17.5)
11th grade	7 (5.1)

Table 5 (continued)

12th grade	4 (2.9)
School district's policy or practice on the teaching of sex ed	
The district has a policy to teach sex ed or family life.	76 (55.5)
The district leaves these decisions to individual schools.	4 (2.9)
The district leaves these decisions to individual teachers.	13 (9.5)
Don't know	43 (31.4)
Missing	1 (0.7)
Prescription on teaching birth control in sex ed classes	
I am told to teach and to answer students' questions about birth control.	47 (34.3)
I am told to teach but not to answer students' questions about birth control.	3 (2.2)
I am told not to teach but to answer students' questions about birth control.	21 (15.3)
I am told not to teach and not to answer students' questions about birth control.	14 (10.2)
No existing policy	15 (11.0)
Abstinence based policy	11 (8.0)
Topic not covered	4 (2.9)
Other	3 (2.2)
Missing	19 (13.9)
Strictness required to follow school's guidelines on sex ed curriculum	
Teach pretty much what wanted	37 (27.0)
Some guidelines	53 (38.7)
Strict guidelines	37 (27.0)
Don't know	10 (7.3)
Missing	0 (0.0)

Most providers mentioned that their school required: to notify parents about the topics that will be covered in sex education classes (70.1%); to inform parents that they could remove their child from sex education class (70.8%); and to give parents the opportunity to review curriculum content (70.8%). Less than a half of providers indicated that they required to use a specific sex education curriculum, and less than half mentioned that their school required written parental permission for students to attend these classes (Table 6).

Table 6

Provider's Response to the Context in Which Sex Education Was Taught in 2015-2016 School Year in TN Public Schools Continued
(N=137)

In any of the grades in which you taught sex ed or family life, does your school:	**Yes**	**No**	**Don't know**	**Missing/Did not answer**
	n (%)	**n (%)**	**n (%)**	**n (%)**
Require that parents be notified about the topics that will be covered in sex ed or family life?	96 (70.1)	23 (16.8)	18 (13.1)	0 (0.0)
Require written parental permission for students to attend sex ed or family life classes?	65 (47.5)	52 (38.0)	17 (12.4)	3 (2.2)
Inform parents that they have the option of removing their child from sex ed or family life classes?	97 (70.8)	14 (10.2)	23 (16.8)	3 (2.2)
Give parents the opportunity to review curriculum content?	97 (70.8)	16 (11.7)	22 (16.1)	2 (1.5)
Require that you use a specific curriculum for sex ed or family life?	61 (44.5)	60 (43.8)	14 (10.2)	2 (1.5)

Research Question 2: How is Sex Education Delivered in the Schools of TN?

2a. What is the Content, Method, and Tone of School-Based Sex Education in TN?

Providers answered method and tone questions based on the grade they taught most often in the 2015-2016 school year, while they answered content questions for all grades in which they taught sex education.

Content. By grade five, around 10% of providers taught topics like anatomy, puberty, and healthy relationships; less than 5% taught 14 out of 22 topics. None of the providers taught four of the seven selected controversial topics, namely, how to use condoms, how to use and where to get birth control, abortion, and homosexuality, and only a few providers taught the rest three selected and controversial topics (Table 7).

By grade seven, around one-third of providers taught topics like anatomy, puberty, and healthy relationships, and between 10 to 25% taught 14 out of 22 topics. Less than 10% of providers taught any selected and controversial topics, except abstinence (29.2%; Table 7).

By grade 12, around 75% of providers taught 13 out of 22 sex education topics. Among seven selected and controversial topics, abstinence was taught by most respondents (83.9%), followed by birth control (65.0%), adoption (48.2%), and less than or around 25% taught remaining four topics, by grade 12 (Table 7).

Method. Most respondents (68.6%) taught sex education as part of another course, around one-fifth taught it as specific lessons independent of any other course, and less than 10% taught it as a separate sex education course (Table 8).

Over half of the respondents used commercial textbook/ audiovisual, over one-fourth used materials developed by their district or school, and over one-fourth developed teaching materials on their own to teach sex education sessions.

Around one-fourth of respondents used the Michigan Model for Health, and one-fourth did not use any curriculum for sex education (Table 8).

Around one-fourth of respondents had less than or equals to 20 students in their sex education sessions, while some respondents (18.3%) reported more than 40 students in their session, and a few respondents reported 100 or more students (5.8%; Table 8).

Most respondents (81.0%) taught sex education as one class period or several class periods or special sessions, and only a few taught it over an entire semester or quarter (5.8%) or over a school year (3.4%; Table 8).

For many respondents a sex education class lasted an average of over half an hour to an hour (41.6%), or over an hour to less than an hour and a half (28.5%).

Most respondents (64.2%) had boys and girls together in all sex education sessions, and only a few (15.3%) taught boys and girls separately for all sessions (Table 8).

Most respondents (73.7%) used a combination of student participation and lectures to teach sex education sessions (Table 8).

Around two-thirds of respondents had students submit their questions anonymously on paper. Most respondents (95.6%) answered students' questions in class, and around two-thirds of respondents answered questions on a one-to-one basis after class. Two-thirds of respondents referred students to parents or guardian to get answers to their questions, and one-half of respondents referred to another teacher or health professional. Some respondents (29.9%) expressed that they were restricted by their school to answer students' question on topics not included in the curriculum (Table 9).

Table 7

Number and Percentage of Sex Education Providers Who Taught Specific Topics by a Specified Grade in 2015-2016 School Year in TN, and Who Thought Specific Topics Should Be Taught by a Specified Grade, by Topic (N = 137)

	Grade(s) in which a topic was taught				Lowest grade at which providers thought the topic should be taught			
Topics, skills and concept	**≤ grade 5** **n (%)**	**≤ grade 7** **n (%)**	**≤ grade 12** **n (%)**	**Never** **n (%)**	**≤ grade 5** **n (%)**	**≤ grade 7** **n (%)**	**≤ grade 12** **n (%)**	**Missing or Never** **n (%)**
anatomy	16 (11.7)	43 (31.4)	113 (82.5)	17 (12.4)	71 (51.8)	109 (79.6)	124 (90.5)	13 (9.5)
puberty	18 (13.1)	51 (37.2)	122 (89.1)	11 (8.0)	73 (53.3)	115 (83.9)	125 (91.2)	12 (8.8)
healthy relationships	11 (8.0)	49 (35.8)	125 (91.2)	9 (6.6)	61 (44.5)	114 (83.2)	127 (92.7)	10 (7.3)
the basics of how babies are made, pregnancy and birth	4 (2.9)	29 (21.2)	102 (74.5)	25 (18.3)	32 (23.4)	93 (67.9)	123 (89.8)	14 (10.2)
birth control, that is methods of preventing pregnancy*	1 (0.7)	15 (11.0)	89 (65.0)	36 (26.3)	14 (10.2)	69 (50.4)	119 (86.9)	18 (13.1)
HIV/AIDS	6 (4.4)	38 (27.7)	121 (88.3)	13 (9.5)	26 (19.0)	87 (63.5)	125 (91.2)	12 (8.8)
sexually transmitted infections other than HIV/AIDS, such as herpes	2 (1.5)	33 (24.1)	119 (86.9)	13 (9.5)	16 (11.7)	84 (61.3)	124 (90.5)	13 (9.5)
Adoption*	1 (0.7)	13 (9.5)	66 (48.2)	51 (37.2)	30 (21.9)	56 (40.9)	114 (83.2)	23 (16.8)
implications of teen parenthood	3 (2.2)	30 (21.9)	111 (81.0)	21 (15.3)	17 (12.4)	74 (54.0)	124 (90.5)	13 (9.5)
media influence	4 (2.9)	31 (22.6)	99 (72.3)	28 (20.4)	46 (33.6)	96 (70.0)	126 (92.0)	11 (8.0)
sexual violence, including dating violence	2 (1.5)	27 (19.7)	108 (78.8)	20 (14.6)	16 (11.7)	74 (54.0)	124 (90.5)	13 (9.5)
how to deal with the emotional issues and consequences of being sexually active	2 (1.5)	26 (19.0)	98 (71.5)	29 (21.2)	15 (11.0)	73 (53.3)	123 (89.8)	14 (10.2)

Table 7 (continued)

waiting to have sex until are older or married, that is abstinence*	3 (2.2)	40 (29.2)	115 (83.9)	11 (11.7)	30 (21.9)	95 (69.3)	124 (90.5)	13 (9.5)
how to deal with pressure to have sex	3 (2.2)	33 (24.1)	105 (76.6)	24 (17.5)	23 (16.8)	92 (67.2)	125 (91.2)	12 (8.8)
how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs	0 (0.0)	12 (8.8)	80 (58.4)	44 (32.1)	13 (9.5)	65 (47.5)	121 (88.3)	16 (11.7)
how to talk with parents about sex and relationship issues	6 (4.4)	21 (15.3)	76 (55.5)	92 (67.2)	29 (21.2)	85 (62.0)	124 (90.5)	13 (9.5)
how to use condoms*	0 (0.0)	4 (2.9)	31 (22.6)	84 (61.3)	10 (7.3)	43 (31.4)	102 (74.5)	35 (25.6)
how to use and where to get other birth control*	0 (0.0)	3 (2.2)	43 (31.4)	74 (54.0)	10 (7.3)	43 (31.4)	107 (78.1)	30 (21.9)
how to get tested for HIV/AIDS and other sexually transmitted infections that is STIs	1 (0.7)	17 (12.4)	91 (66.4)	35 (25.6)	10 (7.3)	56 (40.9)	122 (89.1)	15 (11.0)
abortion*	0 (0.0)	4 (2.9)	35 (25.6)	80 (58.4)	11 (8.0)	34 (24.8)	87 (63.5)	50 (36.5)
homosexuality and sexual orientation, that is being gay, lesbian, bisexual, transgender or queer*	0 (0.0)	5 (3.7)	30 (21.9)	82 (59.9)	17 (12.4)	48 (35.0)	91 (66.4)	46 (33.6)
what to do if they or a friend has been raped or sexually assaulted	2 (1.6)	13 (9.5)	83 (60.6)	41 (29.9)	21 (15.3)	76 (55.5)	125 (91.2)	12 (8.8)

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

Table 8

Sex education Delivery Methods
(N=137)

Delivery Methods	**n (%)**
Sex ed taught as …	
Missing	1 (0.7)
As a separate sex ed course	13 (9.5)
As part of another course	94 (68.6)
As specific lessons taught independent of any other course	24 (17.5)
Don't know	5 (3.7)
Materials used to teach sex ed obtained from … (Multiple response)	
Commercial textbook/audiovisual	75 (54.7)
Materials developed by my state	35 (25.6)
Materials developed by my district/school	36 (26.3)
Materials I developed myself	39 (28.5)
Guest speakers bring their own material	8 (5.8)
Other	3 (2.2)
Curriculum used to teach sex ed…	
Making a Difference	4 (2.9)
The Michigan Model for Health	34 (24.8)
Promoting Health Among Teens	0 (0.0)
Reducing the Risk (RTR)	1 (0.7)
Teen Outreach Program (TOP)	3 (2.2)
On Point	11 (8.0)
Be Proud! Be Responsible!	2 (1.5)
Draw the Line/ Respect the Line	1 (0.7)
Relationship Smarts PLUS	6 (4.4)
Love Thinks	2 (1.5)
¡Cuídate!	0 (0.0)
3 R's- Rights, Respect, Responsibility	5 (3.7)
Becoming a Responsible Teen (BART)	2 (1.5)
Others	26 (19.0)
Textbook, internet, and other sources	14 (10.2)
None	35 (25.6)
Average number of students in sex ed sessions	
<= 10	3 (2.2)
11 to <=20	32 (23.4)
21 to <=30	56 (40.9)
31 to <=40	16 (11.7)
41 to <=50	3 (2.2)
51 to <=60	2 (1.5)
61 to <=100	12 (8.8)
101 to <=400	8 (5.8)
Missing	5 (3.7)

Table 8 (continued)

Sex ed class lasted for…	
One class period or several class periods or special sessions	111 (81.0)
Half a semester or quarter	12 (8.8)
An entire semester or quarter	8 (5.8)
A school year	5 (3.4)
Don't know	1 (0.6)
Missing	0 (0.0)
Length of average sex ed class session	
Upto 30 mins	7 (5.1)
31 to 60 mins	57 (41.6)
61 to 90 mins	39 (28.5)
91 to 120 mins	1 (0.7)
>120 mins to 200 mins	5 (3.4)
Missing	28 (20.4)
Co-educational status of sex ed sessions	
Boys and girls together for all sessions	88 (64.2)
Taught separately for all sessions	21 (15.3)
Taught separately for some sessions	21 (15.3)
Don't know	1 (0.7)
Missing	6 (4.4)
Teaching strategy used in sex ed sessions	
Primarily a lecture with some discussion	30 (21.9)
Primarily student participation	5 (3.7)
Combination of student participation and lectures	101 (73.7)
Missing	1 (0.7)

Table 9

Strategy Used to Answer Students' Questions in Sex Education Sessions (N=137)

Strategy	Yes n (%)	No n (%)	Missing n (%)
Had students submit questions anonymously on paper	85 (62.0)	51 (37.2)	1 (0.7)
Answered students' questions in class	131 (95.6)	5 (3.7)	1 (0.7)
Answered questions on a one-to-one basis after class	86 (62.8)	50 (36.5)	1 (0.7)
Referred students with questions to another teacher or health professional	71 (51.8)	64 (46.7)	2 (1.5)
Referred students with questions to parent or guardian	89 (65.0)	46 (33.6)	2 (1.5)
School restricted your ability to answer students' questions on topics not included in your curriculum	41 (29.9)	93 (67.9)	3 (2.2)

Over two-fifths of respondents indicated that a guest speaker was involved in teaching any sex education session or content, and 10% of respondents were guest speaker themselves (Table 10).

Most providers who had guest speakers in their session stated that the reason for involving guest speakers was to provide the most up-to-date information (64.4%), to provide a balanced presentation that included multiple perspectives on controversial issues (52.5%), and to introduce students to resources in the community (50.9%). Many providers who themselves were invited as guest speakers indicated that teachers are not very comfortable teaching sex education content (42.9%), students are more receptive to guest speakers (42.9%), and that guest speakers provide most up-to-date information (50.0%). Teacher's comfort (5.1%) or student receptiveness (37.3%) were cited by fewer providers who had another guest speaker in their class as reasons for including guest speakers (Table 11).

Table 10

Guest Speaker Involvement in Sex Education Sessions (N=137)

	n (%)
Any sex ed session or content taught by guest speaker	
Yes	59 (43.1)
No	64 (46.7)
Participant was the guest speaker	14 (10.2)
Missing	0 (0.0)

Table 11

Reasons for Guest Speaker Involvement in Sex Education Sessions

Reasons for including guest speaker (Multiple response)	**By the Participant (n=59)** **n (%)**	**Participant was the Guest Speaker (n=14)** **n (%)**
To introduce my students to resources in the community	30 (50.9)	4 (28.6)
To provide a balanced presentation (i.e. multiple perspectives on controversial issues)	31 (52.5)	5 (35.7)
To provide the most up-to-date information	38 (64.4)	7 (50.0)
To protect my school or my principal	10 (17.0)	1 (7.1)
Teacher not very comfortable teaching this content	3 (5.1)	6 (42.9)
Students are more receptive to guest speakers	22 (37.3)	6 (42.9)
Other	7 (11.9)	2 (14.3)

Tone. In this section the message conveyed while teaching controversial sex education topics was assessed (Table 12). These topics included abstinence, sex as part of life, condoms, birth control, abortion, masturbation, and homosexuality, that are identified as controversial in sex education literature (Canan & Jozkowski, 2017; Kohler et al., 2008; Landry et al., 2003; Sonenstein & Pittman, 1984).

One-half of providers presented abstinence as the best alternative for pregnancy and STIs, and one-fourth presented abstinence as the only alternative. Only a few providers presented

abstinence as one alternative (9.5%) for preventing pregnancy and STIs, or did not teach about abstinence from intercourse (11.7%; Table 12).

Over two-fifths of providers did not teach about the role of condoms in preventing STIs and HIV, and around two-fifths emphasized that condoms can be an effective means of preventing STIs and HIV, while around one-fifth emphasized the ineffectiveness of condoms in preventing STIs and HIV (Table 12).

Similarly, around half of respondents did not teach about birth control, just over one-third emphasized that birth control can be an effective means of preventing pregnancy for sexually active individuals, and 16.8% emphasized the ineffectiveness of birth control in preventing pregnancy (Table 12).

Most respondents either did not discuss the topic or no message was given for more controversial topics such as abortion (81.0%), masturbation (89.8%), or homosexuality (75.9%). Some respondents taught that abortion is a personal matter (11.0%), that masturbation is a normal behavior (6.6%), and that some people are homosexual and should not be discriminated against (17.5%). None of the respondents mentioned homosexuality or masturbation as immoral or wrong, but, three respondents (2.2%) indicated that they taught abortion is immoral or wrong in the sex education class they taught most often in 2015-2016 school year (Table 12).

Around one-half of respondents indicated that ‘sex is a healthy and normal part of life’ was the message in their sex education class. Around two-fifths of respondents either never taught about sex or when they discussed the topic no message about sex was given, and three respondents (2.2%) indicated that they taught that sex is something to avoid and fear (Table 12).

On an aggregate measure calculated based on the responses to tone items for abstinence, condoms and birth control, around two-fifths of respondents provided abstinence-based sex

education resonating with SRA programs (methods ineffective, abstinence best), a similar proportion provided comprehensive sex education (methods effective, abstinence best), and around one-fifth provided abstinence only sex education (methods ineffective, abstinence only; Table 12).

Table 12

Tone of Teaching Controversial Sex Education Topics
(N = 137)

Sex Ed Topics	**n (%)**
Tone of teaching abstinence	
Did not teach about abstinence from intercourse	16 (11.7)
Abstinence was presented as one alternative for preventing pregnancy and STIs.	13 (9.5)
Abstinence was presented as the best alternative for preventing pregnancy and STIs.	74 (54.0)
Abstinence was presented as the only alternative for preventing pregnancy and STIs.	34 (24.8)
Missing	0 (0.0)
Tone of teaching condom	
Did not teach about the role of condoms in the prevention of STIs/HIV	59 (43.1)
Emphasized that condoms can be an effective means of preventing STIs/HIV for sexually active individuals	52 (38.0)
Emphasized the ineffectiveness of condoms in preventing STIs/HIV	26 (19.0)
Missing	0 (0.0)
Tone of teaching birth control	
Did not teach about birth control in the sex ed or family life classes	66 (48.2)
Emphasized that birth control can be an effective means of preventing pregnancy for sexually active individuals	48 (35.0)
Emphasized the ineffectiveness of birth control in preventing pregnancy	23 (16.8)
Missing	0 (0.0)
Tone of teaching abortion	
Abortion is immoral or wrong	3 (2.2)
Abortion is a personal matter	15 (11.0)
Topic discussed, but no message about abortion	28 (20.4)
Topic not discussed at all in sex ed	83 (60.6)
Don't know	2 (1.5)
Other	2 (1.5)
Missing	4 (2.9)
Tone of teaching masturbation	
Masturbation is a normal behavior	9 (6.6)

Table 12 (continued)

Masturbation is immoral or wrong	0 (0.0)
Topic discussed, but no message about masturbation	22 (16.1)
Topic not discussed at all in sex ed	101 (73.7)
Don't know	2 (1.5)
Other	1 (0.7)
Missing	2 (1.5)
Tone of teaching homosexuality	
Homosexuality is immoral or wrong	0 (0.0)
Some people are homosexual and should not be discriminated against	24 (17.5)
Topic discussed, but no message about homosexuality	20 (14.6)
Topic not discussed at all in sex ed	84 (61.3)
Don't know	2 (1.5)
Other	3 (2.2)
Missing	4 (2.9)
Tone of teaching about sex	
Sex is something to avoid and fear	3 (2.2)
Sex is a healthy and normal part of life	66 (48.2)
Topic discussed, but no message about sex	34 (24.8)
Topic not discussed at all in sex ed	20 (14.6)
Don't know	5 (3.7)
Other	3 (2.2)
Missing	6 (4.4)
Method effectiveness and abstinence*	
Methods effective, abstinence best	52 (38.0)
Methods effective, abstinence only	8 (5.8)
Methods ineffective, abstinence best	51 (37.2)
Methods ineffective, abstinence only	26 (19.0)

*Providers not teaching about abstinence were included with "abstinence best"; those not teaching about condoms and birth control methods were included with " methods ineffective". Effective includes providers who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STIs or both.

2b. What Factors Influence the Delivery of Sex Education in TN?

Perceived influence. Around one-half of providers did not teach topics such as how to use condoms, how to use and where to get birth control, homosexuality, and abortion in any grade. Around one-third did not teach about adoption, one-fifth did not teach about birth control, and 10% did not teach about abstinence in any grade they taught. The reasons for not covering these

selected and controversial topics are presented in Table 13. Percentages of providers not teaching a topic because of a given reason were calculated based on those who did not teach a topic.

Among those who did not cover a selected and controversial topic, about one-half of them indicated that it was because the topic was not a part of the curriculum: abstinence (63.2.0%), adoption (47.4%), homosexuality (42.7%), abortion (40.9%), how to use condoms (37.1%), how to use and where to get birth control (36.1%), and birth control (29.3%). The other most cited reason for not covering birth control, condom related topics, or abortion, was that it was an abstinence class or abstinence-based only class. Some respondents did not teach about birth control (19.5%%), how to use condoms (12.4%), and how to use and where to get birth control (11.6%) because the school or district has a policy not to teach it (Table 13).

Some respondents mentioned that the topic never came up for topics like adoption (21.3%), and abstinence (10.5%) was the reason for not covering the topic. None of the respondents did not teach a topic because it was covered in an earlier grade and only a few respondents cited reasons, such as, they personally felt the topic should not be taught, or they felt pressured by the community and parents not to teach it or because there wasn't enough time (Table 13).

Table 13

Reasons for Not Covering Selected and Controversial Sex Education Topics in Sex Education

	Seven selected and controversial sex education topics*						
Reasons	**birth control, that is methods of preventing pregnancy** n (%)	**adoption** n (%)	**waiting to have sex until are older or married, that is abstinence** n (%)	**how to use condoms** n (%)	**how to use and where to get other birth control** n (%)	**abortion** n (%)	**homosexuality and sexual orientation, that is being LGBTQ** n (%)
Never taught the topic (N = 137)	41 (20.7)	61 (30.8)	19 (9.6)	97 (49.0)	86 (43.4)	93 (47.0)	96 (48.5)
Because you felt pressured by the community and parents not to teach it	1 (2.4)	1 (1.6)	1 (5.3)	4 (4.1)	3 (3.5)	8 (8.6)	5 (5.2)
Because it is school or district policy not to teach it	8 (19.5)	1 (1.6)	0 (0.0)	12 (12.4)	10 (11.6)	6 (6.5)	6 (6.3)
Because you personally felt this shouldn't be taught	0 (0.0)	0 (0.0)	0 (0.0)	4 (4.1)	2 (2.3)	1 (1.1)	5 (5.2)
Because there wasn't enough time in the curriculum	0 (0.0)	4 (6.6)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.1)	0 (0.0)
Because the topic was covered in an earlier grade	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Because the topic will be covered in a later grade	1 (2.4)	2 (3.3)	2 (10.5)	5 (5.2)	2 (2.3)	2 (2.2)	4 (4.2)
Some other reason	0 (0.0)	1 (1.6)	0 (0.0)	2 (2.1)	2 (2.3)	1 (1.1)	5 (5.2)
Not part of the curriculum	12 (29.3)	29 (47.4)	12 (63.2)	36 (37.1)	31 (36.1)	38 (40.9)	41 (42.7)
Never came up	1 (2.4)	13 (21.3)	2 (10.5)	4 (4.1)	5 (5.8)	4 (4.3)	7 (7.3)
Abstinence class/abstinence-based only	14 (34.2)	5 (8.2)	1 (5.3)	23 (23.7)	25 (29.1)	22 (23.7)	10 (10.4)
Don't know	2 (4.9)	2 (3.3)	1 (5.3)	2 (2.1)	1 (1.2)	4 (4.3)	7 (7.3)
Missing	2 (4.9)	3 (4.9)	0 (0.0)	5 (5.2)	5 (5.8)	6 (6.5)	6 (6.3)

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

Around two-fifths of providers mentioned that they did not teach sex education the way they would have liked because of lack of time (Table 14). Concern about responses from parents, or from administration or district, or school district or state policy regarding sex education were mentioned by one-third of respondents as reasons for not teaching sex education as they preferred. Lack of curriculum and school policy regarding sex education were factors expressed by one-fourth of respondents, and one-fifth of respondents indicated lack of financial resources, and concern about students' responses as factors that made them teach sex education differently than what they preferred.

Table 14

Specific Factors That Influenced Respondents to Teach Sex Education Differently From the Way They Would Have Liked
(N = 137)

Specific Factors	Yes n (%)	No n (%)	Missing n (%)
Lack of time	52 (38.0)	83 (60.6)	2 (1.5)
Lack of financial resources	26 (19.0)	104 (75.9)	7 (5.1)
Lack of curriculum	33 (24.1)	100 (73.0)	4 (2.9)
Concerns about parents' responses	49 (35.8)	85 (62.0)	3 (2.2)
Concerns about students' responses	28 (20.4)	103 (75.2)	6 (4.4)
Concerns about responses from administration or district	44 (32.1)	90 (65.7)	3 (2.2)
School policy regarding sex ed or family life	36 (26.3)	97 (70.8)	4 (2.9)
School district policy regarding sex ed or family life	40 (29.2)	93 (67.9)	4 (2.9)
State policy regarding sex ed or family life	41 (29.9)	91 (66.4)	5 (3.7)
Other reasons	1 (0.7)	98 (71.5)	38 (27.7)

Personal beliefs. Most of the respondents (81.8%) agreed with the statement *"students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives"*. Around three-fourths of respondents disagreed with the statement *"students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active*

than are those only taught about abstinence". And, providers were equally divided in their response to the statement *"students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not"* (Table 15).

Over two-fourths of respondents gave equal importance to sex education as any other unit they taught. One-third of respondents thought sex education was more important than other units, and 12.4% thought it was the most important unit they taught. (Table 16).

Providers' personal beliefs did not influence their teaching on any culturally sensitive sex education topics, number of topics taught, or tone of teaching controversial sex education topics (Tables 17, 18, 19) as tested using chi-square tests (chi-square statistic and p-value not shown). However, these results should be interpreted cautiously for drawing any conclusions as the sample size was small that was further grouped into categories leaving very small numbers in each cell.

About one-half of providers who agreed to the belief that students who receive sex education that stresses abstinence are less likely to have sexual intercourse taught abstinence-based sex education, i.e. methods ineffective, abstinence best (46.4%), whereas over two-fifths of those who disagreed to this belief taught comprehensive sex education, i.e. methods effective, abstinence best (42.7%). Some providers who disagreed (27.9%) provided abstinence-based sex education (Table 18).

Similarly, over half of those who believed that students taught to be sexually abstinent but to use contraceptives if they do have sex are more likely to become sexually active taught abstinence-based, and 11.4% taught abstinence-only sex education. Whereas, among those who disagreed, about two-fifths taught comprehensive sex education, 32.4% taught abstinence-based sex education, one-fifth taught abstinence-only sex education (Table 18).

Among those who believed that students who are taught to use contraceptives are more likely to use them if they have sexual intercourse, two-fourths taught comprehensive sex education, and over one third provided abstinence-based sex education; whereas, among those who disagreed, about one-half taught abstinence-based sex education, and one-fourth taught abstinence-only sex education (Table 18).

Table 15

Personal Beliefs of Respondents Who Taught Sex Education

Personal Belief Statements	**Agree n (%)**	**Disagree n (%)**
Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not.	69 (50.4)	68 (49.6)
Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives.	112 (81.8)	25 (18.3)
Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.	35 (25.6)	102 (74.4)

Table 16

How Important Respondents Thought Sex Education Was in Relation to Other Units They Taught

Statements on Importance of Sex Education	**n (%)**
I do not teach any other unit than sex ed or family life	11 (8.0)
It is the most important unit I teach	17 (12.4)
It is more important than many other units	45 (32.9)
It is no more or less important than other units	58 (42.3)
It is less important than many other units	4 (2.9)
It is the least important unit I teach	0 (0.0)
Missing	2 (1.5)

Table 17

Number and Percentage of Sex Education Providers Who Taught Selected and Controversial Sex Education Topics and Number of Topics They Taught by Their Agreement to Personal Belief Statements on Abstinence and Contraception

	Total (N=137)	**Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not.**		**Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives.**		**Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.**	
		Agree (n=69)	**Disagree (n=68)**	**Agree (n=112)**	**Disagree (n=25)**	**Agree (n=35)**	**Disagree (n=102)**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Selected and controversial sex ed topics*							
birth control, that is methods of preventing pregnancy	89 (65.0)	41 (59.4)	48 (70.6)	74 (66.1)	15 (60.0)	21 (60.0)	68 (66.7)
adoption	66 (48.2)	34 (49.3)	32 (47.1)	51 (45.5)	15 (60.0)	17 (48.6)	49 (48.0)
waiting to have sex until are older or married, that is abstinence	115 (83.9)	57 (82.6)	58 (85.3)	95 (84.8)	20 (80.0)	27 (77.1)	88 (86.3)
how to use condoms	31 (22.6)	15 (21.7)	16 (23.5)	30 (26.8)	1 (4.0)	9 (25.7)	22 (21.6)
how to use and where to get other birth control	43 (31.4)	20 (29.0)	23 (33.8)	39 (34.8)	4 (16.0)	9 (25.7)	34 (33.3)
abortion	35 (25.6)	20 (29.0)	15 (22.1)	28 (25.0)	7 (28.0)	12 (34.3)	23 (22.6)
homosexuality and sexual orientation, that is being LGBTQ	30 (21.9)	11 (15.9)	19 (27.9)	26 (23.2)	4 (16.0)	6 (17.1)	24 (23.5)
Tertiles of number of topics taught							
< 13 topics	45 (32.8)	23 (33.3)	22 (32.4)	39 (34.8)	6 (24.0)	12 (34.3)	33 (32.4)
13 to 17 topics	44 (32.1)	21 (30.2)	23 (33.8)	35 (31.3)	9 (36.0)	8 (22.9)	36 (35.3)
18 to 21 topics	48 (35.0)	25 (36.2)	23 (33.8)	38 (33.9)	10 (40.0)	15 (42.9)	33 (32.4)

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

Table 18

Number and Percentage of Sex Education Providers by Their Tone of Teaching Controversial Sex Education Topics and Their Agreement to Personal Belief Statements on Abstinence and Contraception

	Total (N=137)	**Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not.**		**Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives.**		**Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.**	
		Agree (n=69)	**Disagree (n=68)**	**Agree (n=112)**	**Disagree (n=25)**	**Agree (n=35)**	**Disagree (n=102)**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Tone of teaching abstinence							
Did not teach about abstinence from intercourse	16 (11.7)	9 (13.0)	7 (10.3)	15 (13.4)	1 (4.0)	7 (20.0)	9 (8.8)
Abstinence was presented as one alternative for preventing pregnancy and STIs.	13 (9.5)	5 (7.3)	8 (11.8)	12 (10.7)	1 (4.0)	5 (14.3)	8 (7.8)
Abstinence was presented as the best alternative for preventing pregnancy and STIs.	74 (54.0)	41 (59.4)	33 (48.5)	58 (51.8)	16 (64.0)	18 (51.4)	56 (54.9)
Abstinence was presented as the only alternative for preventing pregnancy and STIs.	34 (24.8)	14 (20.3)	20 (29.4)	27 (24.1)	7 (28.0)	5 (14.3)	29 (28.4)
Tone of teaching condom							
Did not teach about the role of condoms in the prevention of STIs/HIV	59 (43.1)	31 (44.9)	28 (41.2)	51 (45.5)	8 (32.0)	14 (40.0)	45 (44.1)
Emphasized that condoms can be an effective means of preventing STIs/HIV for sexually active individuals	52 (37.9)	24 (34.8)	28 (41.2)	46 (41.1)	6 (24.0)	13 (37.1)	39 (38.2)
Emphasized the ineffectiveness of condoms in preventing STIs/HIV	26 (19.0)	14 (20.3)	12 (17.7)	15 (13.4)	11 (44.0)	8 (22.9)	18 (17.7)

Table 18 (continued)

Tone of teaching birth control							
I did not teach about birth control in the sex ed or family life classes	66 (48.2)	34 (49.3)	32 (47.1)	56 (50.0)	10 (40.0)	19 (54.3)	47 (46.1)
I emphasized that birth control can be an effective means of preventing pregnancy for sexually active individuals	48 (35.0)	23 (33.3)	25 (36.8)	42 (37.5)	6 (24.0)	10 (28.6)	38 (37.3)
I emphasized the ineffectiveness of birth control in preventing pregnancy	23 (16.8)	12 (17.4)	11 (16.2)	14 (12.5)	9 (36.0)	6 (17.1)	17 (16.7)
Tone of teaching abortion							
Abortion is immoral or wrong	3 (2.2)	3 (4.4)	0 (0.0)	2 (1.8)	1 (4.0)	2 (5.7)	1 (1.0)
Abortion is a personal matter	15 (11.0)	6 (8.7)	9 (13.2)	12 (10.7)	3 (12.0)	4 (11.4)	11 (12.8)
Topic discussed, but no message about abortion	28 (20.4)	14 (20.3)	14 (20.6)	21 (18.8)	7 (28.0)	7 (20.0)	21 (20.6)
Topic not discussed at all in sex ed	83 (60.6)	43 (62.3)	40 (58.8)	71 (63.4)	12 (48.0)	20 (57.1)	63 (61.8)
Don't know	2 (1.5)	1 (1.5)	1 (1.5)	1 (0.9)	1 (4.0)	1 (2.9)	1 (1.0)
Other	2 (1.5)	0 (0.0)	2 (2.9)	2 (1.8)	0 (0.0)	0 (0.0)	2 (2.0)
Missing	4 (2.9)	2 (2.9)	2 (2.9)	3 (2.7)	1 (4.0)	1 (2.9)	3 (2.9)
Method effectiveness and abstinence*							
Methods effective, abstinence best	52 (38.0)	23 (33.3)	29 (42.7)	45 (40.2)	7 (28.0)	12 (34.3)	40 (39.2)
Methods effective, abstinence only	8 (5.8)	4 (5.8)	4 (5.9)	7 (6.3)	1 (4.0)	1 (2.9)	7 (6.9)
Methods ineffective, abstinence best	51 (37.2)	32 (46.4)	19 (27.9)	40 (35.7)	11 (44.0)	18 (51.4)	33 (32.4)
Methods ineffective, abstinence only	26 (19.0)	10 (14.5)	16 (23.5)	20 (17.9)	6 (24.0)	4 (11.4)	22 (21.6)

*Providers not teaching about abstinence were included with "abstinence best"; those not teaching about condoms and birth control methods were included with " methods ineffective". Effective includes providers who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STIs or both.

Table 19

Number and Percentage of Sex Education Providers by Their Tone of Teaching Controversial Sex Education Topics and Their Agreement to Personal Belief Statements on Abstinence and Contraception Continued

	Total (N=137)	**Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not.**		**Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives.**		**Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.**	
		Agree (n=69)	**Disagree (n=68)**	**Agree (n=112)**	**Disagree (n=25)**	**Agree (n=35)**	**Disagree (n=102)**
	n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Tone of teaching masturbation							
Masturbation is a normal behavior	9 (6.7)	2 (2.9)	7 (10.3)	9 (8.0)	0 (0.0)	2 (5.7)	7 (6.9)
Masturbation is immoral or wrong	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Topic discussed, but no message about masturbation	22 (16.3)	14 (20.3)	8 (11.8)	16 (14.3)	6 (24.0)	8 (22.9)	14 (13.7)
Topic not discussed at all in sex ed	101 (74.8)	50 (72.5)	51 (75.0)	85 (75.9)	16 (64.0)	23 (65.7)	78 (76.5)
Don't know	2 (1.5)	1 (1.5)	1 (1.5)	1 (0.9)	1 (4.0)	1 (2.9)	1 (1.0)
Other	1 (0.7)	1 (1.5)	0 (0.0)	0 (0.0)	1 (4.0)	0 (0.0)	1 (1.0)
Missing	2 (1.5)	1 (1.5)	1 (1.5)	1 (0.9)	1 (4.0)	1 (2.9)	1 (1.0)
Tone of teaching homosexuality							
Homosexuality is immoral or wrong	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Some people are homosexual and should not be discriminated against	24 (17.5)	6 (8.7)	18 (26.5)	23 (20.5)	1 (4.0)	4 (11.4)	20 (19.6)
Topic discussed, but no message about homosexuality	20 (14.6)	11 (15.9)	9 (13.2)	15 (13.4)	5 (20.0)	5 (14.3)	15 (14.7)
Topic not discussed at all in sex ed	84 (61.3)	46 (66.7)	38 (55.9)	69 (61.6)	15 (60.0)	22 (62.9)	62 (60.8)
Don't know	2 (1.5)	1 (1.5)	1 (1.5)	1 (0.9)	1 (4.0)	1 (2.9)	1 (1.0)
Other	3 (2.2)	2 (2.9)	1 (1.5)	2 (1.8)	1 (4.0)	1 (2.9)	2 (2.0)
Missing	4 (2.9)	3 (4.4)	1 (1.5)	2 (1.8)	2 (8.0)	2 (5.7)	2 (2.0)
Tone of teaching about sex							
Sex is something to avoid and fear	3 (2.2)	3 (4.4)	0 (0.0)	3 (2.7)	0 (0.0)	1 (2.9)	2 (2.0)

Table 19 (continued)

Sex is a healthy and normal part of life	66 (48.2)	36 (52.2)	30 (44.1)	58 (51.8)	8 (32.0)	18 (51.4)	48 (47.1)
Topic discussed, but no message about sex	34 (24.8)	15 (21.7)	19 (27.9)	23 (20.5)	11 (44.0)	5 (14.3)	29 (28.4)
Topic not discussed at all in sex ed	20 (14.6)	9 (13.0)	11 (16.2)	17 (15.2)	3 (12.0)	8 (22.9)	12 (11.8)
Don't know	5 (3.6)	3 (4.4)	2 (2.9)	4 (3.6)	1 (4.0)	1 (2.9)	4 (3.9)
Other	3 (2.2)	0 (0.0)	3 (4.4)	2 (1.8)	1 (4.0)	0 (0.0)	3 (2.9)
Missing	6 (4.4)	3 (4.4)	3 (4.4)	5 (4.5)	1 (4.0)	2 (5.7)	4 (3.9)

Regional differences. Respondents were classified into rural or metro regions based on their county of jurisdiction according to the TDH's geographical units (see Appendix D for the map of TDH regions and a list of counties in each region).

No difference was observed between providers from rural and metro regions in terms of the selected and controversial sex education topics taught, or the number of sex education topics covered, as tested using chi-square tests (chi-square statistic and p-value not shown; Table 20). However, more providers from rural regions taught 13 or more topics out of 22 sex education topics, compared to metro regions (72% vs. 58.3%). Also, compared to metro regions, more providers from rural regions taught five out of seven selected and controversial topics: abstinence, birth control, adoption, how to use and where to get birth control, and abortion (Table 20).

Similarly, no difference was observed in the distribution of providers from rural and metro regions on the tone of teaching controversial sex education topics in chi-square tests (chi-square statistic and p-value not shown; Table 21 and 22). But, compared to providers from metro regions more providers from rural regions taught abstinence as the best alternative (rural, 58.4% vs. metro, 45.8%). Providers from rural regions were more likely to teach about condoms (39.3% did not teach in rural regions vs. 50.0% did not teach in metros) and birth control (42.7% did not teach in rural regions vs. 58.3% did not teach in metros), but when they taught about condoms and birth control, more providers from rural regions emphasized ineffectiveness of condoms in preventing STIs/HIV (rural, 23.3% vs. metros, 10.4%), and ineffectiveness of birth control in preventing pregnancy (rural, 21.3% vs. metros, 8.3%; Table 21).

More respondents from rural regions provided message about sex when the topic was discussed (topic discussed, but no message about sex: rural, 18% vs. metros, 37.5%), and

compared to providers from metros, more providers from rural regions taught that sex is healthy and normal part of life (rural, 55.1% vs. metros, 35.4%; Table 22)

No differences were observed between providers from rural and metro regions in their agreement of to personal belief statements about teaching abstinence or contraceptives, and sex before marriage or use of contraceptives among students as tested using chi-square tests (chi-square statistic and p-value not shown; Table 23). However, compared to providers from metros, more providers from rural regions agreed to the statement "*students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not*", (rural, 55.1% vs. metros, 41.7%) resonating with the teachings of abstinence-based sex education or SRA programs.

Table 20

Number and Percentage of Providers of Sex Education Who Taught Selected and Controversial Sex Education Topics and Number of Topics They Taught, by Region

	Total (N=137) **n (%)**	**Metros (N=48)** **n (%)**	**Rural regions (N=89)** **n (%)**
Selected and controversial sex ed topics*			
birth control, that is methods of preventing pregnancy	89 (65.0)	28 (58.3)	61 (68.5)
adoption	66 (48.2)	20 (41.7)	46 (51.7)
waiting to have sex until are older or married, that is abstinence	115 (83.9)	37 (77.1)	78 (87.6)
how to use condoms	31 (22.6)	12 (25.0)	19 (21.4)
how to use and where to get other birth control	43 (31.4)	12 (25.0)	31 (34.8)
abortion	35 (25.6)	11 (22.9)	24 (27.0)
homosexuality and sexual orientation, that is being gay, lesbian, bisexual, transgender or queer	30 (21.9)	13 (27.1)	17 (19.1)
Tertiles of number of topics taught			
< 13 topics	45 (32.8)	20 (41.7)	25 (28.0)
13 to 17 topics	44 (32.1)	12 (25.0)	32 (36.0)
18 to 21 topics	48 (35.0)	16 (33.3)	32 (36.0)

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

Table 21

Number and Percentage of Providers of Sex Education by Tone of Teaching Controversial Topics, by Region

	Total (N=137) n (%)	**Metros (N=48)** n (%)	**Rural regions (N=89)** n (%)
Tone of teaching abstinence			
Did not teach about abstinence from intercourse	16 (11.7)	7 (14.6)	9 (10.1)
Abstinence was presented as one alternative for preventing pregnancy and STIs.	13 (9.5)	7 (14.6)	6 (6.7)
Abstinence was presented as the best alternative for preventing pregnancy and STIs.	74 (54.0)	22 (45.8)	52 (58.4)
Abstinence was presented as the only alternative for preventing pregnancy and STIs.	34 (24.8)	12 (25.0)	22 (24.7)
Tone of teaching condom			
Did not teach about the role of condoms in the prevention of STIs/HIV	59 (43.1)	24 (50.0)	35 (39.3)
Emphasized that condoms can be an effective means of preventing STIs/HIV for sexually active individuals	52 (37.9)	19 (39.6)	33 (37.1)
Emphasized the ineffectiveness of condoms in preventing STIs/HIV	26 (19.0)	5 (10.4)	21 (23.6)
Tone of teaching birth control			
I did not teach about birth control in the sex ed or family life classes	66 (48.2)	28 (58.3)	38 (42.7)
I emphasized that birth control can be an effective means of preventing pregnancy for sexually active individuals	48 (35.0)	16 (33.3)	32 (36.0)
I emphasized the ineffectiveness of birth control in preventing pregnancy	23 (16.8)	4 (8.3)	19 (21.3)
Tone of teaching abortion			
Abortion is immoral or wrong	3 (2.2)	0 (0.0)	3 (3.4)
Abortion is a personal matter	15 (11.0)	3 (6.3)	12 (13.5)
Topic discussed, but no message about abortion	28 (20.4)	10 (20.8)	18 (20.2)
Topic not discussed at all in sex ed	83 (60.6)	31 (64.6)	52 (58.4)
Don't know	2 (1.5)	0 (0.0)	2 (2.3)
Other	2 (1.5)	1 (2.1)	1 (2.1)
Missing	4 (2.9)	3 (6.3)	1 (1.1)
Method effectiveness and abstinence*			
Methods effective, abstinence best	52 (38.0)	18 (37.5)	34 (38.2)
Methods effective, abstinence only	8 (5.8)	3 (6.3)	5 (5.6)
Methods ineffective, abstinence best	51 (37.2)	18 (37.5)	33 (37.1)
Methods ineffective, abstinence only	26 (19.0)	9 (18.7)	17 (19.1)

*Providers not teaching about abstinence were included with "abstinence best"; those not teaching about condoms and birth control methods were included with " methods ineffective". Effective includes providers who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STIs or both.

Table 22

Number and Percentage of Providers of Sex Education by Tone of Teaching Controversial Topics, by Region Continued

	Total (N=137) n (%)	**Metros (N=48)** n (%)	**Rural regions (N=89)** n (%)
Tone of teaching masturbation			
Masturbation is a normal behavior	9 (6.7)	2 (4.2)	7 (7.9)
Masturbation is immoral or wrong	0 (0.0)	0 (0.0)	0 (0.0)
Topic discussed, but no message about masturbation	22 (16.3)	11 (22.9)	11 (12.4)
Topic not discussed at all in sex ed	101 (74.8)	34 (70.8)	67 (75.3)
Don't know	2 (1.5)	0 (0.0)	2 (2.3)
Other	1 (0.7)	0 (0.0)	1 (1.1)
Missing	2 (1.5)	1 (2.1)	1 (1.1)
Tone of teaching homosexuality			
Homosexuality is immoral or wrong	0 (0.0)	0 (0.0)	0 (0.0)
Some people are homosexual and should not be discriminated against	24 (17.5)	9 (18.8)	15 (16.8)
Topic discussed, but no message about homosexuality	20 (14.6)	4 (8.3)	16 (18.0)
Topic not discussed at all in sex ed	84 (61.3)	31 (64.6)	53 (59.5)
Don't know	2 (1.5)	0 (0.0)	2 (2.3)
Other	3 (2.2)	1 (2.1)	2 (2.3)
Missing	4 (2.9)	3 (6.3)	1 (1.1)
Tone of teaching about sex			
Sex is something to avoid and fear	3 (2.2)	1 (2.1)	2 (2.3)
Sex is a healthy and normal part of life	66 (48.2)	17 (35.4)	49 (55.1)
Topic discussed, but no message about sex	34 (24.8)	18 (37.5)	16 (18.0)
Topic not discussed at all in sex ed	20 (14.6)	6 (12.5)	14 (15.7)
Don't know	5 (3.6)	2 (4.2)	3 (3.4)
Other	3 (2.2)	0 (0.0)	3 (3.4)
Missing	6 (4.4)	4 (8.3)	2 (2.3)

Table 23

Number and Percentage of Providers of Sex Education Who Agreed to the Following Personal Belief Statements, by Region

	Total (N=137)		Metros (N=48)		Rural regions (N=89)	
	Agree n (%)	**Disagree n (%)**	**Agree n (%)**	**Disagree n (%)**	**Agree n (%)**	**Disagree n (%)**
Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not.	69 (50.4)	68 (49.6)	20 (41.7)	28 (58.3)	49 (55.1)	40 (44.9)
Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives.	112 (81.8)	25 (18.2)	40 (83.3)	8 (16.7)	72 (80.9)	17 (19.1)
Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.	35 (25.5)	102 (74.5)	12 (25.0)	36 (75.0)	23 (25.8)	66 (74.2)

Research Question 3. What Do Providers Think School-Based Sex Education Should Look Like in TN?

For all 22 sex education topics, providers responded the grades in which they taught each topic, and then providers were asked to select the lowest grade in which they thought the topic should be taught *"for each of the following topics, skills and concepts, what is your opinion about the lowest grade (K-12) at which a topic should be included in a sexuality education class?"*. Many providers thought they should teach sex education topics in earlier grades than they currently taught them, and fewer respondents thought they should never teach any topic

(Table 7). Compared to the proportion of providers who taught a selected and controversial sex education topic by grade 12, more providers indicated that these topics should be taught by grade 12 (abstinence, 90.5% vs. 83.9%; birth control, 86.9% vs. 65.0%; adoption, 83.2% vs. 48.2%; how to use and where to get other birth control, 78.1% vs. 31.4%; how to use condoms, 74.5% vs. 22.6%; homosexuality 66.4% vs. 21.9%; abortion, 63.5% vs. 25.6%). Over two-thirds of providers indicated that these selected and controversial topics should be taught by 7th grade, and around 7 to 22% of providers indicated that these topics should be taught by 5th grade (Table 7).

Over two-thirds of respondents indicated that young people should be abstinent, but if they don't they should use birth control and practice safe sex. Still one-fifths of respondents thought that young people should only have sex when they are married (Table 24).

Table 24

Number and Percentage of Sex Education Providers by What They Thought Should Be Taught About Sex Before Marriage and Birth Control in Sex Education (N=137)

	n (%)
Young people should ONLY have sex when they are married	26 (19.0)
Young people should wait to have sex, but if they DON'T they should use birth control and practice safer sex	91 (66.4)
Topic should not be discussed at all in sex ed	11 (8.0)
Other	5 (3.7)
Missing	4 (2.9)

More than three-fourths of providers stated that regularly updated, age-appropriate district-wide health education standards would be critical for teaching sex education, and a similar proportion expressed health requirements for high school graduation as beneficial. Two-thirds of sex education providers deemed a school board policy as critical, and 57.7% indicated a sex education or family life course requirement for state licensure of health teachers as critical.

More than half of providers thought that the support from the Tennessee Education Association could be critical. Whereas, providers were equally divided in stating that a comprehensive sex education bill from the state would be critical (Table 25).

More than half of providers thought enough time was spent on sex education, but around two-fifths of providers thought they had too little time for it (Table 26).

Table 25

Number and Percentage of Sex Education Providers by Policies or Standards They Thought Would Be Critical for Teaching Sex Education
(N=137)

Policies or Standards	**Yes** **n (%)**	**No** **n (%)**	**Missing** **n (%)**
A sex education or family life course requirement for state licensure of health teachers	79 (57.7)	45 (32.9)	13 (9.5)
A school board policy	86 (62.8)	39 (28.5)	12 (8.8)
A comprehensive sex education bill passed by the state legislature	62 (45.3)	62 (45.3)	13 (9.5)
Regularly updated, age-appropriate district-wide health education standards	104 (75.9)	23 (16.8)	10 (7.3)
Support from Tennessee Education Association (Tennessee's Teachers' Union)	73 (53.3)	49 (35.8)	15 (11.0)
Health requirements for high school graduation	101 (73.7)	26 (19.0)	10 (7.3)
Having no specific policy	17 (12.4)	88 (64.2)	32 (23.4)
Other	6 (4.4)	60 (43.8)	71 (51.8)

Table 26

Number and Percentage of Providers by Classroom Time They Thought They Spent to Cover Sex Education
(N=137)

	n (%)
Enough time	73 (53.3)
Too much time	2 (1.5)
Too little time	51 (37.2)
Don't know	9 (6.6)
Missing	2 (1.5)

About or more than one-half of providers stated that they do not need assistance with teaching most of the 22 sex education topics. Around 30% to 40% of respondents expressed that they needed some type of assistance, either factual information (10 to 20%), teaching materials (20 to 35%), or teaching strategies (15 to 20%), to teach most sex education topics.

For a topic like homosexuality fewer providers said that they do not need assistance (36.7%), and over one-third indicated that they needed assistance with teaching materials for this topic. Similarly, for abstinence, around two-fifths of those who taught this topic stated they do not need any assistance, but among those who wanted assistance (36.5%), one-fourth indicated need for assistance with teaching materials, and one-fourth stated need for assistance with teaching strategies. For teaching how to use condoms, about 30% of respondents stated that they needed assistance with teaching materials, and 20 % stated that they needed assistance with teaching strategies.

Table 27

Number and Percentage of Sex Education Providers by Type of Assistance They Needed With Teaching Sex Education Topics
(N=137)

Topics, skills and concept	Any type of assistance n (%)	Factual information n (%)	Teaching materials n (%)	Teaching strategies n (%)	No assistance needed n (%)
anatomy (n=113)	36 (31.9)	13 (11.5)	32 (28.3)	18 (15.9)	65 (57.5)
puberty (n=122)	38 (31.2)	13 (10.7)	32 (26.2)	18 (14.8)	73 (59.8)
healthy relationships (n=125)	49 (39.2)	17 (13.6)	41 (32.8)	25 (20.0)	61 (48.8)
the basics of how babies are made, pregnancy and birth (n=102)	32 (31.4)	10 (9.8)	25 (24.5)	18 (17.7)	58 (56.9)
birth control, that is methods of preventing pregnancy (n=89)*	32 (36.0)	10 (11.2)	25 (28.1)	16 (18.0)	40 (44.9)
HIV/AIDS (n=121)	46 (38.0)	19 (15.7)	34 (28.1)	21 (17.4)	61 (50.4)
sexually transmitted infections other than HIV/AIDS, such as herpes (n=119)	46 (38.7)	18 (15.1)	35 (29.4)	21 (17.7)	58 (48.7)

adoption (n=66)*	18 (27.3)	9 (13.6)	12 (18.2)	9 (13.6)	33 (50.0)

Table 27 (continued)

implications of teen parenthood (n=111)	42 (37.8)	21 (18.9)	31 (27.9)	20 (18.0)	53 (47.8)
media influence (n=99)	35 (35.4)	19 (19.2)	27 (27.3)	19 (19.2)	51 (51.5)
sexual violence, including dating violence (n=108)	36 (33.3)	15 (13.9)	25 (23.2)	18 (16.7)	54 (50.0)
how to deal with the emotional issues and consequences of being sexually active (n=98)	37 (37.8)	15 (15.3)	27 (27.6)	19 (19.4)	48 (49.0)
waiting to have sex until are older or married, that is abstinence (n=115)*	42 (36.5)	14 (12.2)	30 (26.1)	26 (22.6)	58 (40.3)
how to deal with pressure to have sex (n=105)	37 (35.2)	15 (14.3)	30 (28.6)	20 (19.1)	53 (50.5)
how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs (n=80)	27 (33.8)	7 (8.8)	22 (27.5)	15 (18.8)	42 (52.5)
how to talk with parents about sex and relationship issues (n=76)	24 (31.6)	6 (7.9)	19 (25.0)	12 (15.8)	43 (56.6)
how to use condoms (n=31)*	13 (41.9)	4 (12.9)	9 (29.0)	6 (19.4)	13 (41.9)
how to use and where to get other birth control (n=43)*	15 (34.9)	7 (16.3)	10 (23.3)	6 (14.0)	20 (46.5)
how to get tested for HIV/AIDS and other sexually transmitted infections that is STIs (n=91)	28 (30.8)	13 (14.3)	18 (19.8)	11 (12.1)	48 (52.8)
abortion (n=35)*	11 (31.4)	4 (11.4)	7 (20.0)	5 (14.3)	17 (48.6)
homosexuality and sexual orientation, that is being gay, lesbian, bisexual, transgender or queer (n=30)*	13 (43.3)	5 (16.7)	10 (33.3)	6 (20.0)	11 (36.7)
what to do if they or a friend has been raped or sexually assaulted (n=83)	27 (32.5)	10 (12.1)	18 (21.7)	13 (15.7)	43 (51.8)

*7 Selected and controversial topics: These are sex education topics that were taught by less than half of the providers in any grade they taught, or topics that are identified as controversial in sex education literature.

Description of Respondents Who Did Not Teach Sex Education

Over a quarter of the participants who attempted the survey were from the six metro regions. The regional distribution of those who taught sex education was like those who did not

teach sex education with larger participation from metros and the Mid-Cumberland region (see Appendix D for the map of TDH regions and a list of counties in each region). Among the respondents who taught sex education, around one-third were either physical education or health education teacher, whereas among the respondents who did not teach sex education, over half of them were either biology teachers, physical education teachers, or CSHC (Table 28).

Table 28

Distribution of Participants Who Taught and Who Did Not Teach Sex Education by Region and Position

	Taught sex ed (N = 198) N (%)	**Did not teach sex ed (N = 376) N (%)**
Region		
West	24 (12.1)	42 (11.2)
Mid-Cumberland	45 (22.7)	92 (24.5)
South Central	7 (3.5)	22 (5.9)
Southeast	9 (4.6)	21 (5.6)
Upper Cumberland	10 (5.1)	24 (6.4)
East	19 (9.6)	58 (15.4)
Northeast	18 (9.1)	21 (5.6)
Metros (6)	66 (33.3)	84 (22.3)
Missing	0 (0.0)	12 (3.2)
Position/job title (multiple response)		
Public Health Educator	21 (10.6)	17 (4.5)
Coordinated School Health Coordinator	8 (4.0)	69 (18.4)
Biology teacher	19 (9.6)	79 (21.0)
Family/consumer science/home economics teacher	46 (23.2)	23 (6.1)
Health education teacher	59 (29.8)	27 (7.2)
Physical education teacher	69 (34.9)	76 (20.2)
School nurse	6 (3.0)	61 (16.2)
School counselor	1 (0.5)	2 (0.5)
Other subject teacher, such as Psychology, STEM	4 (2.0)	32 (8.5)
Other administrative position, e.g., School Manager, Education Director, Director of Nutrition, etc.	5 (2.5)	15 (4.0)

More than one-half of those who did not teach sex education (n=376) indicated that sex education was taught in their school but they were not the ones who taught it. More than one-fourth of respondents indicated that their school did not offer sex education though their school had at least one grade from 5 to 12 (Table 2).

Table 29

Reasons for Not Teaching Sex Education (N = 376)

Reasons	N (%)
My school has kindergarten to fourth grade only	5 (1.3)
My school has at least one grade from 5 to 12 grades, but the school does not offer sex ed or family life	99 (26.3)
My school has sex ed or family life, but I do not teach it	196 (52.1)
I am not in schools and I have not been to schools to teach sex ed or family life in 2015-2016 school year	51 (13.6)
Other reasons	11 (2.9)
Don't know	9 (2.4)
Did not provide any reason	5 (1.3)

CHAPTER 5

DISCUSSION

We found that sex education, either sexual risk avoidance (SRA) or comprehensive sexuality education (CSE), is being taught mostly in grades 9, 10 and 11, in TN public schools by school teachers with different job titles using a variety of curriculum. Over one-half of providers stated that they had guest speaker involved or they themselves were guest speakers in sex education classes. About half of providers thought sex education was either the most important or more important than other units. Among participants who responded but did not teach sex education in 2015-2016 school year, about one-half stated that sex education was taught by someone else in their school, and more than one-fourth indicated that their school did not offer sex education though their school had at least one grade from 5 to 12.

Adequate time for instruction has been indicated as critical in adopting and maintaining healthy behaviors through health education courses (Centers for Disease Control and Prevention, 2015). Sex education programs, SRA or CSE, have been effective when spread out over several months or multiple years (Manlove et al., 2015). In this study, we found that when sex education was taught, it mostly lasted for one class period or several class periods, but rarely for a semester or a year. Two-fourths of providers thought they spend too little time to cover sex education, and two-fifths indicated that lack of time was the most important factor that led them to teach sex education differently than what they wanted. About one-half of providers used a curriculum to teach sex education session, and two-thirds said they had some or strict guidelines to follow school's sex education curriculum. Given these responses from providers, we cannot be sure that sex education is being taught in TN public schools in the manner and extent needed for promoting intended behavioral changes in adolescents. The ineffective sex education (in terms of

effectiveness of sex education as explained above), or lack thereof, could be one reason for high rates of teen births and STIs in TN.

About one-half of providers stated that their school district had a policy on teaching sex education. Most providers mentioned that they required to notify parents about topics taught (70%), give parents opportunity to review the curriculum content (71%), and inform parents that they have the option of removing their child from sex education classes (71%). This could be a factor marginalizing students whose parents do not promote talking about sex, and not receiving any sex education at all. These responses concur with TN's policy that mandates school districts to follow parental notification requirements ("Tennessee Annotated Code. "Family Life Curriculum." 49-6-1301 through 49-6-1307," 2012). Also, some providers cited concerns about parents (36%) or administration (32%) as factors that influenced them to teach sex education differently that they would have liked, an indication that providers feel restricted in their practice of teaching sex education. Still, most providers (95%) answered students' questions in class, which could be an avenue that providers are using to teach more sex education topics.

As seen in 1988 and 1999 national surveys, most providers taught sex education topics later than they thought it should be taught (Darroch et al., 2000). Like the findings of the survey of sex education teachers in Illinois and past national surveys, topics like homosexuality, how to use condoms, and how to use and where to get other birth control, abortion were not taught by many providers in this study (Darroch et al., 2000; Lindau et al., 2008; Sonenstein & Pittman, 1984). For sex education in general, lack of curriculum was cited by one-fourth of as a factor that influenced providers to teach sex education differently than what they would have preferred, but for controversial topics, about half of respondents who did not cover a topic stated that it was because the topic was not a part of the curriculum or the sex education class was an abstinence-

based class. Previous study done by Lindau et al. also found that curricular material availability was most commonly cited by Illinois sex education teachers as having a "great deal" of influence on topics taught (Lindau et al., 2008).

The state of Tennessee receives federal funding for sex education programs from four different avenues, about one-quarter of which goes to Title V Abstinence Education Program. Tennessee has a Family Life Education policy that is abstinence-centered. Also, CSE programs teach abstinence as the best alternative. We found, over two-thirds of respondents indicated that young people should be abstinent, but if they don't they should use birth control and practice safe sex, the message conveyed in most CSE programs and some SRA programs. Abstinence was found as one of the most frequently taught topics by grade 12 (83.9%), as in the study with sex education teachers in Illinois in 2003-2004 school year (89%) and 1999 Guttmacher survey (99.2%) (Darroch et al., 2000; Lindau et al., 2008). Most providers (79%) stated that abstinence was the best or only alternative; the tone of teaching abstinence resonated with TN's abstinence-centered policy and were similar to 1999 Guttmacher survey and survey of Illinois sex education teachers (Darroch et al., 2000; Lindau et al., 2008).[14] One-fifths of providers thought that young people should only have sex when they are married, the message underlying abstinence-only-until-marriage programs.

Over time controversy in sex education has evolved from whether abstinence should be taught as the sole message without discussing contraception (abstinence-only vs. CSE) to whether ineffectiveness or effectiveness of contraception should be emphasized in sex education

[14] In this study proportion of providers who presented abstinence as the best alternative was 54.0%, 1999 national survey of sex education providers (65%) and Illinois survey of sex education teachers (57%); another 24.8% taught abstinence as the only alternative (Illinois, 39%; 1999 Guttmacher survey, 23%); and 9.5% abstinence as one alternative (Illinois, 4%; 1999 Guttmacher survey, 7%) (Landry et al., 2003; Lindau et al., 2008).

class (abstinence-centered vs. CSE) (Landry et al., 2003). Past, national and state-level surveys had items designed to surface contrasting features of abstinence-only education over more comprehensive sex education in the tone of teaching contraception (Darroch et al., 2000; Landry et al., 2003; Lindau et al., 2008). In this study, about one-half of providers (43%) did not discuss the role of condoms in preventing STIs/HIV, and one-fifths emphasized ineffectiveness of condoms in preventing STIs and HIV. Condom ineffectiveness can be presented in both abstinence-only and SRA programs, however contraceptives are likely to be discussed in more detail in the latter. SRA programs state that condoms can be effective in preventing STIs, but not all; providers teaching SRA may state that condoms can be effective. This change in emphasis could be the reason why we could not show differences in personal beliefs by SRA or CSE programs using an aggregate variable used in previous studies that represented SRA (methods ineffective, abstinence best) and CSE programs (methods effective, abstinence best) based on response to tone questions for condoms and birth control (Darroch et al., 2000; Landry et al., 2003).

As abstinence-only programs have become almost non-existent and instead evolved to abstinence-based programs or sexual risk avoidance (SRA) programs modifying their emphasis on abstinence, homosexuality, and discussing contraception. None of the providers stated homosexuality is immoral or wrong, probably because SRA programs do not exclude discussion on homosexuality. Still two-thirds of providers (61.3%) did not discuss this topic in their sex education classes, as observed in past national surveys (Darroch et al., 2000; Sonenstein & Pittman, 1984).

Most providers believed that students who are taught to use contraceptives are more likely to use them if they have sexual intercourse (82%) and disagreed that teaching about

contraception makes students more likely to become sexually active (74%). Such response from providers shows overwhelming support for teaching students about contraceptives. However, what we do not know is how contraception is taught in the context of abstinence? Unlike abstinence-only approach, SRA programs do not overtly state that condoms are ineffective in preventing pregnancy and STIs, but instead highlight that condoms cannot assure safety from all STIs, and hence, promote abstinence as the "best" choice. This shift could have influenced providers' responses to the belief about the impact of teaching contraception on students' sexual behavior.

Providers were equally divided in their response to the statement *"students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not"*. Providers concurring with abstinence-based or SRA programs are more likely to agree to the statement, but those siding with teachings of CSE programs could either agree or disagree. Provider's teaching CSE program could interpret the stress on abstinence as abstinence-only education and disagree referring to the fact that young people are having sex and need information on contraception to make optimal decision for their health and well-being, if and when they choose to have sex. Nevertheless, providers' agreement to the statement did not influence whether they taught about abstinence in sex education class. Also, providers were equally divided in stating that a comprehensive sex education bill from the state would be critical for teaching sex education, a reflection of historical controversy over sex education programs, CSE or SRA.

Providers who had more years of experience teaching sex education, and those who expressed that they received enough training taught more number of sex education topics, and more often taught controversial sex education topics (birth control, how to use condoms, how to

use and where to get birth control, abstinence, homosexuality, adoption, and abortion). The study done by Lindau et al. (2008) with Illinois sex education teachers found that training was a significant predictor of covering all the four topics namely, abstinence, HIV/AIDS, STIs and contraception, as a measure of comprehensiveness (Lindau et al., 2008).

Providers from rural regions taught more number of sex education topics and taught controversial sex education topics more often that providers from metro regions. However, compared to providers from metro regions, more providers from rural regions taught ineffectiveness of condoms and birth control in preventing STIs/HIV or pregnancy showing an inclination towards abstinence-based or SRA strategy.

Study Strengths and Limitations

This study focused on public schools of TN and we cannot speculate on sex education practices in private, boarding or Christian schools, which may be different from public schools. Though this study tried to cover as many groups of sex education providers in the public schools of TN as possible, there could be groups of providers that this study was not able to reach. These groups may include providers from national nonprofit agencies, such as Centerstone, Inc.,[15] or nonprofit religious agencies, such as Cumberland Crisis Pregnancy Center,[16] or Life Choice Ministries that offer to provide sex education in public schools of TN. In the years 2015 and 2016, Centerstone Inc. was implementing "Be in Charge 2", an abstinence-based program in middle and high schools in 60 counties in Middle Tennessee. We do not know the reach of religiously affiliated institutions, but they are more likely to take an abstinence-only or

[15] Centerstone of Tennessee, Inc. is a national nonprofit provider of professional behavioral health services and advanced programs to treat mental illness and substance abuse problems in Florida, Illinois, Indiana, Kentucky and Tennessee, located in Nashville, Tennessee.

[16] Cumberland Crisis Pregnancy Center is a nonprofit that provides presentations about teen pregnancy, STIs, and positive decision making to public and private schools, churches, and community groups, in addition to resources and support for young women and families facing challenges of an unplanned pregnancy.

abstinence-based approach. We speculate that the findings of this study were more likely to lean towards comprehensive content and perspectives than the actual abstinence-based or abstinence-only teaching.

This study used an observational design in which respondents self-reported their practices. As in any self-report, the possibility of information bias cannot be ruled out. Given TN's abstinence-based policy, providers may have reported practices and perspectives adhering to abstinence-based or abstinence-only approach.

The survey did not measure the quality of instruction, details of what was taught on each topic, or amount of time spent on individual sex education topics. Also, we did not measure other characteristics, such as religiosity or conservatism of rural and metro regions, that may influence abstinence or comprehensive approach to teaching sex education.

We compared the group of providers who did not complete the survey (n=61) with those who completed the survey (n=197), and found that they were not different in their characteristics and tone of teaching controversial sex education topics (table not shown). This minimizes the possibility of differential dropout and associated selection bias. These providers did not complete the survey probably because the survey was long (took around half an hour to complete).

Directions for Future Research

The findings show that a web-based survey can be used to collect information from sex education providers in TN schools (overall response rate of 15.7%). Response rates for survey weblink sent via email was much higher than that sent via postal service (22.1%, email; 2.5%, postal service). Lower response rate for those contacted via postal service could have been because the participants needed to open the survey online using the weblink provided in the

recruitment mail, adding some extra time and effort. Future studies may test response rates of a paper-based survey over web-based survey.

Providing reimbursement to all participants could be another strategy for increasing response rate. A state-level sex education survey that had a high response rate of 62% sent $10 via postal service along with the survey questionnaire (Lindau et al., 2008).

Future studies may aim higher response rates if they can use more effective strategy to identify a sampling frame of sex education providers in TN. This study provides an understanding that TN has diverse population of sex education providers from within and outside of school system. A staged sampling approach could be applied to generate a representative sample of sex education providers who could be surveyed. First, among all school districts in TN, a sample of school districts can be selected that would appropriately represent both metro and rural regions of TN. Then, school(s) can be selected within identified school districts. School principal can provide name and contact information of all sex education provider(s) in their school. Finally, a survey can be sent to all selected sex education providers along with some reimbursement.

This broad sexuality education survey tried to measure some detail about the tone of controversial sex education topics, such as abstinence, condoms, and birth control. The questionnaire was able to collect information from providers with opposing beliefs on impact of stressing abstinence, and teaching contraception and birth control in sex education on teen sexual behavior. These findings indicate that the survey questionnaire can be used in future studies. However, relative emphasis on abstinence over ineffectiveness of birth control and condoms could not be identified using the items in this questionnaire, because of evolving narrative of

abstinence-only programs to abstinence-based SRA programs. Two items seemed problematic in making inference about CSE or SRA program:

1) item that measured providers belief *"students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not"*. Providers teaching CSE could both agree or disagree to the statement depending on how they read "stress abstinence". If they read it as abstinence-only they would most likely disagree to this statement, but if they read it as stressing on abstinence over other contraceptive measures in a CSE or abstinence-based program then they may agree to this statement.

2) response to the item that measured the tone of teaching condom "*emphasized the ineffectiveness of condoms in preventing STIs/HIV*". This item needs to incorporate that abstinence-based SRA programs do not deny that condoms can be effective but state that condoms are ineffective in preventing two out of four most common STIs among teens.

Further, depending on the principle of SRA programs an item focused on "teaching skills in condom use" or "condom demonstration" could more effectively differentiate CSE programs from abstinence-based or SRA programs.

Studies that examine the curriculum content and other instructional materials can measure the finer details about the emphasis placed on individual topics and skills. But, what providers teach may markedly differ from the curriculum content, and only observational studies of sex education providers could provide information on how sex education sessions are taught to students in TN schools (Darroch et al., 2000). However, this was not feasible because of time and cost constraints.

Contributions to Public Health

This study is the first sex education survey in TN that documents sex education providers' practices and perspectives. Most national and state level surveys of sex education are dated and focused on identifying contrasting features of abstinence-only programs over CSE. The study provides recommendations on modifying some items previously used in sex education surveys to address evolving narratives of abstinence-only programs to abstinence-based or SRA programs.

Sex education in schools has been an effective strategy in preventing pregnancy and STIs among young people. This study provides an understanding of who is teaching, and what is being taught in sex education. The findings from this study can be used by teen pregnancy prevention programs to identify sex education providers in schools and provide needed training to support sex education in schools.

Conclusion

The study identified the job titles of providers, school or school district's sex education policy, content being taught, approach to teaching, and how providers would want to teach sex education in TN public schools. This information can be used in future sex education surveys to identify sampling frame of TN sex education providers, and to implement a survey using a tested questionnaire to understand practices of school-based sex education in TN. Identifying providers is crucial to designing sex education training programs, tracking program effectiveness, and changes in practices over time, to achieve the goal of curbing TN teen pregnancy rates through quality sex education.

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APPENDICES

APPENDIX A

Abstinence Education According to Section 510(b) of the Social Security Act

"Abstinence Education," or AOUM programs, are defined by Section 510(b) of Title V of the Social Security Act (P.L. 104-193) as an educational or motivational program that:

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 a mutually faithful monogamous relationship in the context of marriage is the expected standard of 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 increase vulnerability to sexual advances; and

H. teaches the importance of attaining self-sufficiency before engaging in sexual activity.

APPENDIX B

List of 22 Sex Education Topics, Skills and Concepts

1. Anatomy
2. Puberty
3. Healthy relationships
4. The basics of how babies are made, pregnancy and birth
5. Birth control, that is methods of preventing pregnancy
6. HIV/AIDS
7. Sexually transmitted diseases other than HIV/AIDS, such as herpes
8. Adoption
9. Implications of teen parenthood
10. Media influence
11. Sexual violence, including dating violence
12. How to deal with the emotional issues and consequences of being sexually active
13. Waiting to have sex until are older or married, that is abstinence
14. How to deal with pressure to have sex
15. How to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted diseases, that is STIs
16. How to talk with parents about sex and relationship issues
17. How to use condoms
18. How to use and where to get other birth control
19. How to get tested for HIV/AIDS and other sexually transmitted diseases, that is STIs
20. Abortion

21. Homosexuality and sexual orientation, that is being gay, lesbian or bisexual

22. What to do if they or a friend has been raped or sexually assaulted

APPENDIX C

Recruitment Email

[Date]

Dear Participant,

I am writing to ask for your help in a state-wide study of providers of Family Life Education in Tennessee. The study is being conducted by the East Tennessee State University College of Public Health in collaboration with the Tennessee Department of Education and the Tennessee Department of Health. You have been selected to participate in this study. Your answers are not only important but needed to better understand the matter of Family Life Education in Tennessee. It will inform program planners and policy makers of better ways of providing information to young people, so that they can make better decisions about sex and improve their lives. There are no right or wrong answers. Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified.

Family Life Education providers play an important role in instilling values and providing sexual health information to our young people. Yet, there has been no research in Tennessee that examines the context and delivery of Family Life Education, and providers' perspectives on what Family Life Education should look like in Tennessee. In this study, we are requesting Family Life Education providers to answer a short survey. The link below will take you to the survey that takes on average 25 minutes to complete.

[link]

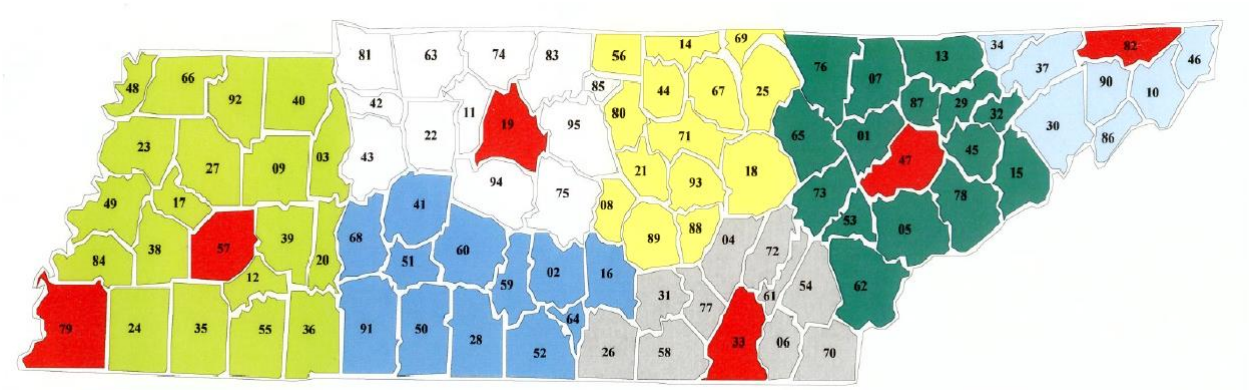
All survey respondents will be entered into a raffle and a tablet will be gifted to the randomly selected winner. If you have any questions or comments about this study, we would be happy to talk with you. Our direct phone number is 423-737-8826, or you can write or email us at yadavr@etsu.edu.

Thank you very much for helping with this important study.

Sincerely,
Ruby Yadav, MPH, DrPH(c)
Project Coordinator
Biostatistics and Epidemiology Department
East Tennessee State University, Johnson City, TN 37614
email: yadavr@ etsu.edu
P.O. Box __, ETSU

APPENDIX D

Map of Regions as Defined by the Tennessee Department of Health with List of Counties in Each Region



WEST		MID-CUMBERLAND		SOUTH CENTRAL		SOUTHEAST		UPPER-CUMBERLAND		EAST		NORTHEAST	
#	County	#	County	#	County	#	County	#	County	#	County	#	County
03	Benton	11	Cheatham	02	Bedford	04	Bledsoe	08	Cannon	01	Anderson	10	Carter
09	Carroll	22	Dickson	16	Coffee	06	Bradley	14	Clay	05	Blount	30	Greene
12	Chester	42	Houston	28	Giles	26	Franklin	18	Cumberland	07	Campbell	34	Hancock
17	Crockett	43	Humphreys	41	Hickman	31	Grundy	21	DeKalb	13	Claiborne	37	Hawkins
20	Decatur	63	Montgomery	50	Lawrence	54	McMinn	25	Fentress	15	Cocke	46	Johnson
23	Dyer	74	Robertson	51	Lewis	58	Marion	44	Jackson	29	Grainger	86	Unicoi
24	Fayette	75	Rutherford	52	Lincoln	61	Meigs	56	Macon	32	Hamblen	90	Washington
27	Gibson	81	Stewart	59	Marshall	70	Polk	67	Overton	45	Jefferson		
35	Hardeman	83	Sumner	60	Maury	72	Rhea	69	Pickett	53	Loudon		
36	Hardin	85	Trousdale	64	Moore	77	Sequatchie	71	Putnam	62	Monroe	METROS	
38	Haywood	94	Williamson	68	Perry			80	Smith	65	Morgan	#	COUNTY
39	Henderson	95	Wilson	91	Wayne			88	Van Buren	73	Roane	19	Davidson
40	Henry							89	Warren	76	Scott	33	Hamilton
48	Lake							93	White	78	Sevier	47	Knox
49	Lauderdale									87	Union	57	Madison
55	McNairy											79	Shelby
66	Obion											82	Sullivan
84	Tipton												
92	Weakley												

Source: Tennessee Department of Health. Local and Regional Health Departments. Nashville, TN. Retrieved from https://www.tn.gov/health/health-program-areas/localdepartments.html

APPENDIX E

TN Sex Education Survey

	Thank you for participating in our study. The following questions refer to teaching sex education or family life education in middle and high schools of TN. As you answer, please provide us with honest answers. All your answers will be kept strictly confidential, and your name or email will not appear in the questionnaire or in any of our reports. Sex education or Family Life Education (referred to as sex ed or family life) are any classes or talks in school that discuss relationships, how babies are made, abstinence, AIDS, pregnancy prevention, birth control, puberty, and the like. These topics may have been taught in a separate sex education course, as part of another course, like health or science, or as independent lessons in the school auditorium or gym.	
1	Have you taught sex ed or family life, in the 2015-2016 school year to any of grades 5 through 12 students? These re any classes or talks in school that discuss relationships, how babies are made, abstinence, AIDS, pregnancy prevention, birth control, puberty, and the like. These topics may have been taught in a separate sex education course, as part of another course, like health or science, or as independent lessons in the school auditorium or gym. 1, Yes 11, I teach in one school to one grade level 12, I teach in one school to multiple grade levels 13, I teach in more than one school within a county 14, I teach in more than one school across multiple counties. 0, No 01, No, my school has kindergarten to forth grade only 02, No, my school has at least one grade from 5 to 12 grades, but the school does not offer sex ed or family life 03, My school has sex or family life, but I do not teach it 04, I am not in schools and I have not been to schools to teach sex ed or family life in 2015-2016 school year	Screening Question
2	Select the county/counties of your jurisdiction *List all 95 counties in alphabetical order to select from. Multiple selections are allowed.*	Characteristics of educator; County

3	What is your position? 1, Public Health Educator 2, Coordinated School Health Coordinator 3, Biology teacher 4, Classroom teacher (teaches most subjects to one class) 4, Family/consumer science/home economics teacher 6, Health education teacher 7, Physical education teacher 8, School nurse 9, School counselor 10, Educator from Centerstone Inc. 11, Other (Specify _____)	Characteristics of educator; Position
	Continue with the next part if answer to Q1 is Yes. *If answer to Q1 is No, then end the survey with the following message.* Thank you for participating in the survey.	
1	In which grades is sex ed or family life, as defined above, offered in your school(s) in [county name, from answer to Q2; repeat for each county if Q1 has 14 selected] either as a separate class or integrated into other instruction? Grade 5 6 7 8 9 10 11 12 88, Don't know *(Repeat for each county, if answer to Q1 is 14)*	Context
2	For how many school years have you taught sex ed or family life education? _____ years (Selection restricted from 1 to 60)	Characteristics of educator; Experience
3	Were you trained to teach sex ed or family life? 1, Yes 0, No	Characteristics of educator; Training
4	*(If answer to Q1 is 14 then)* Does any of your school district in [county name, from answer to Q2; repeat for each county if Q1 has 14 selected] have a policy or practice on the teaching of sex ed or family life? Check only one. *(Else)* Does your school district have a policy or practice on the teaching of sex ed or family life? Check only one. 1, The district has a policy to teach sex ed or family life. 2, The district leaves these decisions to individual schools. 3, The district leaves these decisions to individual teachers. 88, Don't know *(Repeat for each county, if answer to Q1 is 14)*	Context; policy on sex education

5	*(If answer to Q1 is 14 then)* Please answer the following questions about the most common school policies [mention county name, from answer to Q2 only if answer to Q1 is 14;] as they apply to any of the grades in which you teach sex ed or family life. *(Else)* Please answer the following questions about the school policies as they apply to any of the grades in which you teach sex ed or family life. In any of the grades in which you teach sex ed or family life, does your school: 1, Yes 0, No 88, Don't know Require that parents be notified about the topics that will be covered in sex ed or family life? Require written parental permission for students to attend sex ed or family life classes? Inform parents that they have the option of removing their child from sex ed or family life classes? Give parents the opportunity to review curriculum content? Require that you use a specific curriculum for sex ed or family life? *(Repeat for each county, if answer to Q1 is 14)*	Context; parental consent requirement
6	*(If answer to Q1 is 14 then)* Which of the following best describes how you are mostly told to cover birth control in your sex ed or family life classes in [county name, from answer to Q2; repeat for each county if Part 1 Q1 has 14 selected]? Check only one. *(Else)* Which of the following best describes how you are told to cover birth control in your sex ed or family life classes? Check only one. 1, I am told to teach and to answer students' questions about birth control. 2, I am told to teach but not to answer students' questions about birth control. 3, I am told not to teach but to answer students' questions about birth control. 4, I am told not to teach and not to answer students' questions about birth control. 5, Other (Specify_____) *(Repeat for each county, if answer to Q1 is 14)*	Context

7	*(If answer to Q1 is 13 or 14 then)* Who does generally teach sex ed or family life in any of the schools in your jurisdiction? *(Else)* Who does generally teach sex ed or family life in your school? Check all that apply. 1, Biology teacher 2, Classroom teacher (teaches most subjects to one class) 3, Family and consumer sciences teacher 4, Health education teacher 5, Physical education teacher 6, School nurse 7, School counselor 8, Public Health Educator 9, Coordinated School Health Coordinator 10, Educator from Centerstone Inc. 11, Other (Specify _____) 12, Don't know	Delivery; context; who teaches
8	What other class is sex ed or family life typically combined with? *(Based on those who said sex ed was taught as part of another course. Multiple responses accepted, percentages may total more than 100%.)* 1, Health 2, Home economics 3, Family and Consumer Science 4, Science/Biology 5, Gym 6, Social Studies 7, Driver's education 8, Other: Specify _____ 88, Don't know	Delivery; context; Subjects
9	What grade or grades did you teach sex education or family life in the 2015-2016 school year? Multiple responses accepted, percentages may total more than 100%. 6th 7th 8th 9th 10th 11th 12th Don't know	Delivery; method; grades taught

10	For each of the following topics, skills and concepts, please respond to both parts of this question. First, what is your opinion about the lowest grade (K-12) at which a topic should be included in a sexuality education class? Second, in which grade(s) do you teach the topic in your sex ed or family life classes? Please complete both columns for each topic. Your opinion about the lowest grade (K-12) topic should be included Grade(s) in which you taught the topic Topic Lowest grade Never Grade (s) Never 1, anatomy 2, puberty 3, healthy relationships 4, the basics of how babies are made, pregnancy and birth 5, birth control, that is methods of preventing pregnancy 6, HIV/AIDS 7, sexually transmitted diseases other than HIV/AIDS, such as herpes 8, adoption 9, implications of teen parenthood 10, media influence 11, sexual violence, including dating violence 12, how to deal with the emotional issues and consequences of being sexually active 13, waiting to have sex until are older or married, that is abstinence 14, how to deal with pressure to have sex 15, how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs 16, how to talk with parents about sex and relationship issues 17, how to use condoms 18, how to use and where to get other birth control 19, how to get tested for HIV/AIDS and other sexually transmitted infections, that is STIs 20, abortion 21, homosexuality and sexual orientation, that is being gay, lesbian or bisexual 22, what to do if they or a friend has been raped or sexually assaulted	Delivery and Perspective; Content and method; grade specific question

11	*(for each of the topic never taught in question 10)* There are many reasons for not covering a particular topic. What is the MAIN reason you didn't teach (INSERT STATEMENTS FROM QUESTION 10 THAT WERE MENTIONED AS NEVER FOR THE GRADES IN WHICH YOU TAUGHT THE TOPIC)? Because you felt pressured by the community and parents not to teach it Because it is school or district policy not to teach it Because you personally felt this shouldn't be taught Because there wasn't enough time in the curriculum Because the topic was covered in an earlier grade Because the topic will be covered in a later grade Some other reason Not part of the curriculum Never came up Abstinence class/abstinence based only 88, Don't know	Influence; Perceived influence
12	What grade level had you taught most often in the 2015-2016 school year? 6th 7th 8th 9th 10th 11th 12th Answer the following questions based on your teaching experience in that specific grade.	Delivery; Method; grade taught often
13	Did you teach (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade sex ed as ….? 1, As a separate sex ed course 2, As part of another course 3, As specific lessons taught independent of any other course 88, Don't know	Delivery; Method; separate course or not
14	Where did you obtain the materials you used to teach sex ed or family life to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade? Check all that apply. 1, Commercial textbook/audiovisual (Specify title_____) 2, Materials developed by my state 3, Materials developed by my district/school 4, Materials I developed myself 5, Other (Specify _____)	Delivery; Method; teaching material

15	What curriculum did you use to teach sex ed or family to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade? Check all that apply. 1, Making a Difference 2, Michigan Model 3, Promoting Health Among Teens 4, Reducing the Risk 5, Teen Outreach Program (TOP) 6, On Point 7, Be Proud! Be Responsible! 8, Draw the Line/ Respect the LIne 9, Relationship Smarts PLUS 10, Love Thinks 11, Others: Specify _____ 12, None	Delivery; Method; not specific to grade
16	*(If answer to Q1 is 14 then)* How strictly were you required to follow your school's curriculum for sex ed or family life in most school(s) in [county name, from answer to Q2; repeat for each county if Q1 has 14 selected]? *(Else)* How strictly were you required to follow your school's curriculum for sex ed or family life? 1, Teach pretty much what wanted 2, Some guidelines 3, Strict guidelines 88, Don't know *(Repeat for each county, if answer to Q1 is 14)*	Context
17	What was the average number of students in the sex ed or family life class you taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? _____	Characteristics of students
18	How long as the sex ed you taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? Did it last for…? 1, One class period or several class periods or special sessions 2, Half a semester or quarter 3, An entire semester or quarter 4, A school year 5, Other: Specify _____ 88, Don't know	Delivery; Method; Time
19	Across the country, class sessions range from about 30 minutes to two hours. How long was your average sex ed class session? _____ (minutes)	Delivery; Method; Time

20	Were boys and girls together in all sessions, or were there any sessions in which boys and girls were taught in (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade sex ed separately? 1, Boys and girls together for all sessions 2, Taught separately for some sessions 88, Don't know	Delivery; Method; coed
21	Thinking about the organization of your (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade sex ed class, was it... 1, Primarily a lecture with some discussion 2, Primarily student participation 3, Combination of student participation and lectures 4, Other: Specify _____	Delivery; Method; teaching strategy
22	Please respond to each of the following items regarding students' questions in your sex ed or family life classes in (INSERT GRADE OF MOST RECENT SEX ED TAUGHT FROM QUESTION 12) grade. Item 1, Yes 0, No Did you have students submit questions anonymously on paper? Did you answer students' questions in class? Did you answer questions on a one-to-one basis after class? Did you refer students with questions to another teacher or health professional? Did you refer students with questions to parent or guardian? Did your school restrict your ability to answer students' questions on topics not included in your curriculum?	Delivery; Method; Student questions
23	Did you have guest speakers teach any sex ed or family life content in (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade? …….. Yes No I myself was the guest speaker If yes, for which of the following reasons did you include guest speakers? Check all that apply. 1, To introduce my students to resources in the community 2, To provide a balanced presentation (i.e. multiple perspectives on controversial issues) 3, To provide the most up-to-date information 4, To protect my school or my principal 5, I'm not very comfortable teaching this content 6, My students are more receptive to guest speakers 7, Other: Specify _____	Delivery; method; who teaches

24	Did you teach sex ed or family life in (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade differently from the way you'd like to because of any of the following? 1, Yes 0, No 1, Lack of time 2, Lack of financial resources 3, Lack of curriculum 4, Concerns about parents' responses 5, Concerns about students' responses 6, Concerns about responses from administration or district 7, School policy regarding sex ed or family life 8, School district policy regarding sex ed or family life 9, State policy regarding sex ed or family life 10, Other: Specify _____ 88, Don't know	Perceived Influence
25	Which one of the following best describes the way you taught about abstinence from intercourse in your sex ed or family life instruction to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? Check only one. 1, Abstinence is presented as **one alternative** for preventing pregnancy and STIs. 2, Abstinence is presented as the **best alternative** for preventing pregnancy and STIs. 3, Abstinence is presented as the **only alternative** for preventing pregnancy and STIs. 4, I don't teach about abstinence from intercourse	Delivery; tone
26	Which one of the following best describes the way you taught about condoms in your sex ed or family life instruction to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? Check only one. 1, I emphasize that condoms can be an **effective** means of preventing STIs/HIV for sexually active individuals. 2, I emphasize the **ineffectiveness** of condoms in preventing STIs/HIV. 3, I don't teach about the role of condoms in the prevention of STIs/HIV.	Delivery; tone
27	Which one of the following best describes the way you taught about birth control in your sex ed or family life instruction to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? Check only one. 1, I emphasize that birth control can be an **effective** means of preventing pregnancy for sexually active individuals. 2, I emphasize the **ineffectiveness** of birth control in preventing pregnancy. 3, I don't teach about birth control in preventing pregnancy.	Delivery; tone
28	Which one of these statements best describes what you mainly taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders…that… 1, Abortion is immoral or wrong 2, Abortion is a personal matter 3, Topic discussed, but no message about abortion 4, Topic not discussed at all in sex ed 5, Other: Specify _____ 88, Don't know	Delivery; tone

29	Which one of these statements best describes what you mainly taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders…that… 1, Masturbation is immoral or wrong 2, Masturbation is a normal behavior 3, Topic discussed, but no message about masturbation 4, Topic not discussed at all in sex ed 5, Other: Specify _____ 88, Don't know	Delivery; tone
30	Which one of these statements best describes what you mainly taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders…that… 1, Homosexuality is immoral or wrong 2, Some people are homosexual and should not be discriminated against 3, Topic discussed, but no message about homosexuality 4, Topic not discussed at all in sex ed 5, Other: Specify _____ 88, Don't know	Delivery; tone
31	I have one last question about what you mainly taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders. Did you mainly teach that…? 1, Sex is something to avoid and fear, OR 2, Sex is a healthy and normal part of life 3, Topic discussed, but no message about sex 4, Topic not discussed at all in sex ed 5, Other: Specify _____ 88, Don't know 99, Skip question	Delivery; tone
32	Overall, do you think enough classroom time was spent in (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) grade to properly cover sex ed or family life, too much time, or too little time? 1, Enough time 2, Too much time 3, Too little time 88, Don't know	Perspective; delivery; time
33	*(Only to those who have received training in answer to question 7)* Do you feel you have received enough training to teach sex ed well? 1, Yes 0, No 88, Don't know	Perspective; delivery; training
34	*(To everyone regarless of answer to question 7)* Would you like to receive training to teach sex ed? 1, Yes 0, No 88, Don't know	Perspective; delivery; training

35	What kind of assistance, if any, do you need with regard to teaching about each of the following topics? Check all types of assistance needed for each topic. If you do not need assistance or do not cover a particular topic, please indicate this in the last two columns. I need assistance with: Factual information Teaching materials Teaching strategies No assistance needed Do not cover Topic 1, anatomy 2, puberty 3, healthy relationships 3, the basics of how babies are made, pregnancy and birth 4, birth control, that is methods of preventing pregnancy 5, HIV/AIDS 6, sexually transmitted diseases other than HIV/AIDS, such as herpes 7, adoption 8, implications of teen parenthood 9, media influence 10, sexual violence, including dating violence 11, how to deal with the emotional issues and consequences of being sexually active 12, waiting to have sex until are older or married, that is abstinence 13, how to deal with pressure to have sex 14, how to talk with a (girlfriend/boyfriend) or partner about birth control and sexually transmitted infections, that is STIs 15, how to talk with parents about sex and relationship issues 16, how to use condoms 17, how to use and where to get other birth control 18, how to get tested for HIV/AIDS and other sexually transmitted infections, that is STIs 19, abortion 20, homosexuality and sexual orientation, that is being gay, lesbian or bisexual 21, what to do if they or a friend has been raped or sexually assaulted 22, all topics	Perspective; delivery; Assistance
36	Which of these best describes what you think should be mainly taught to (INSERT GRADE MOST OFTEN TAUGHT FROM QUESTION 12) graders? 1, Young people should ONLY have sex when they are married 2, Young people should wait to have sex, but if they DON'T they should use birth control and practice safer sex 3, Topic should not be discussed at all in sex ed 4, Other: Specify _____	Perspective; tone

37	What kinds of policies or standards do you think would be critical for you in teaching sex ed or family life? Yes No 1. A sex ed or family life course requirement for state licensure of health teachers 2. A school board policy 3. A comprehensive sex education bill passed by the state legislature 4. Regularly updated, age-appropriate district-wide health education standards 5. Support from Tennessee Education Association (Tennessee's Teachers' Union) 6. Health requirements for high school graduation 7. Having no specific policy 8. Other _____	Perspective; context
38	Do you agree with the following statements? Statement 1, Agree 2, Disagree Students who receive sex ed or family life that stresses abstinence are less likely to have sexual intercourse than students who do not. Students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives. Students taught to be sexually abstinent, but to use contraception if they do have sex, are more likely to become sexually active than are those only taught about abstinence.	Influence; Personal beliefs
39	How important do you think sex ed or family life is in relation to other units you teach? 1, It is the most important unit I teach 2, It is more important than many other units 3, It is no more or less important than other units 4, It is less important than many other units 5, It is the least important unit I teach 6, I do not teach any other unit than sex ed or family life	Influence; Personal beliefs
1	Are you ……. 1, Female 0, Male	Characteristics of educator; Sex
2	Your age in years _____	Characteristics of educator; Age
3	How do you describe yourself? (Check all that apply) 1, White 2, Asian American or Pacific Islander 3, African American 4, American Indian 5, African 6, Hispanic 7, Other	Characteristics of educator; Race

4	What was the major emphasis of your professional preparation? (Mark one response.) 1, Health and physical education combined 2, Health education 3, Physical education 4, Other education degree 5, Kinesiology, exercise science, or exercise physiology 6, Home economics or family and consumer science 7, Biology or other science 8, Nursing 9, Counseling 10, Public health 11, Nutrition 12, Other	Characteristics of educator; Qualification

VITA

RUBY YADAV

Education:
DrPH Epidemiology, East Tennessee State University, Johnson City, Tennessee 2018
MPH Epidemiology, EHESP French School of Public Health, France 2012
BSc. Nursing, B.P. Koirala Institute of Health Sciences, Nepal 2009

Experience:
Research Assistant/Data Collection Coordinator, Biostatistics and Epidemiology Department, East Tennessee State University, 2017 – present
Intern, Tennessee Adolescent Pregnancy Prevention Program, Tennessee Department of Health, Jun – Dec 2016
Graduate Assistant, Biostatistics and Epidemiology Department, East Tennessee State University, Aug 2014 – May 2017
Qualitative Research Assistant, Indian Institute of Public Health-Delhi, India, Oct 2013 – Apr 2014
Project Manager, MAMTA Health Institute for Mother and Child, India, Oct 2012 – Oct 2013
Nursing Instructor, Tribhuvan University, Nepal, Sep 2009 – Jul 2010

Publications:

Publications

Yadav R, Baker K, Bailey B, Maisonet M. Trends in teen birth rates in Tennessee and implications for school-based sex education (1990-2015). (in progress)

Liu Y, Yu Y, Wang K, Boles CD, November-Rider D, **Yadav R**, Collins C. 2016. Frequency of not-home prepared meals and diet quality are associated with depression and metabolic syndrome among US adults. **Diabetes Obes Int J. 1(7):000139.**

Oral Presentations

Yadav R, Rotimi O, Dubasi HB, Maisonet M. Preferences in Timing of Sex Education Instruction among Tennessee Sex Education Providers and ETSU College Students. Appalachian Student Research Forum, Johnson City, Tennessee, USA, Apr. 4-5, 2018.

Rotimi O, Dubasi HB, **Yadav R,** Maisonet M. Factors that affect Early Sexual Initiation in a Sample of College Students in North-East Tennessee: The Role of Adverse Childhood Experiences, Economic Hardship, Family Structure and Religiosity. Appalachian Student Research Forum,

Johnson City, Tennessee, USA, Apr. 4-5, 2018.

Yadav R, Xuefeng L, Maisonet M. Trends in prevalence of diabetes and diabetes medication use among African Americans in the United States, NHANES 1999-2012. American Public Health Association Annual Conference, Chicago, USA, Oct. 30-Nov. 4, 2015.

Yadav R, Leinaar E, Maisonet M. An ecological analysis of low birth weight in Appalachian counties of Tennessee by economic level. East Tennessee State University Appalachian Student Research Forum, Johnson City, Tennessee, USA, Apr. 8-9, 2015.

Poster Presentations

Rotimi O.R., **Yadav R**, Dubasi H.B., Wood D.L., Maisonet M. Role of sex education in the association between social disadvantage and risky sexual behavior among college students. Southeast Pediatric Environmental Health Specialty Unit 13th Annual Break the Cycle Conference, Atlanta, Georgia, USA, Apr. 23-24, 2018. (Abstract accepted)

Yadav R, Wang L, Warren K.J., Zheng S, Baker K, Maisonet M. Formal Sex Education and Age at First Intercourse, National Survey of Family Growth, 2006-2010. Tennessee Public Health Association Annual Conference, Franklin, Tennessee, USA, Sep. 14-16, 2016.

Ariyo T, Baker K, **Yadav R**. Correlates of HPV Vaccine Acceptance among College Women in East Tennessee. Tennessee Public Health Association Annual Conference, Franklin, Tennessee, USA, Sep. 14-16, 2016.

Yadav R, Baker K, Bailey B, Maisonet M. Sex-education Policy and Teen Pregnancy in Tennessee. Association of Maternal and Child Health Programs Annual Conference, Washington, DC, USA, Apr. 6-9, 2016.

Awards:

Second position, Oral Presentation Appalachian Student Research Forum, 2018

Outstanding DrPH-Epidemiology Student Award – ETSU's Department of Biostatistics and Epidemiology, 2018

Chair's Award for Scholarship – ETSU's Department of Biostatistics and Epidemiology, 2018

Dissertation awards – ETSU's School of Graduate Studies, ETSU's College of Public Health, ETSU's Office of the Vice President for Health Affairs, 2017, 2018

Adolescent and Young Adults Health Fellow, Maternal and Child Health Section – American Public Health Association, 2015 – 2016