2011

High school health education teachers' attitudes and perceptions related to teaching HIV prevention

Scott William Herr
The University of Toledo

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A Dissertation

entitled

High School Health Education Teachers’ Attitudes and Perceptions Related to Teaching HIV Prevention.

by

Scott William Herr

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Health Education

Advisor: Susan K. Telljohann, HSD, CHES

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College of Graduate Studies

The University of Toledo
December 2011
An Abstract of

High School Health Education Teachers’ Attitudes and Perceptions Related to Teaching HIV Prevention

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The purpose of this study was to identify the factors that significantly influence the attitudes and perceptions of high school health education teachers relative to HIV prevention instruction. Despite a steady decrease in the number of diagnosed cases each year, HIV/AIDS continues to rank as one of the leading causes of illness and death in the United States. Individuals between the ages of 13 and 19 years are particularly vulnerable for HIV transmission, as evidenced by the steady increase in the number of reported infections in this age group over the past decade. Underlying this trend is a growing lack of awareness, a decreasing perception of vulnerability and a general lack of accurate knowledge regarding HIV/AIDS among adolescents and young adults in the United States. The CDC, along with a number of researchers in sexuality education, recommends that education about HIV prevention is most appropriate and effective when executed within the context of a comprehensive school health education program that establishes a foundation for understanding the relationships between personal behavior and health. While the CDC’s 2006 School Health Policies and Practices study indicates that 31 states require instruction in HIV prevention, research indicates that there is great
variability between states and individual districts in the provision of the requirements for the certification, licensure, and training in sexuality education of the teachers providing that instruction.

The population of interest in this study was high school health education teachers in public school systems in the United States. A systematic random sample of 800 high school health education teachers representing states with mandates requiring instruction in HIV prevention and states with no such requirements was selected from a list of public high schools derived from the Common Core of Data (CCD) of the United States Department of Education’s National Center for Educational Statistics database. An a priori power analysis, for external validity of the results, suggested a sample size of 374 completed surveys based on a 5% sampling error and 50/50 split in responses for a population of 11,250 schools. Sample size was determined based on alpha at .05, the effect size at .20 and 90% power. Based on response rates of studies with similar populations, a total of 800 surveys were sent to lead health education teachers in the selected high schools. Seventy-nine surveys were undeliverable, leaving a potential sample size of 721. A total of 362 high school health education teachers (50%) responded.

While there is almost complete agreement (99%) among respondents in this study that HIV prevention instruction is needed, the results of this study indicate that there is significant variance in outcome expectations, efficacy expectations, perceived barriers and benefits, and attitudes of high school health education teachers about teaching HIV prevention. The factors in this study that emerged as most significantly influencing the attitudes and perceptions of high school health education teachers about teaching HIV
prevention were related primarily to teacher preparation and training and the number of years of experience teachers had teaching health education. The presence of a state mandate requiring HIV prevention instruction was significantly associated with higher efficacy expectations and more perceived benefits by high school health education teachers, but did not appear to have significant influence in relation to practices in the classroom. Characteristics of high school health education teachers that were significantly related to attitudes, perceptions and instructional practices included the age, gender and race/ethnicity of the instructor. The findings of this study are consistent with and affirm findings from previous studies that have emphasized the significance of teacher preparation and training relative to teachers’ perceptions, attitudes, perceived benefits and barriers, and efficacy and outcome expectations, which ultimately influence student outcomes. Findings from this study also indicate the need to further investigate certain teacher characteristics, such as race/ethnicity, age, experience level, and gender to determine the extent that those variables may influence curricular content and instruction.
This research was inspired by and is dedicated to my many friends and colleagues who committed countless hours to supporting the missions of David’s House Compassion, Inc. and the AIDS Resource Center of Ohio through their work and volunteer efforts to promote awareness and education about HIV prevention. Your tireless devotion serves as a reminder that this is No One’s Victory Alone.
ACKNOWLEDGEMENTS

While it is impossible to express my gratitude to everyone who has supported me throughout the course of my doctoral studies, I do wish to acknowledge the following individuals, whose support made the completion of my studies possible:

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To my committee members; Dr. James Price, Dr. Joseph Dake, and Dr. Gregory Stone, I consider it a privilege to have studied under all of you and am grateful for your time, dedication and assistance with this research.

Drs. Celeste Mulry Baldwin and Martu Fleishman, thank you both for sharing your experiences and advice with me throughout the course of my studies. You have both been instrumental in helping me finally get to this point and I appreciate all of the support you have provided.

Dr. Candace “Candi” Hendershot, your moral support and camaraderie throughout this process are much appreciated – especially during those long days of back-to-back classes! Thank you for your support and for partnering with me on so many of our assignments.

Wyatt, your friendship and encouragement during the final stages of this work will always be appreciated. Your optimism is inspiring and I hope that my achievement of this milestone inspires you.
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CHAPTER ONE

INTRODUCTION

This chapter will provide an overview of the prevalence of human immunodeficiency virus (HIV) infection and associated risk behaviors among adolescents in the United States. The chapter consists of the Statement of Problem, Significance of the Problem, Research Questions and Hypotheses, Definitions of Terms, Delimitations of the Study, and Limitations of the Study.

Statement of the Problem:

In June, 1981, the Centers for Disease Control and Prevention (CDC) reported the first cases of what would eventually be known as Acquired Immune Deficiency Syndrome (AIDS) in the United States (Centers for Disease Control and Prevention, 2006c; Council of Chief State School Officers, 2005b). AIDS occurs as the final stage of infection by the human immunodeficiency virus (HIV), which weakens the immune system by targeting and destroying white blood cells. To date, while improvements in treatment have significantly increased the life expectancy and improved the quality of life of infected individuals, there is no known cure for AIDS, nor is there a vaccine available to prevent the transmission of HIV. In the nearly thirty years since the CDC’s initial report, AIDS has reached epidemic proportions, with over half a million deaths attributed to it and an estimated one million individuals currently living with the disease in the United States. At an estimated lifetime cost of over $155,000 per infected person, the marked increase in the number of persons living with AIDS presents an enormous
challenge for an already strained healthcare system (United States Department of Health and Human Services, 2000; Centers for Disease Control and Prevention, 2006c).

Behaviors, such as sexual practices and the use of intravenous drugs, along with biomedical status, such as having other sexually transmitted infections (STIs), have been identified as the major determinants of HIV transmission (Centers for Disease Control and Prevention, 2006a). Unprotected sexual contact, either homosexual or heterosexual, and sharing drug-injection equipment with an HIV-infected individual account for the majority of HIV transmissions in the United States. Significantly complicating the challenges in preventing the spread of HIV in the United States has been the drastic shift in demographic characteristics of those individuals at greatest risk for becoming infected since the identification of the virus. What was once largely accepted as a disease that primarily affected white men who have sex with men (MSM), it currently shows no discrimination with respect to sexual orientation, ethnicity, age or gender as it has spread (Council of Chief State School Officers, 2005a).

Despite more recent successes in steadily decreasing the total number of diagnosed cases each year (Table 1), challenges still persist, as HIV/AIDS remains one of the leading causes of illness and death in the United States (Centers for Disease Control and Prevention, 2006c). Individuals between the ages of 13 and 29 years old are particularly vulnerable for HIV transmission. While the number of diagnosed cases per year in this age group has steadily declined since 1981, the decrease in this age group has consistently been the smallest compared to other age groups and more recent data from
Table 1
Estimated Number of HIV/AIDS* Cases and AIDS Cases, by Year of Diagnosis in the U.S., 1981-2008

<table>
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<tbody>
<tr>
<td>&lt;13</td>
<td>7,668</td>
<td>1,426</td>
<td>341</td>
<td>756</td>
</tr>
<tr>
<td>13-19</td>
<td>2,748</td>
<td>1,659</td>
<td>1,480</td>
<td>6,443</td>
</tr>
<tr>
<td>20-29</td>
<td>98,990</td>
<td>30,161</td>
<td>19,632</td>
<td>39,456</td>
</tr>
<tr>
<td>30-44</td>
<td>336,967</td>
<td>137,963</td>
<td>90,581</td>
<td>67,109</td>
</tr>
<tr>
<td>45-59</td>
<td>89,530</td>
<td>49,658</td>
<td>44,862</td>
<td>37,755</td>
</tr>
<tr>
<td>60+</td>
<td>15,612</td>
<td>7,996</td>
<td>6,921</td>
<td>6,051</td>
</tr>
</tbody>
</table>

Sources:


* The term “HIV/AIDS” – previously used to refer to a new diagnosis of HIV infection regardless of disease stage at the time of diagnosis – was replaced with the term “diagnosis of HIV infection” and thus, the “HIV/AIDS Surveillance Report” is now published as the “HIV Surveillance Report.”

**Data include persons with a diagnosis of HIV infection, which includes persons with a diagnosis of HIV infection only, a diagnosis of HIV infection and a later AIDS diagnosis, and concurrent diagnoses of HIV infection and AIDS. Since 2000, thirty-five states and territories have had laws or regulations requiring confidential name-based HIV infection reporting. Since 1997, Florida has had confidential name-based HIV infection reporting only for new diagnoses. As of April 2008, all states had implemented confidential name-based HIV infection reporting. Only 37 states have been reporting HIV infection data to CDC long enough (defined as being submitted to CDC by at least January 2005) to apply statistical adjustments to the data and be included in CDC’s estimates for surveillance reporting.
2005-2008 indicates a significant increase in diagnoses (Caron, Godin, Otis, and Lambert, 2004 and Centers for Disease Control and Prevention, 2010a). Data collected through the Youth Risk Behavior Survey (YRBS) from 1991 to 2009 indicate that while there were decreases in the number of young persons reporting engagement in high risk sexual behaviors during those years, there was no change reported from 2003-2009 (Table 2) (Centers for Disease Control and Prevention, 2006b; Centers for Disease Control and Prevention, 2006d; Centers for Disease Control and Prevention, 2010b).

Moreover, a steady rate in the reported use of drugs and/or alcohol prior to sexual intercourse, which is known to increase the risk of HIV transmission, has been indicated since 1991. Also noted was a steady decrease in the number of students reporting that they had been taught about HIV/AIDS in school since 1997, indicating a possible relationship between the reported decline in instruction specifically related to HIV/AIDS in the school setting, the leveling off and increase of certain risk behaviors, and the proportionately smaller decline and recent increase in diagnosed cases of HIV/AIDS in this age group, when compared to other age groups (Centers for Disease Control and Prevention, 2006b and Centers for Disease Control and Prevention, 2010b).

It should be noted that the YRBS does not collect data on alternative sexual practices, such as oral sex and anal sexual practices. Two recent reviews on these practices by adolescents found that between 39% and 61% of adolescents reported having engaged in oral sex. In addition, adolescents are now more likely to report engaging in oral sex than coitus. Few of these adolescents have been found to use barrier protection when engaging in oral sex. Additionally, between 3% and 41% of girls and between 7% and 20% of boys have reported they have engaged in anal intercourse, but only a minority
Table 2


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<td></td>
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<td></td>
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</tr>
<tr>
<td>Ever had sexual intercourse</td>
<td>54.1</td>
<td>53.0</td>
<td>53.1</td>
<td>48.4</td>
<td>49.9</td>
<td>45.6</td>
<td>46.7</td>
<td>46.8</td>
<td>47.8</td>
<td>46.0</td>
<td>Decrease</td>
</tr>
<tr>
<td>Had sexual intercourse with &gt; 4 persons during their life</td>
<td>18.7</td>
<td>18.7</td>
<td>17.8</td>
<td>16.0</td>
<td>16.2</td>
<td>14.2</td>
<td>14.4</td>
<td>14.3</td>
<td>14.9</td>
<td>13.8</td>
<td>Decrease</td>
</tr>
<tr>
<td>Were currently sexually active (had sex with at least 1 person in the 3 months prior to the survey)</td>
<td>37.5</td>
<td>37.5</td>
<td>37.9</td>
<td>34.8</td>
<td>36.3</td>
<td>33.4</td>
<td>34.3</td>
<td>33.9</td>
<td>35.0</td>
<td>34.2</td>
<td>Decrease</td>
</tr>
<tr>
<td>Condom use during last sexual intercourse</td>
<td>46.2</td>
<td>52.8</td>
<td>54.4</td>
<td>56.8</td>
<td>58.0</td>
<td>57.9</td>
<td>63.0</td>
<td>62.8</td>
<td>61.5</td>
<td>61.1</td>
<td>Increase, 1991 – 2005</td>
</tr>
<tr>
<td>Alcohol or drug use before last sexual intercourse</td>
<td>21.6</td>
<td>21.3</td>
<td>24.8</td>
<td>24.7</td>
<td>24.8</td>
<td>25.6</td>
<td>25.4</td>
<td>23.3</td>
<td>22.5</td>
<td>21.6</td>
<td>Increase, 1991-2001</td>
</tr>
<tr>
<td>Ever taught in school about AIDS or HIV infection</td>
<td>83.3</td>
<td>86.1</td>
<td>86.3</td>
<td>91.5</td>
<td>90.6</td>
<td>89.0</td>
<td>87.9</td>
<td>87.9</td>
<td>89.5</td>
<td>87.0</td>
<td>Increase, 1991-1997</td>
</tr>
</tbody>
</table>

Source:

reported using condoms. These are common HIV risk behaviors seldom discussed in school health education programs (Dake, Price, McKinney, and Ward, 2011 and Dake, Price, Ward, and Welch, 2011).

**Significance of the Problem:**

Despite modest and steady decreases in sexual risk-taking behavior trends for over a decade between 1991 and 2003, adolescents continue to place themselves at risk for HIV transmission because of their behaviors (United States Department of Health and Human Services, 2000; Centers for Disease Control and Prevention, 2008). Data from the Youth Risk Behavior Surveys have consistently indicated that half of high school-aged youth are sexually active and that less than two-thirds of those youth report using a condom at last intercourse. Further, at least half of high school students report drinking alcohol in the 30 days prior to the survey and about one-quarter report using marijuana. This is of particular concern as both chronic and casual substance users are more likely to engage in high-risk sexual behaviors when they are under the influence of drugs or alcohol (Caron, Godin, Otis, and Lambert, 2004; Council of Chief State School Officers, 2005b and Centers for Disease Control and Prevention, 2010b). During roughly the same period of time that improvements in risk behaviors were observed, the number of people aged 13-29 years diagnosed with HIV/AIDS declined steadily.

Despite notable progress in both risk reduction and diagnoses, sobering data from the three most recent YRBS surveys and recent CDC HIV Surveillance Reports indicate that no real progress has been made in reducing the rate at which youth engage in high risk sexual behaviors since 2003 and that there has been a significant rise in the number of new HIV/AIDS diagnoses in individuals aged 13-29 years (Centers for Disease
Control and Prevention, 2006a and Centers for Disease Control and Prevention, 2010b). Even more alarming and, perhaps an indicator of the underlying problem, is that only 87% of high school students reported having learned about HIV or AIDS in school in the 2009 survey, representing the lowest percentage since 1997.

Coinciding with the aforementioned trends is a growing lack of awareness, perception of vulnerability and a general lack of knowledge about HIV/AIDS among adolescents in the U.S. A study of 15-17 year-old students by the Kaiser Family Foundation revealed that less than one-third of sexually active respondents had ever been tested for HIV, indicating as their primary reason that they did not believe that they had done anything to put themselves at risk for contracting HIV. In the same study, one in five students were not sure or believed that there was a cure for AIDS. Consistent with those findings and indicating a distinct deficit in educational programs related to HIV prevention is a growing body of research that suggests that a large proportion of sexually active young people are not concerned about becoming infected with HIV (Kaiser Family Foundation, 2000).

Because HIV is transmitted in this age group almost exclusively through behaviors that can be modified, programmatic responses that teach about the prevention of high-risk behaviors are essential in controlling its spread (Centers for Disease Control and Prevention, 1988; Council of Chief State School Officers, 2005a). In the United States, an estimated 54 million young people attend school for about 6 hours per day, approximately 180 days of the year (Grunbaum, Di Pietra, McManus, Hawkins, and Kann, 2005). With consistent reports of high rates of sexual activity and substance abuse among high school students and no significant decline in the incidence rates of
HIV/AIDS in adolescents and young adults, schools are in a unique position to play a
critical role in improving the health status of adolescents and young adults by
implementing comprehensive programs aimed at reducing risk behaviors associated with
HIV transmission (Centers for Disease Control and Prevention, 1998; Council of Chief
its *Guidelines for Effective School Health Education to Prevent the Spread of AIDS* that
“the nation’s public and private schools have the capacity and responsibility to help
assure that young people understand the nature of the AIDS epidemic and the specific
actions they can take to prevent HIV infection.” (Centers for Disease Control and
Prevention, 1988, p. 2).

In its guidelines, it was proposed that education about AIDS would be most
“appropriate and effective when carried within a more comprehensive school health
education program that establishes a foundation for understanding the relationships
between personal behavior and health” (Centers for Disease Control and Prevention,
1988, p. 3). The CDC asserted in these early guidelines for health education that
“education about AIDS may be more effective when students at appropriate ages are
more knowledgeable about sexually transmitted diseases, and drug abuse,” and “may also
have greater impact when [students] have opportunities to develop such qualities as
decision-making and communication skills, resistance to persuasion, and a sense of self-
efficacy and self-esteem” (Centers for Disease Control and Prevention, 1988, p. 3).
Consistent with those recommendations, the U.S. Department of Health and Human
Services proposed in its Healthy People 2020 objectives that the proportion of
elementary, middle, and senior high schools that provide comprehensive instruction to
prevent HIV infection as part of health education curricula be increased from the 2006 baseline of 39.3 percent to a target of 43.2 percent by 2020 (Sunwoo, et al., 1995; United States Department of Health and Human Services, 2010; p 67).

While research indicates that the majority of Americans do favor some form of sexuality education in public schools, disagreement as to how that information is incorporated into health education curricula and presented along with inconsistencies in program implementation persist. Controversy as to whether or not information related to preventing HIV infection should be included in health education curricula or how it should be presented may account for steady decreases in recent years in the median percentage of schools that incorporate HIV prevention information in their curricula (Centers for Disease Control and Prevention, 1996; Centers for Disease Control and Prevention, 1998; Centers for Disease Control and Prevention, 2000; Storch, et al., 2003; Whalen, et al., 2004; Grunbaum, Di Pietra, McManus, Hawkins, and Kann, 2005). Other impediments to integrating comprehensive instruction in HIV prevention into health education curricula, as cited by the National School Boards Association, include a lack of teacher preparation, the need to formulate effective programs, the need to gain community support and a lack of financial resources for the development and implementation of appropriate curricula (Sunwoo, et al., 1995).

**Purpose of the Study**

The purpose of this study was to examine the attitudes, perceptions and instructional practices of high school (grades 9-12) level health instructors toward providing instruction about HIV prevention in the classroom.
Research Questions and Hypotheses

Research Question #1
What are the differences in total hours spent teaching about HIV prevention by high school health education teachers?

Hypothesis 1.1 There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction in relation to their total hours spent teaching about HIV prevention.

Hypothesis 1.2 There is no statistically significant difference by high school health education teachers’ level of education in relation to their total hours spent teaching about HIV prevention.

Hypothesis 1.3 There is no statistically significant difference by high school health education teachers’ degree major in relation to their total hours spent teaching about HIV prevention.

Hypothesis 1.4 There is no statistically significant difference between high school health education teachers’ number of years teaching health education in relation to their total hours spent teaching about HIV prevention.

Hypothesis 1.5 There is no statistically significant difference in the hours spent teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 1.6 There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers in relation to their total hours spent teaching about HIV prevention.
**Hypothesis 1.7** There is no statistically significant difference with respect to the gender of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.8** There is no statistically significant difference with respect to the age of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.9** There is no statistically significant difference by location of the school in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.10** All of the listed independent demographic/background variables will predict a significant amount of variance in the amount of time spent teaching about HIV prevention by high school health teachers.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #2**

What are the differences in perceptions of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention?
**Hypothesis 2.1** There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.2** There is no statistically significant difference by high school health education teachers’ level of education with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.3** There is no statistically significant difference by high school health education teachers’ degree major with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.5** There is no statistically significant difference in outcome expectations related to teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 2.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.7** There is no statistically significant difference with respect to the gender of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.
**Hypothesis 2.8** There is no statistically significant difference with respect to the age of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.9** There is no statistically significant difference by location of the school with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ outcome expectations related to teaching about HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #3**

What are the differences related to the barriers perceived by high school health education teachers regarding HIV prevention instruction?

**Hypothesis 3.1** There is no statistically significant difference in perceived barriers to teaching HIV prevention education between high school health education teachers in
states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.

**Hypothesis 3.2** There is no statistically significant difference by high school health education teachers’ level of education regarding perceived barriers to teaching HIV prevention.

**Hypothesis 3.3** There is no statistically significant difference by high school health education teachers’ degree major regarding perceived barriers to providing teaching HIV prevention.

**Hypothesis 3.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived barriers to teaching HIV prevention.

**Hypothesis 3.5** There is no statistically significant difference in perceived barriers to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 3.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

**Hypothesis 3.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

**Hypothesis 3.8** There is no statistically significant difference with respect to the age of high school health education teachers regarding their perceived barriers to teaching HIV prevention.
**Hypothesis 3.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ perceived barriers to teaching HIV prevention.

**Hypothesis 3.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding barriers to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #4**

What factors affect differences in perceived benefits regarding HIV prevention education?

**Hypothesis 4.1** There is no statistically significant difference in perceived benefits to teaching HIV prevention between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.
**Hypothesis 4.2** There is no statistically significant difference by high school health education teachers’ level of education regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.3** There is no statistically significant difference by high school health education teachers’ degree major regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.5** There is no statistically significant difference in perceived benefits to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 4.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.8** There is no statistically significant difference with respect to the age of high school health education teachers regarding their perceived benefits of teaching HIV prevention.
**Hypothesis 4.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ perceived benefits of teaching HIV prevention.

**Hypothesis 4.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding the benefits of teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #5**

What factors affect differences in perceived efficacy expectations regarding teaching HIV prevention?

**Hypothesis 5.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and efficacy expectations of high school health education teachers related to teaching HIV prevention.
Hypothesis 5.2  There is no statistically significant difference in efficacy expectations about teaching HIV prevention in relation to high school health education teachers’ level of education.

Hypothesis 5.3  There is no statistically significant difference by high school health education teachers’ degree major regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.4  There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.5  There is no statistically significant difference in efficacy expectations related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 5.6  There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.7  There is no statistically significant difference with respect to the gender of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.8  There is no statistically significant difference with respect to the age of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.
**Hypothesis 5.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ efficacy expectations related to teaching HIV prevention.

**Hypothesis 5.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their efficacy expectations related to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #6**

What are the differences in attitudes regarding HIV prevention education?

**Hypothesis 6.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and the attitudes of high school health education teachers related to teaching HIV prevention.

**Hypothesis 6.2** There is no statistically significant difference by high school health education teachers’ level of education regarding their attitudes related to teaching HIV prevention.
**Hypothesis 6.3** There is no statistically significant difference by high school health education teachers’ degree major regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.5** There is no statistically significant difference in teacher attitudes related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 6.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.8** There is no statistically significant difference in attitudes related to teaching HIV prevention with respect to the age of high school health education teachers.

**Hypothesis 6.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ attitudes related to teaching HIV prevention.

**Hypothesis 6.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their attitudes related to teaching HIV prevention.
• race/ethnicity
• sex of the teacher
• age of the teacher
• level of education of the teacher
• degree major of the teacher
• training in HIV prevention
• years teaching health education
• location of the school
• having a state-mandated requirement to teach HIV prevention

**Research Question #7**

What are the differences in characteristics between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention?

**Hypothesis 7.1** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to state mandates requiring instruction in HIV prevention.

**Hypothesis 7.2** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ level of education.

**Hypothesis 7.3** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education
teachers who do not currently teach HIV prevention with respect to the teachers’ degree major.

**Hypothesis 7.4** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to number of years teaching health education.

**Hypothesis 7.5** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to whether or not they were trained to teach HIV prevention.

**Hypothesis 7.6** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the race/ethnicity of the teacher.

**Hypothesis 7.7** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to gender of the teacher.

**Hypothesis 7.8** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ age.

**Hypothesis 7.9** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education
teachers who do not currently teach HIV prevention with respect to the location of the school.

**Definition of Terms**

**Abstinence-only sexuality education programs** – This type of sexuality education program emphasizes abstinence from all sexual activity as the only appropriate option for unmarried people. Abstinence-only sexuality education programs generally do not provide information on contraception for the prevention of sexually transmitted diseases and unintended pregnancies (Collins, Alagiri, Summers, and Morin, 2002; Kirby, 2001).

**Acquired immunodeficiency syndrome (AIDS)** – AIDS is the final stage of HIV infection. It may take several years for a person infected with HIV, even without treatment, to reach this stage, which is characterized by a substantially reduced T cell (or CD4 cell) count and thus, a weakened immune system (CDC, 2011a).

**Comprehensive sexuality education programs** – Also referred to as “abstinence-plus,” these sexuality education programs generally emphasize the benefits of abstaining from sexual activity while also providing instruction in safer sex practices, including condom use. Comprehensive sexuality education programs generally cover six key concepts including 1) human development, 2) relationships, 3) personal skills, 4) sexual behavior, 5) sexual health, and 6) society and culture (Collins, Alagiri, Summers, and Morin, 2002).

**Efficacy expectations** – within the context of self-efficacy theory, this construct represents an individual’s perceived ability to effect outcomes (Bandura, 1997).

**Human immunodeficiency virus (HIV)** – HIV is the virus that causes acquired immunodeficiency syndrome (AIDS). HIV differs from most other viruses because it
attacks the immune system, specifically targeting a type of white blood cell known as “T cells” or “CD4 cells,” compromising an infected individual’s ability to fight infection.

HIV is typically found in the blood, semen, or vaginal fluid of an infected person and is transmitted primarily by three avenues, including: sexual contact (anal, vaginal, or oral), sharing intravenous needles or syringes, or mother to infant through exposure to HIV before or during birth or through breast feeding (CDC, 2011a).

**High School Health Education Teacher** – An educator responsible for providing instruction in health education to students in grades 9 – 12.

**Perceived barriers** – within the context of the Health Belief Model, this term refers to the tangible or psychological costs or impediments that might prevent an individual from taking certain recommended actions (Bandura, 1997).

**Perceived benefits** – within the context of the Health Belief Model, this term refers to an individual’s belief in the likelihood that a specific action will reduce their risk or the impact of a disease threat (Bandura, 1997).

**Self-efficacy** – within the context of social cognitive theory, this construct represents the conviction that one can successfully execute a specific behavior needed to produce certain outcomes (Bandura, 1997).

**Outcome expectations** – within the context of self-efficacy, this construct represents an individual’s perception that a specific action will yield certain results (Bandura, 1997).

**Delimitations of the Study**

1. The study was delimited to health education teachers in selected high schools (grades 9-12) classified by the National Center of Educational Statistics
(NCES) as regular schools, as opposed to special education, vocational, or alternative schools.

2. The study was delimited to high school health education teachers in states within the United States and did not include those teaching in schools in outlying U.S. territories.

**Limitations of the Study**

1. Response bias on the part of some respondents or on selected questions resulting from the monothematic nature of the survey instrument could threaten internal validity of the findings.

2. A limited return rate may cause a non-response bias affecting the external validity of the results. Thus, the results may not be generalizable to all secondary health teachers in the United States.

3. The mailed survey was self-administered, therefore it is possible that some respondents may have answered the survey or parts of the survey in a socially desirable manner. If so, the internal validity of the results may be threatened.

4. The survey was a closed-format instrument, which did not elicit any additional information from the secondary health teachers than what was specifically addressed. Thus, those responding to the survey may have different perceptions regarding HIV prevention education compared to those who were not assessed by the survey. If so, the closed format instrument could possibly present a threat to the internal validity of the results.
5. The return rate was 50%. It is possible that non-respondents would have responded differently than respondents. If so, this could represent a threat to the external validity of the results.
CHAPTER TWO

REVIEW OF THE LITERATURE

The review of the literature in this chapter covers several areas including: Risk Perception for HIV Infection Among Adolescents and Young Adults in the United States, HIV/AIDS and Sexuality Education Programs in the United States, Policy and Public Perception Related to Sexuality Education, the Effects of Policy on HIV/AIDS Education in the United States, Instructor Training in Successful Sexuality Education Programs, a summary of the Health Belief Model, Self-efficacy, and a Summary.

**Risk Perception for HIV Infection Among Adolescents and Young Adults in the United States**

With the HIV/AIDS epidemic in its third decade in the United States, the population that has emerged and persisted to have the greatest risk for infection includes adolescents and young adults, ages 13 to 24 years old. While school-aged adolescents diagnosed with AIDS represent less than one-tenth of the total number of persons with AIDS under the age of 30 years, given the extended latency period of 9.8 years from infection to the onset of symptoms, it is likely that a substantial percentage of young adults in the United States living with AIDS were infected during their adolescence. This is partly reflected by current estimates that at least half of all new infections annually occur in people under the age of 25 years (Sunwoo, et al., 1995; Jones, 2003).

To address the issue of HIV transmission in adolescents, health professionals and educators have typically focused their efforts on the development and implementation of programs that encourage adolescents to postpone engaging in sexual intercourse or to use condoms if they are sexually active (Widdice, Cornell, Liang, and Halpern-Felsher,
Despite those efforts, however, recent reports estimate that approximately one in five adolescents has had sex by age 15, with almost one-third of sexually active ninth graders reporting not using a condom at last intercourse, and nearly one-fourth of all high-school aged adolescents reporting sexual activity with four or more partners (Widdice, Cornell, Liang, and Halpern-Felsher, 2006; Dawson, Chunis, Smith, and Carboni, 2001).

The adolescent’s decision-making processes related to both the engagement in sexual intercourse and the use of condoms is the result of the complex interaction of numerous psychosocial factors; including their sources of risk-related information, perception of vulnerability to HIV infection, perceived peer norms, parental support, personal attitudes and values, self-esteem, self-efficacy, attitudes toward condom use, media messages, involvement in pro-social activities, educational goals, and their engagement in other high-risk health behaviors, that are generally described as either “risk factors,” which increase chances of sexual risk-taking, or as “protective factors,” which reduce the chances of engaging in sexual risk behaviors (Ethier et al, 2006; Millstein and Moscicki, 1995; Dilorio, Dudley, Soet, and McCarty, 2004; Wu, 2005; Santelli, Kaiser, Hirsch, Radosh, Simkin, and Middlestadt, 2004; L’Engle, Brown, and Kenneavy, 2006; Aalsama, Fortenberry, Sayegh, and Orr, 2006; Widdice, Cornell, Liang, and Halpern-Felsher, 2006; Dawson, Chunis, Smith, and Carboni, 2001; Kirby, 2001). Understanding these risk factors, how they interact as antecedents for adolescent sexual risk behaviors and the concomitant risk for HIV infection is essential in the identification and implementation of effective sexuality education programs.
Adolescence is generally recognized as a period of developmental transition characterized by significant biological, psychological and social learning changes, and is often a time when youth are particularly impressionable and vulnerable to many environmental factors that may influence their health behaviors (Reininger, et al., 2003). Popular notions to explain the high-risk behaviors that adolescents engage in are largely attributed to 1) inadequate knowledge or lack of experience to appreciate the risks or consequences related to their actions, and 2) cognitive limitations that make it difficult for them to learn from the experiences of others. The latter view is often attributed to geocentricism, or the inability to assume the perspective of another, which is often considered to be the hallmark of adolescent cognitive processes (Whaley, 1999).

Because AIDS has long been associated with homosexuality and intravenous drug use, its prevalence has generally been low in high schools, and because infection is not visibly apparent, many adolescents fail to recognize themselves as vulnerable to infections by viewing risk as a product of group membership and not as an outcome of their own behavior (Brown, Outlaw, and Simpson, 2000; Brown, 1998). These misperceptions relative to risk may impact sexual decision-making processes in such a way that increased knowledge about HIV/AIDS does not translate into safer sex practices for adolescents (Jones and Abes, 2003; Dawson, Chunis, Smith, and Carboni, 2001). A recent study examining this issue by Hoppe and colleagues concluded that while adolescents may be knowledgeable about HIV/AIDS, they may engage in high-risk sexual behaviors if they do not perceive prevention information as being relevant to them. In that study, adolescents commonly cited personal appearance and personal attributes
along with trust as being key in determining their level of risk for infection from potential
sexual partners (Hoppe, et al., 2004).

In addition to not recognizing their own vulnerability to HIV infection, a number
of other factors may place adolescents at a higher risk for infection. Demographic
variables, such as gender and ethnicity, have been significantly associated with risk for
HIV transmission. According to the CDC, African-Americans accounted for 64% of all
new HIV infections among people aged 13-24 years in 2008. The number of new HIV
infections in males aged 13-24 years was almost three times higher than the number of
new cases reported for females in the same age groups in 2008. Young males who have
sex with males (MSM) are also at greater risk for HIV infection and face different
challenges to prevention than their heterosexual peers. Many young MSM do not openly
disclose their sexual orientation, are less likely to be tested for HIV, and are therefore,
less likely to be aware of their infection status. Young MSM who do not disclose their
sexual orientation are also more likely to have one or more female sex partners, thereby
increasing the risk for HIV transmission across both genders (CDC, 2010c).

Other characteristics, such as poverty status, school attendance and family
structure have been shown to be associated with the risk for HIV transmission as well.
The socioeconomic problems and stressors associated with living in poverty may directly
or indirectly be related to other factors or predict the likelihood to engage in other
behaviors that may increase an individual’s risk for infection. Poverty has been linked to
poor academic performance and higher student drop-out rates. Young people who have
dropped out of school are more likely to engage in sexual activity at a younger age and
are less likely to consistently practice safer sex methods. Adolescents from single parent
households, who may communicate less with a parent than peers from two-parent homes, and who may have less supervision, are also more likely to engage in higher-risk sexual behaviors (CDC, 2006a; Ethier, et al., 2006). Additional research, focusing on protective factors which examined these variables from another perspective, affirm the latter findings by demonstrating that engagement in pro-social activities, connectedness to school, educational goals, and parental communication and support may function as mitigating factors by reducing an adolescent’s likelihood of engaging in high-risk sexual behaviors (DiLorio, Dudley, Soet and McCarty, 2004; Kirby, 2001).

Adolescents in the United States report using alcohol and other drugs at high rates. Data from the YRBS have demonstrated consistently high levels of alcohol and drug use over the past decade, with almost one-fourth of sexually active adolescents reporting alcohol or drug use prior to sexual intercourse (CDC, 2006b; CDC, 2008; CDC, 2010b). The use of alcohol and other drugs has been positively associated with the initiation of sexual intercourse and a decreased likelihood to use condoms (Dawson, et al., 2001; CDC, 2006b). Analyses of programs that target multiple behavioral risk factors confirm that those adolescents who engage in high-risk unprotected sexual behaviors are significantly more likely to be involved in multiple problem behaviors when compared to adolescents who report consistent condom use or are abstinent, suggesting that engaging in sex without a condom is not an isolated problem, but may represent a more complex pattern of high-risk behaviors that further increases the risk of HIV infection (Wu, et al., 2005; Kirby, 2001).

Because adolescence is often a time of intense information seeking and sexual content in the media is pervasive and easily accessible, the media may serve as a “super
peer” of sorts and may influence the behaviors and risk perceptions of adolescents related to sexuality. The majority of sexual content in the media depicts risk-free recreational sexual behaviors, and rarely depicts negative consequences of said behaviors or the use of condoms, providing a compelling message to adolescent viewers. A recent study exploring media influence on sexuality found that, even after controlling for other significant sources of information, including family, religion, school, and peers, media content was significantly associated with sexual intention and behaviors in early adolescents. Adolescents exposed to more sexual content in the media and who perceived more support for adolescent sexual behavior from the media reported more sexual activity and greater intention to engage in sexual intercourse. Thus, information related to sexuality from media channels may diminish the positive impact of sexual health education programs and information received from parents and schools (L’Engle, Brown, and Kenneavy, 2006).

The multiple demographic and behavioral risk factors presented in this section, along with a growing body of research that suggests a lack of awareness and perceived invulnerability relative to HIV/AIDS among adolescents represents the complexity of the challenge to reduce this infection rate in the adolescent population in the United States. It also demonstrates a clear need for a comprehensive approach to HIV prevention that includes not only increasing knowledge, but developing communication and negotiation skills, fostering parental involvement, and evaluating media messages.

**HIV/AIDS and Sexuality Education Programs in the United States**

As young people today continue to be affected by the HIV/AIDS epidemic, it has become clear that programmatic responses are needed to contain and decrease the spread
of this disease. Through its *Healthy People 2020: National Health Promotion and Disease Prevention Objectives*, the United States Department of Health and Human Services proposes that at least 43.2% of elementary, middle and senior high schools provide comprehensive education to prevent HIV/AIDS infection as part of health education by the year 2020 (United States Department of Health and Human Services, 2010). In the United States, an estimated 54 million young people attend school for about six hours of class time approximately 180 days per year (Grunbaum, DiPietra, McManus, Hawkins, and Kann, 2005). Because HIV is transmitted almost exclusively by behaviors that individuals can modify and nearly half of all new reported HIV diagnoses occur in individuals under the age of 25 years, schools are in a unique position to significantly improve the health status of young people by providing sexuality and HIV prevention education programs before high-risk behaviors are established (Grunbaum, DiPietra, McManus, Hawkins, and Kann, 2005; CDC, 2006a; CDC, 1988).

School-based sexuality education has the potential to significantly reduce the rate of sexually transmitted infections, including HIV, and promote healthy sexuality. Nearly 90% of the students enrolled in U.S. public schools do receive some sexuality education at least once in middle or high school and at least 38 states require instruction in HIV prevention as part of the their health education curriculum content (Table 3). Yet local, state, and national education policies in the U.S. are made up of a bewildering patchwork of mandates, funding restrictions, omissions, and compromises that are often at odds with each other from one level to the next. As a result, numerous reviews of sexuality education curricula and school health programs in the United States confirm that the content of instruction varies widely, is often fragmented, incomplete and frequently based

In general, sexuality education curricula in the United States can be grouped into two broad categories; comprehensive sexuality education and abstinence-only education. The former emphasizes the benefits of abstinence while also teaching about contraception and disease-prevention methods, while abstinence-only programs teach abstinence from all sexual activity as the only appropriate option for unmarried people. Abstinence-only programs do not provide information on contraception for the prevention of sexually transmitted infections and unintended pregnancies (Collins, Alagiri, Summers, and Morin, 2002).

While critics of comprehensive sexuality education programs have long reasoned that the discussion of sexuality for purposes other than the promotion of abstinence is an enticement to engage in precocious sexual activity, little evidence exists to support that assertion. The few rigorously evaluated abstinence-only programs have failed to demonstrate effectiveness in delaying sexual initiation (Whaley, 1999 and Wilson, Goodson, Pruitt, Buhi, Davis-Gunnels, 2005). To the contrary, some recent studies suggest that adolescents who receive comprehensive sexuality education have a lower risk of pregnancy and are more likely to report decreased sexual activity or sexually transmitted infections than those who receive abstinence-only or no sexuality education. Further, sexuality education may effectively reduce sexual risk behaviors when provided before sexual initiation, which may be particularly important for preventing sexually transmitted infections, including HIV, among those adolescents most vulnerable (Mueller, Gavin and Kulkarni, 2008; Kohler, Manhart, and Lafferty, 2008). A
Table 3
States That Mandate HIV Prevention Education in Public Schools, 2010

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● Denotes states requiring HIV prevention education at the secondary level.

comprehensive literature review commissioned by the Office of Intervention Development and Support within the World Health Organization’s (WHO) Program on AIDS to assess the effects of HIV/AIDS and sexuality education on young people’s behaviors examined 52 reports evaluating such programs. Of the 47 studies in that review that met the criteria to evaluate the behavioral outcomes associated with interventions, 25 reported that the programs neither increased nor decreased sexual activity and participants’ rates of pregnancy and STIs; 17 programs delayed the onset of sexual initiation, reduced the number of sexual partners, or reduced unplanned pregnancy or STI rates, and only 3 programs demonstrated increases in sexual activity associated with sexuality education. Regardless of variations in evaluation methods, countries under investigation, and year of publication, the WHO report found very little support for the contention that sexuality education encourages or promotes sexual activity among adolescents. The impact of these programs, as demonstrated by this review, was primarily in the direction of postponed initiation of sexual activity and the increased use of safer sex practices. In a similar review of sexuality education programs in the U.S., Kirby reached three conclusions; that 1) there is little empirical evidence that demonstrates any influence on adolescent sexual behavior by abstinence-only education (AOE) programs, 2) sexuality and HIV prevention programs do not hasten the initiation of sexual activity, and in some cases, may even delay onset and increase contraceptive use, and 3) short-term curricula have little to no effect on adolescent sexuality. Overall, Kirby concluded that intensive, long-term curricula with clearly delineated, specific goals, provided by trained instructors, which focused on the development of social skills, such as sex resistance, negotiation, and communication with partners, tend to have the
largest positive impact on behavior (Kirby, 2001). Kirby’s extensive review of sexuality education programs gives support to the conclusion that providing information about contraception is not likely to increase adolescent sexual activity, and may even increase condom or other contraceptive use for adolescents who are sexually active (Kirby, 2001).

To help guide the development of effective HIV prevention education programs, the United States Centers for Disease Control and Prevention published its Guidelines for Effective School Health Education to Prevent the Spread of AIDS in 1988. According to those guidelines, school systems “should obtain broad community participation to ensure that school health education policies and programs to prevent the spread of AIDS are locally determined and consistent with community values; educational personnel should be properly prepared to teach HIV prevention; school systems should offer programs that enable and encourage young people not to engage in sexual intercourse; and school systems, in consultation with parents and health officials, should provide AIDS education programs that address preventive behaviors that should be practiced by persons with an increased risk of acquiring HIV, including the use of latex condoms” (CDC, 1988).

**Policy and Public Perceptions Related to Sexuality Education**

What is troublesome about the data from evaluations of sexuality education programs is the tendency for policy-makers in the United States to ignore this information and rely on other sources of data that are less-rigorously analyzed. For example, the prevalence of sexuality education courses in United States public schools has risen substantially over the past two decades. In 1979, an estimated 47% of all 17 year-olds had taken a course in sexuality education. Fifteen years later, in 1994, that number had risen to over 90%. During that same period of time, the pregnancy rate in
women, 15-17 years of age, rose from 32.3 per 1,000 to 37.2 per 1,000 (Sabia, 2006). Trends such as these have led many policymakers to speculate as to whether or not a causal relationship exists between sexuality education and promiscuous sexual behavior in adolescents. While it may be correct to question such trends from a policy perspective, Kirby has suggested that it is generally incorrect to interpret the relationship as casual without considering other factors. The correlation, Kirby postulates, is due primarily to schools with the most sexually at-risk adolescents choosing to offer intervention programs that were often short-term in duration thus having little, if any detectable positive influence on outcomes (Sabia, 2006; Kirby, 2001).

While sexuality education programs have long generated public controversy in the U.S., evidence from many studies indicates strong parental support for comprehensive programming. In a study that examined the attitudes of parents of junior high and high school students related to sexuality education in North Carolina public schools, parents of both groups of students expressed overwhelming support (91%) for sexuality education as part of the school health curricula (SIECUS, 2004). Among adults, 93% of the parents of junior high school students and 91% of parents of high school students believed it was very or somewhat important to have sexuality education as a part of school health instruction. Similarly, 100% of parents of junior high school students and 99% of parents of high school students believed that HIV/AIDS was an appropriate topic for sexuality education programs, and over three-quarters of the parents for both age groups endorsed having information on “how to protect yourself from HIV/AIDS and other [STIs],” including information related specifically to condom use, as appropriate topics (SIECUS, 2004, page 2). Nationwide studies have also indicated that the United States public
generally favors comprehensive sexuality education programs (82%) as opposed to
abstinence-only programs (36%) being taught in public schools, and support teaching the
proper use of condoms (68.5%) as part of that curriculum (Bleakley, Hennessey &
Fishbein, 2006). Other studies related to parental attitudes have collectively echoed these
sentiments with parents often favoring some form of programming that includes
contraceptive information, citing a common belief that it can “help young people make
responsible decisions about sexual behavior and health” (Price, Dake, Kirchofer &

Despite the mounting evidence from research that indicates strong parent and
public support for comprehensive sexuality education, abstinence-only programs received
growing support from the federal government and were increasingly adopted by public
schools across the United States for the greater portion of the past three decades (Ito, et
al., 2006). The political conservatism in the United States during the mid-1990’s,
coupled with widespread recognition of teen pregnancy as a major social problem,
fostered a climate in which abstinence-only education was considered a solution. The
Opportunity Reconciliation Act” (PRWORA) put forth several provisions, including
financial incentives to the states, to address teen pregnancy. In its language, PRWORA
made available $50 million in abstinence-only sex education grants and provided $20
million in bonus grants for each of the five states that demonstrated the most progress in
reducing their teen pregnancy rates without increasing abortion rates. The resulting
impact was drastic, federal funding for abstinence-only programs nearly tripled between
the years 1998 and 2005, resulting in increased censorship of traditional sexuality
education programs and major limitations in how HIV prevention topics could be taught (Arsneult, 2001; Santelli, 2006).

During that time, the federal government invested over $1.5 billion in funding abstinence-only sexuality education programs, despite a growing body of research that demonstrated a comprehensive approach to sexuality education was more effective. A nine-year systematic review of federally-funded abstinence-only programs, which examined four programs that were considered promising and followed over 2,000 adolescents for up to six years, concluded in 2007 that none of those programs had a statistically significant positive effect on the sexual behavior of participants (SIECUS 2010; Boonstra, 2009).

Two years after those conclusions were reached, the federal government began to divert funding away from abstinence-only programs and provide funding support for comprehensive programming. In 2009, there were three primary sources of federal support for abstinence-only programs; through the Adolescent Family Life Act (AFLA), Title V, and the Community-Based Abstinence Education (CBAE) program. In June of 2009, federal funding for Title V was allowed to expire, funding was created in 2009 for comprehensive programming through the President’s Teen Pregnancy Prevention Initiative (PTPTI) and the Personal Responsibility Education Program (PREP), and in December of 2010, under the Consolidated Appropriations Act of 2010, all discretionary funding for abstinence-only programs, including funds under CBAE and AFLA, was eliminated.
The Effects of Policy on HIV/AIDS Education in the United States

While mandates requiring HIV prevention education are in place in over three-fourths of the states, research examining school health education programs and their content demonstrates a sharp contrast between policy and practice in secondary schools. Comparing data for items that were the same or very similar from the 1996 to 2008 profiles reveals only minor changes in two content areas related to HIV prevention and significant improvement in the skills instruction, as indicated by data collected for the following items: abstinence as the most effective method to avoid pregnancy, HIV, and STDs (from 97.0% in 1996 to 78.0% in 2008); how HIV is transmitted (from 99.4% in 1996 to 94.8% in 2008); and how to correctly use a condom (from 48.3% in 1996 to 72.9% in 2008). The most notable deterioration relative to HIV prevention education in schools was the significant decrease in the number of lead health education teachers reporting participation in professional development specific to HIV prevention topics in the past two years (Balaji et al., 2008).

Because public education in the United States is generally a local responsibility, it should not be surprising that instruction in sexuality education in most schools does not adhere entirely to federal or state policies. Reviews of school sexuality education programs reveal that while such programs are generally defined as “comprehensive” or “abstinence-only,” in practice, many programs do not neatly fit into either category. In a nationwide survey of over 1,600 grade 7-12 sexuality educators, Landry and colleagues reported that 51% of respondents taught using a comprehensive model that emphasized abstinence, but included information about contraception and condoms, while 14% followed the federal definition of abstinence-only education, and one-third of the teachers
used teaching methods inconsistent with either classification (Landry, Darroch, Singh, and Higgins, 2003). Much of this variance can be explained by contextual factors, such as school size, school-level sexuality education policies, community temperament toward such instruction, staff or administrative support, and by instructor characteristics, such as training, efficacy expectations, outcome expectations, comfort levels with the topics, and fear of reprisal (Mathews, Boon, Flisher, and Schaalma, 2006; Landry, Darroch, Singh, and Higgins, 2003; Skripak, 1997; Donovan, 1998). With respect to content variables, findings suggest that teaching in schools with no school-level policy on sexuality education, anticipated negative reactions from the community, teaching in smaller schools, or teaching in schools with a low poverty rate, significantly correlate to a higher likelihood of teaching abstinence as the only option to prevent pregnancy or STDs, or to emphasize method ineffectiveness, if safer sex methods are presented (Mathews, Boon, Flisher and Schaalma, 2006; Landry, Darroch, Singh, & Higgins, 2003). While little research has examined what effect characteristics of sexuality education instructors has in relation to course content presented, there is evidence that a teacher’s attitude toward adolescent sexuality, level of confidence teaching about sexuality topics and perceived community support can impact their teaching methods. Those teachers who express disapproval of adolescent sexual activity, report low levels of confidence in teaching sexuality topics, or do not feel safe teaching potentially controversial topics are more likely to limit their instruction to “safe” topics, such as anatomy and abstinence (Donovan, 1998; Bowden, Lanning, Pippen & Tanner, 2003). A more comprehensive survey of middle and high school educators in New Brunswick echoed these conclusions. While most teachers were “somewhat willing” to provide instruction related to anatomy,
reproduction and birth, puberty, and abstinence, the majority indicated that they were “not at all willing” to teach topics such as birth control, safer sex methods, sexuality in the media, or homosexuality, and cited similar concerns as their counterparts in the United States for their reluctance (Cohen, Byers, Sears & Weaver, 2001).

It is evident from these findings that state- and federal-level policies related to sexuality instruction and HIV prevention education alone have little impact on the methods and practices at the local or district level and demonstrates that policy is only effective at influencing practice when it is fully adopted and implemented at the local level by school districts. An evaluation of the adoption by local school districts of state policies on HIV prevention education in Massachusetts schools by Blake and colleagues demonstrated that school districts that adopted state policies were more likely to have trained more teachers in HIV education (82% versus 59%), provided HIV education to more students (90% versus 50% of students) and were more likely to adopt research-based curricula (44% versus 27%) when compared to school districts that did not fully adopt state recommendations or provide support for instruction (Blake, et al., 2005).

Thus, the implication from research into policy related to sexuality education and HIV prevention is that, while policy at the federal- and state-levels may serve as guides, implementation of policy is dependent upon local adoption and provisions at the local level to support effective practice.

As noted in Blake’s study, there is little research to date that examines the influence of state policy recommendations on the actual HIV prevention practices provided at the local level. And while there is a paucity of comprehensive studies to determine the effectiveness of school health policies at the state level, research related to
adolescent tobacco use policies and limited studies in adolescent pregnancy have shown some promising results, with respect to student outcomes (Blake, 2005; Wakefield, & Chaloupka, 2000; and Vincent, 2004). Given the conclusions of Blake’s studies relative to attitudes, perceptions and practices of sexuality education instructors and those findings from research into the relationship between instructor attitudes and student outcomes in general education, it would be logical to conclude, then, effective HIV education policy implementation, including explicit practice guidelines would yield positive student outcomes by reducing risk behaviors.

**Instructor Preparation in Successful Sexuality Education Programs**

While research on the effectiveness of sexuality and HIV education programs in public schools has largely focused on curricular components, policy requirements, and outcomes, few studies have examined critical components to program implementation such as teacher preparation and training, or other characteristics of teachers relative to their instruction of these topics. Studies in the field of general education suggest that a teacher’s attitude toward specific subject matter, and their willingness to implement certain curricula correlates to their teaching practices, which can then impact student behaviors or achievement. Factors that have been identified as contributing to a teacher’s attitude or willingness to implement curricula related to sexuality include knowledge of subject matter, perception of the importance of the material, intent to teach the curriculum, comfort level with the topic, and perceived support from the school and community. Similar factors have been identified as predictors of teacher practices in the instruction of other health topics, as well (Cantrell, Stenner and Katzenmeyer, 1977; Bowden, Lanning, Pippen, Tanner, 2003; Mathews, Boon, Flisher, and Schaalma, 2006;
and Lartey, Price, Telljohann, Dake, and Yingling, 2007). Thus, the effectiveness of any given sexuality or HIV education program may be negated if a teacher is unwilling or inadequately prepared to provide instruction in these topics.

In a study on training and preparation by the Sexuality Information and Education Council of the United States (SIECUS), it was found that the majority of teachers providing sexuality education in the United States were not trained sexuality educators. Physical education teachers most commonly provided instruction in middle and high schools, followed by health educators, biology teachers, home economics teachers, and school nurses. The majority of those surveyed for the study also reported that they did not feel adequately trained or knowledgeable about HIV/AIDS (Rodriguez, Young, Ascencio, and Haffner, 1996). The tendency for the responsibility of sexuality or HIV instruction to be assigned to teachers who are not appropriately trained in these subjects may be due, in large part, to the failure of most states to require certification to teach these topics. While 32 states and the District of Columbia mandate instruction in HIV prevention in public schools, few specify certification requirements for teachers of both sexuality and HIV prevention education. This study also sampled 169 colleges and universities nationwide that provide undergraduate training for teachers and found that only 9 percent of health education programs required a sexuality education methods course and only 12 percent of schools surveyed offered any courses with HIV/AIDS in the course description (Rodriguez, Young, Ascencio, and Haffner, 1996).

The lack of training requirements for sexuality educators can diminish teachers’ levels of confidence and self-efficacy. Studies in education examining the issue of teacher self-efficacy have shown that teachers’ sense of self-efficacy is positively
associated with student performance and may be enhanced through training. Self-efficacy has also been shown to have a positive relationship with attitudes toward and willingness to implement curricula (Ghaith and Yaghi, 1997). In examining the issue of teacher effectiveness, a number of inter-related themes emerge as having potentially significant effects on student outcomes and curricular success, including teacher training and preparation, attitudes toward curriculum, willingness to teach certain topics, and perceived level of support. While there is little comprehensive research into the impact these variables have on the implementation of sexuality or HIV education programs in the United States, it is likely that much of the variance in the approaches to providing instruction in these areas could be explained by inconsistencies in teacher preparation and the resulting effects of that lack of consistency. While policy requirements related to HIV prevention education may assist in guiding practice, it is clear that the effectiveness of such instruction is dependent on a number of variables that are the result of teacher training and preparation or lack thereof.

Surveillance studies, such as the YRBS, have consistently provided data for over a decade, which have described nearly half of U.S. adolescents as sexually active during high school. Likewise, a large body of literature exists to demonstrate that sexually active adolescents need access to complete and accurate information about contraception and safer sex practices in order to effectively prevent the spread of STIs, including HIV. While an expansive body of literature exists to demonstrate the aforementioned findings and also demonstrates support for comprehensive programming by the majority of parents of adolescents, little research has been conducted in recent years to examine the
attitudes and perceptions of health educators as they relate to providing instruction in HIV/AIDS prevention.

**The Health Belief Model**

The Health Belief Model is one of the oldest and most widely applied models for predicting behaviors related to health. This model was initially developed by social psychologists in the United States Public Health Service as a means for explaining and understanding why people did not participate in disease prevention programs (Rostenstock, 1974; Connor and Norman, 2005). This model can be described as a value-expectancy theory, which means that behavior is believed to be a function of an individual’s perceived value of an outcome and their perceived expectation that an action might result in that outcome. When describing health-related behaviors, “expectancy” might further be understood to be a function of an individual’s assessment of personal susceptibility to and severity of an illness or negative health consequence and of their likelihood to be able to reduce that threat through changes in their behaviors (Champion and Skinner, 2008).

The Health Belief Model is comprised of five constructs, which include: perceived susceptibility, perceived severity, health motivation, perceived benefits, and perceived barriers (Abraham and Sheeran, 2005). In the current study, two of those constructs; perceived benefits and perceived barriers will be examined, as they have been associated with significantly greater effects on behavior than the other constructs (Harrison, Mullen and Green, 1992). Perceived benefits refer to an individual’s belief in the likelihood that a specific action will reduce their risk or the impact of a disease threat (Champion and Skinner, 2008). Perceived barriers refer to the tangible or psychological
costs or impediments that might prevent an individual from taking certain recommended actions (Champion and Skinner, 2008). Barriers, such as fear, incorrect information, anxiety, and lack of preparation will decrease the likelihood of an individual to take action. However, if the perceived benefits outweigh the perceived barriers, an individual will be more likely to take action (Champion and Skinner, 2008; Abraham and Sheeran, 2005).

**Self-efficacy**

While self-efficacy was not included in early descriptions of the Health Belief Model, research has demonstrated the significance of this construct in initiating and maintaining changes in behavior (Champion and Skinner, 2008). According to Bandura’s theoretical framework, changes in and maintenance of certain behaviors can be described as a function of one’s perception of their capacity to effect outcomes, or their “efficacy expectations,” and their perceived “outcome expectations,” or their belief that a specific action will yield certain results. “Self-efficacy,” as described by Bandura (1997), is the “conviction that one can successfully execute the behavior required to produce the outcomes,” and is significant in predicting how much effort an individual might expend on a task, and to what extent an individual might persist at a given task when challenged with barriers (Strecher, DeVellis, Becker and Rosenstock, 1986, pp74-75).

Research in education indicates a relationship between perceived self-efficacy of teachers, job stress and burnout. Less efficacious teachers are more likely to experience high levels of stress, report lower morale, and are less capable of coping with the demands of teaching. Those teachers who report higher levels of perceived self-efficacy are better equipped to cope with daily challenges, set and persistently pursue high goals
for themselves, and demonstrate success in enhancing student achievement (Schwarzer and Hallum, 2008).

**Summary**

Despite a steady decrease in the number of diagnosed cases each year, HIV/AIDS continues to rank as one of the leading causes of illness and death in the United States. Adolescents and young adults between the ages of 13 and 19 years are particularly vulnerable for HIV transmission, as evidenced by the steady increase in the number of reported infections in this age group over the past decade. Underlying this trend is a growing lack of awareness, perception of vulnerability and a general lack of accurate knowledge regarding HIV/AIDS among adolescents and young adults in the United States.

The CDC, along with a number of researchers in sexuality education, recommends that education about HIV prevention is most appropriate and effective when presented within the context of a comprehensive school health education program that establishes a foundation for understanding the relationships between personal behavior and health. While the majority of states require instruction in HIV prevention, research indicates that there is great variability between states and individual school districts in the provisions related to the certification, licensure, and training in sexuality education of the teachers providing that instruction. Although mandates are an important step in providing the instruction necessary to reduce the risk of HIV infection among adolescents in the United States, a more comprehensive examination of the inconsistencies in program delivery and an understanding of the multiple variables that influence instruction
in the classroom is needed to counter the growing threat that HIV/AIDS poses to adolescents and young adults in the United States.
CHAPTER THREE

METHODS

The sections included in this chapter are as follows: Selection of Participants, Instrument Development, Instrument Testing, Procedures, and Data Analysis. This chapter discusses the design, development, and implementation of the questionnaire to examine secondary health education teachers’ attitudes and perceptions related to HIV prevention education in states that have requirements for instruction in schools and those that do not.

Selection of Participants

Participants for this study were selected from the Common Core of Data (CCD) of the United States Department of Education’s National Center for Educational Statistics (NCES – October, 2010). The CCD is the Department of Education’s annually updated database for information pertaining to public elementary and secondary schools in the United States as well as the five outlying areas (American Samoa, Guam, Puerto Rico, the Virgin Islands, and the Marshall Islands). The CCD data file contains names, addresses, and telephone numbers of the schools, enrollment, school type and location, and grade levels taught.

The 2008-2009 database was comprised of a total of 101,805 public schools. This list was pared down to include only those schools that met inclusion criteria for this study. The inclusion criteria were: 1) schools located in the 50 United States and Washington, D.C. (none of the outlying territories were included); 2) those schools that were classified by the NCES as regular schools (as opposed to special education,
vocational, alternative, or schools with other specialized operations); and 3) secondary schools that included grades 9-12. After removal of schools that failed to meet the inclusion criteria, a total of 14,266 schools remained. This listing contained schools that had upper and lower extremes regarding the number of students that attended the schools. The lower end of the range had schools with 0 students. The upper end of the range had schools with 5,017 students. In order to reduce any potential effects from these two extremes, the list was limited to two standard deviations from the mean. This accounted for 78.86% of the original population being included in the “potential population.” The upper and lower 10.57% of schools were removed from the sampling frame, resulting in 11,250 potential schools from which to draw the study sample.

Based on an *a priori* power analysis, it was determined that data from 372 schools would be needed for generalizing the results to the population of health educators in secondary schools (Salant and Dillman, 1994). The *a priori* alpha level for statistical significance was set at (*p*=.05) to reduce making a Type II error. In studies using mailed surveys involving participants of secondary educators on a similar topic a response rate of 49% was obtained. Thus, 759 surveys (372/0.49) would need to be mailed to achieve 372 responses (Landry, Darroch, Singh, & Higgins, 2003). Schools remaining on the list were then categorized with respect to whether or not their state had a policy requiring HIV-prevention education. After classifying the schools, a sample of 400 schools were randomly selected from each group to prevent over-sampling from either category. To determine how similar the random sample of 800 schools was in comparison to the entire list of 11,250 potential schools, sizes of schools, as measured by the number of students, were compared. An independent samples t-test found no
significant difference in the mean size of schools between the study sample and the potential population ($t = 1.05$, $df = 12,048$, $p = 0.30$) (Table 4). For each of the selected schools, the survey instrument was mailed to the attention of the lead health education teacher for inclusion in the study.

**Instrument Development**

A 26-item, closed format questionnaire was used to assess secondary health educators’ attitudes and perceptions related to HIV prevention education (Appendix A). The questionnaire was developed using selected components of the Health Belief Model (e.g. barriers and benefits) and the self-efficacy theory component of the social cognitive theory (e.g. efficacy expectations and outcome expectations). The instrument also included questions about the participants’ background and demographic characteristics including: school location, age, sex of the teacher, level of education, race/ethnicity, number of years teaching health education, training experience and certification status. Questionnaire items dealt with perceptions and practices of health educators related to HIV prevention. The response format used for the questionnaire items included a 5-point Likert-type response format (e.g., Not Confident to Very Confident). There were also questions that assessed a health educator’s perceived benefits and barriers in teaching HIV prevention topics.

**Instrument Testing**

The questionnaire was based on a comprehensive review of the literature in order to establish face validity of the items. To establish content validity, the survey instrument was mailed to a panel of health educators, HIV/AIDS prevention program leaders, and/or
<table>
<thead>
<tr>
<th>Measures</th>
<th>Total eligible secondary schools before deletion of extremes</th>
<th>Total eligible secondary schools after deletion of extremes</th>
<th>Sample for study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>882.98</td>
<td>777.51</td>
<td>758.33</td>
</tr>
<tr>
<td>Median</td>
<td>645.00</td>
<td>644.50</td>
<td>627.50</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>753.84</td>
<td>500.36</td>
<td>507.07</td>
</tr>
<tr>
<td>Skewness</td>
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<td>0.6391</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>133</td>
<td>134</td>
</tr>
<tr>
<td>Maximum</td>
<td>5,017</td>
<td>1,935</td>
<td>1,934</td>
</tr>
<tr>
<td>Number of Schools</td>
<td>14,266</td>
<td>11,251</td>
<td>800</td>
</tr>
</tbody>
</table>

Source: Common Core of Data (CCD) of the United States Department of Education’s National Center for Educational Statistics (NCES).
survey research experts for review \((n = 5)\). The content experts were identified based on their publication record and expertise related to HIV/AIDS prevention education related research (Appendix B). Each of these experts was contacted by email and asked whether they would be willing to serve as an expert reviewer. Those who agreed were sent by email the instrument with a cover letter explaining the study (Appendix C). After the expert review, revisions were made to the instrument (wording changes and deleting items) to ensure that valid measures of secondary health educators’ perceptions and practices concerning HIV prevention education were included and that the survey was clear and easy to read.

The questionnaire was pilot tested for reliability through testing and retesting with a convenience sample of secondary health educators \((n = 15)\). The sample of health educators was obtained through a list of attendees of a workshop for health educators. All health educators were mailed the survey with a cover letter (Appendix D), and a stamped self-addressed envelope. A week after completing the first survey, health educators were mailed the same instrument with a cover letter (Appendix E), and a stamped self-addressed envelope to return the second completed survey instrument. Percent agreement was calculated to determine the stability of the different constructs of the instrument. All items had greater than 80% in percent agreement, with the exception of two items, which had percent agreements of 75%. The latter included one item which cites increased communication between students and parents about HIV prevention as a benefit to teaching about HIV prevention. The second item with 75% percent agreement was related to whether the current curricular content information included the signs and symptoms of HIV/AIDS.
Procedures

Several techniques were used in this research to increase survey response rates. These included creating a survey instrument that was a maximum of four pages, printing the survey on colored paper, and placing the demographic/background items at the end of the survey. Additionally, procedural steps were taken to increase response rates, which included: mailing the survey with a hand-signed cover letter ensuring confidentiality, providing a stamped, self-addressed envelope in which the respondents could return the survey, and using first-class postage stamps rather than bulk mailing (Fox, Crask, and Kim, 1988; Maheux, Legarult, and Lambert, 1989; Church, 1993; King, Pealer, and Bernard, 2001).

A three-wave mailing was performed to send questionnaires to the selected secondary health education instructors. The techniques were all used for the first wave mailing, which consisted of a cover letter (Appendix F) explaining the purposes of the study and assuring confidentiality, a copy of the questionnaire, a first-class postage-paid addressed return envelope, and a $1.00 bill incentive. To reduce the costs of this study, the return envelope was coded so that the respondents who returned surveys could be eliminated from the second wave mailing. Two weeks after the first mailing, a second cover letter (Appendix G), another copy of the questionnaire and a first-class postage-paid addressed return envelope were sent to non-respondents. Two weeks following the second mailing, a colored postcard reminder was sent to non-respondents urging their participation (Appendix H).
This study design and protocol was sent to the University of Toledo Human Subjects Research Review Committee for approval. Approval was received before the survey instrument was mailed to participants (Appendix I).

**Data Analysis**

Data from the study were analyzed using SPSS 14.0. Descriptive statistics (frequencies, means, and standard deviations) were used to describe the responses to the questionnaire items as well as the demographic and background characteristics of the respondents. T-tests were calculated to determine relationships between parametric and dichotomous variables (Hypotheses 1.1, 2.1, 3.1, 4.1, 5.1, 6.1, 1.7, 2.7, 3.7, 4.7, 5.7, 6.7). Analyses of variance tests (ANOVAs) were conducted to determine relationships between categorical and parametric variables (Hypotheses 1.2-1.6, 1.8-1.10, 2.2-2.6, 2.8-2.9, 3.2-3.6, 3.8-3.9, 4.2-4.6, 4.8-4.9, 5.2-5.6, 5.8-5.9, 6.2-6.6, 6.8-6.9). For all significant ANOVAs, post-hoc Bonferroni tests were conducted to determine which levels of the independent variables were significantly different. Chi square tests were calculated to determine the differences in characteristics between high school health education teachers by whether or not they currently teach HIV prevention (Hypotheses 7.1-7.9). Multiple regressions were conducted to predict the significant amounts of variance by race, level of education, certification level, training in sexuality education, years teaching health education, location of school, and having a mandated policy to teach HIV prevention (Hypotheses 1.10, 2.10, 3.10, 4.10, 5.10, 6.10).
CHAPTER FOUR

RESULTS

This chapter includes the following sections: Response Rate; Demographic and Background Characteristics of Respondents; High School Health Education Teachers’ Perceived Benefits Related to Teaching HIV Prevention; High School Health Education Teachers’ Perceived Barriers Related to Teaching HIV Prevention; Curriculum Content of High School Health Education Teachers Who Taught HIV Prevention; Efficacy Expectations of High School Health Education Teachers Related to Teaching HIV Prevention; Outcome Expectations of High School Health Education Teachers Related to Teaching HIV Prevention; Attitudes of High School Health Education Teachers Related to Teaching HIV Prevention; Testing the Research Questions and Hypotheses; and Summary.

Response Rate

Participants for this study were selected from the Common Core of Data (CCD) of the United States Department of Education’s National Center for Educational Statistics (NCES – October, 2010). As indicated in Chapter 3, 11,250 secondary schools were identified and categorized with respect to whether or not their state has a policy requiring HIV-prevention education. After classifying the schools, a random sample of 400 secondary schools was selected from each group to prevent over-sampling from either category. Seventy-nine surveys were undeliverable, leaving a potential sample size of 721. A total of 362 high school health education teachers (50%) responded (362/721). Based on an a priori analysis, a total of 372 respondents...
were needed to generalize the findings of the study with a 95% confidence level. With 362 respondents, the findings from this study are adequate to generalize to all high school health education teachers in the United States with a 94.6% level of confidence according to a post hoc power analysis.

**Demographic and Background Characteristics of Respondents**

Table 5 presents the demographic and background characteristics of the respondents. The majority of high school health education teachers were female (54.7%); white (89.5%); had a graduate level degree (61%); were certified to teach health education (91.7%); taught in a public school (99.2%); in a rural district (56.4%); did not know someone who was HIV positive (54.4%); were required to teach HIV prevention (58%); believed HIV prevention education should be required (93.6%); and had been trained to teach HIV prevention (62.2%). Of those health education teachers who indicated that they had been trained to teach HIV prevention, the majority (56.4%) were most recently trained over two years ago. A plurality of high school health education teachers were between the ages of 30 and 39 years of age (28.5%), had been teaching health education for less than ten years (46.4%) and indicated K-12 health and physical education was the major for their highest degree completed (29.6%)

**High School Health Education Teachers’ Perceived Benefits Related to Teaching HIV Prevention**

Six items on the survey assessed high school health education teachers’ perceptions of benefits of teaching HIV prevention. The majority of respondents (98.3%) believed there were benefits to teaching HIV prevention (Table 6). The most commonly
Table 5

Demographic and Background Characteristics of Respondents

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>198</td>
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</tr>
<tr>
<td>Male</td>
<td>163</td>
<td>45.0</td>
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<tr>
<td><strong>Age</strong></td>
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<td></td>
</tr>
<tr>
<td>20-29</td>
<td>38</td>
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</tr>
<tr>
<td>30-39</td>
<td>103</td>
<td>28.5</td>
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<td>60-69</td>
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<td><strong>Race/Ethnicity</strong></td>
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<tr>
<td>Non-white</td>
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<td>9.9</td>
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<tr>
<td><strong>Highest Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate level</td>
<td>141</td>
<td>39.0</td>
</tr>
<tr>
<td>Graduate level</td>
<td>221</td>
<td>61.0</td>
</tr>
<tr>
<td><strong>Major for Highest Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Health Education</td>
<td>71</td>
<td>19.6</td>
</tr>
<tr>
<td>Secondary Health &amp; Physical Education</td>
<td>22</td>
<td>6.1</td>
</tr>
<tr>
<td>K-12 Health &amp; Physical Education</td>
<td>107</td>
<td>29.6</td>
</tr>
<tr>
<td>Family and Consumer Sciences</td>
<td>16</td>
<td>4.4</td>
</tr>
<tr>
<td>Administration and Educational Leadership</td>
<td>28</td>
<td>7.7</td>
</tr>
<tr>
<td>Other (Counseling, Science, Mathematics, etc.)</td>
<td>105</td>
<td>29.0</td>
</tr>
<tr>
<td><strong>Certified to teach Health Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>332</td>
<td>91.7</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>5.2</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>11</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Type of School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>359</td>
<td>99.2</td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>School Location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban</td>
<td>112</td>
<td>30.9</td>
</tr>
<tr>
<td>Urban</td>
<td>42</td>
<td>11.6</td>
</tr>
<tr>
<td>Rural</td>
<td>204</td>
<td>56.4</td>
</tr>
</tbody>
</table>

(continued on next page)
Table 5 (Cont.)

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respondent knows someone who is HIV positive</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>112</td>
<td>30.9</td>
</tr>
<tr>
<td>No</td>
<td>197</td>
<td>54.4</td>
</tr>
<tr>
<td>Not Sure</td>
<td>43</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>Required to teach HIV prevention in Health Education classes</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>210</td>
<td>58.0</td>
</tr>
<tr>
<td>No</td>
<td>105</td>
<td>29.0</td>
</tr>
<tr>
<td>Not Sure</td>
<td>43</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>Number of respondents not currently teaching HIV prevention</strong>*</td>
<td>29</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Believes HIV Prevention education should be required</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>339</td>
<td>93.6</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Years respondents have been teaching health education</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-9 years</td>
<td>159</td>
<td>46.4</td>
</tr>
<tr>
<td>10-19 years</td>
<td>102</td>
<td>29.7</td>
</tr>
<tr>
<td>20-29 years</td>
<td>57</td>
<td>16.6</td>
</tr>
<tr>
<td>30-39 years</td>
<td>25</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Trained to teach HIV Prevention</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>225</td>
<td>62.7</td>
</tr>
<tr>
<td>No</td>
<td>134</td>
<td>37.3</td>
</tr>
<tr>
<td><strong>How teachers were trained to teach HIV Prevention (of those who were trained)</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workshop</td>
<td>160</td>
<td>71.1</td>
</tr>
<tr>
<td>Professional conferences</td>
<td>106</td>
<td>47.1</td>
</tr>
<tr>
<td>Undergraduate education</td>
<td>91</td>
<td>40.4</td>
</tr>
<tr>
<td>Training manual</td>
<td>47</td>
<td>20.9</td>
</tr>
<tr>
<td>Graduate education</td>
<td>39</td>
<td>17.3</td>
</tr>
<tr>
<td>Journal articles</td>
<td>37</td>
<td>16.4</td>
</tr>
<tr>
<td>Online modules</td>
<td>17</td>
<td>7.6</td>
</tr>
<tr>
<td><strong>Most recently trained to teach about HIV Prevention (of those who were trained)</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than six months ago</td>
<td>22</td>
<td>9.8</td>
</tr>
<tr>
<td>Six months to less than one year ago</td>
<td>14</td>
<td>6.2</td>
</tr>
<tr>
<td>One to two years ago</td>
<td>46</td>
<td>20.4</td>
</tr>
<tr>
<td>More than two years ago</td>
<td>127</td>
<td>56.4</td>
</tr>
<tr>
<td>Do not recall</td>
<td>14</td>
<td>6.2</td>
</tr>
</tbody>
</table>

n = 362

*Totals may not equal 100% due to missing data.
Table 6

High School Health Education Teachers’ Perceived Benefits Related to Teaching HIV Prevention

<table>
<thead>
<tr>
<th>Item</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increases awareness about HIV</td>
<td>330 (91.4)</td>
</tr>
<tr>
<td>Increases the ability of students to avoid engaging in HIV-related high-risk behaviors</td>
<td>318 (88.1)</td>
</tr>
<tr>
<td>Helps reduce the spread of HIV</td>
<td>289 (80.1)</td>
</tr>
<tr>
<td>Increases the ability of students to resist peer pressure to engage in sexual behavior</td>
<td>278 (77.0)</td>
</tr>
<tr>
<td>Increases the ability of students to find valid information or services related to HIV testing</td>
<td>280 (77.6)</td>
</tr>
<tr>
<td>Increases the ability of students to communicate with their parents about HIV prevention</td>
<td>222 (61.5)</td>
</tr>
</tbody>
</table>

n = 362
perceived benefits were that teaching HIV prevention increases awareness about HIV (91.4%) and that it increases the ability of students to avoid engaging in HIV-related high-risk behaviors (88.1%). The least supported benefit was that teaching HIV prevention would increase the ability of students to communicate with their parents about HIV prevention (61.5%) (Table 6).

**High School Health Education Teachers’ Perceived Barriers Related to Teaching HIV Prevention**

Eight items were used to measure high school health education teachers’ perceived barriers to teaching HIV prevention. A majority (58.2%) of high school health education teachers reported that they perceived no barriers to teaching about HIV prevention (Table 7). The most commonly identified barrier by those high school health education teachers who did perceive barriers to teaching HIV prevention was a lack of adequate materials or resources (23.3%). The items least likely to be perceived as barriers were that there was not a need in their school for HIV prevention education (0.3%), school administration does not support teaching about HIV prevention (3.9%), discomfort teaching about HIV prevention (4.4%), and HIV prevention not being included in health education curricula (5.3%) (Table 7).

**Curriculum Content of High School Health Education Teachers Who Taught HIV Prevention**

Eleven items were identified as the areas that high school health education teachers who taught HIV prevention covered. None of the topics were covered by the majority of the teachers. The most common topics taught were the influence of alcohol
### Table 7

**High School Health Education Teachers’ Perceived Barriers Related to Teaching HIV Prevention**

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no barriers to teaching about HIV prevention</td>
<td>210</td>
<td>(58.2)</td>
</tr>
<tr>
<td>Do not have adequate materials or resources to teach about HIV prevention</td>
<td>84</td>
<td>(23.3)</td>
</tr>
<tr>
<td>I have not been trained to teach about HIV prevention</td>
<td>43</td>
<td>(11.9)</td>
</tr>
<tr>
<td>I do not have enough time to teach about HIV prevention</td>
<td>36</td>
<td>(10.0)</td>
</tr>
<tr>
<td>Parents do not support teaching about HIV prevention</td>
<td>28</td>
<td>(7.8)</td>
</tr>
<tr>
<td>HIV prevention is not included in my school’s health education curriculum</td>
<td>19</td>
<td>(5.3)</td>
</tr>
<tr>
<td>I am not comfortable teaching about HIV prevention</td>
<td>16</td>
<td>(4.4)</td>
</tr>
<tr>
<td>My school administration does not support teaching about HIV prevention</td>
<td>14</td>
<td>(3.9)</td>
</tr>
<tr>
<td>There is no need in my school for HIV prevention education</td>
<td>1</td>
<td>(0.3)</td>
</tr>
</tbody>
</table>

n = 362
Table 8

Curriculum Content of High School Health Education Teachers
Who Taught HIV Prevention

<table>
<thead>
<tr>
<th>Item</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The influence of alcohol and other drugs on HIV-related risk behaviors</td>
<td>303</td>
<td>(95.0)</td>
</tr>
<tr>
<td>How HIV is transmitted</td>
<td>300</td>
<td>(94.0)</td>
</tr>
<tr>
<td>How to prevent HIV infection</td>
<td>298</td>
<td>(93.4)</td>
</tr>
<tr>
<td>The signs and symptoms of HIV of AIDS</td>
<td>284</td>
<td>(89.0)</td>
</tr>
<tr>
<td>The benefits of abstinence</td>
<td>311</td>
<td>(85.9)</td>
</tr>
<tr>
<td>How to resist peer pressure to engage in sexual behavior</td>
<td>268</td>
<td>(84.0)</td>
</tr>
<tr>
<td>How HIV is diagnosed</td>
<td>247</td>
<td>(77.4)</td>
</tr>
<tr>
<td>How to find valid information or services related to HIV testing</td>
<td>239</td>
<td>(74.9)</td>
</tr>
<tr>
<td>Condom effectiveness in preventing the transmission of HIV</td>
<td>238</td>
<td>(74.6)</td>
</tr>
<tr>
<td>How to obtain condoms</td>
<td>172</td>
<td>(54.1)</td>
</tr>
<tr>
<td>How to correctly use a condom</td>
<td>141</td>
<td>(44.3)</td>
</tr>
</tbody>
</table>

n = 362
and other drugs on HIV-related risk behaviors (95.0%), how HIV is transmitted (94.0%), and how to prevent HIV infection (93.4%). High school health education teachers were least likely to teach how to correctly use a condom (44.3%) and how to obtain condoms (54.1%) (Table 8).

**Efficacy Expectations of High School Health Education Teachers Related to Teaching HIV Prevention**

High school health education teachers were requested to rate their efficacy expectations on seven items regarding HIV prevention by responding to Likert-type scales with 1 = not confident to 5 = very confident. The majority of respondents expressed feeling confident or very confident in their ability to teach all of the listed items. There were 4 items in which better than 50% of the respondents expressed feeling very confident in their ability to teach them. Sixty-one percent of high school health education teachers were very confident about being able to teach students about the influence of alcohol and other drugs on HIV-related risk behaviors, the benefits of abstinence (59%), how HIV is transmitted (59%), and how to prevent HIV infection (57%) (Table 9). Less than 50% of health education teachers expressed high confidence in their ability to teach the remaining items.

**Outcome Expectations of High School Health Education Teachers Related to Teaching HIV Prevention**

Two items assessed secondary health education teachers’ opinions regarding perceived outcome expectations related to teaching HIV prevention. Respondents expressed agreement for both variables at a rate of 87% or higher, indicating that the majority agreed that teaching about both HIV prevention concepts (87.2%) and HIV
Table 9

Efficacy Expectations of High School Health Education Teachers Related to Teaching HIV Prevention

<table>
<thead>
<tr>
<th>Item</th>
<th>Not Confident N (%)</th>
<th>Slightly Confident N (%)</th>
<th>Moderately Confident N (%)</th>
<th>Confident N (%)</th>
<th>Very Confident N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can confidently teach the following HIV Prevention concepts and skills...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influence of alcohol and other drugs on HIV-related risk behaviors</td>
<td>0 (0)</td>
<td>6 (1.7)</td>
<td>24 (6.6)</td>
<td>113 (31.2)</td>
<td>219 (60.5)</td>
</tr>
<tr>
<td>The benefits of abstinence</td>
<td>2 (0.6)</td>
<td>11 (3.0)</td>
<td>26 (7.2)</td>
<td>109 (30.1)</td>
<td>214 (59.1)</td>
</tr>
<tr>
<td>How HIV is transmitted</td>
<td>0 (0)</td>
<td>12 (3.3)</td>
<td>34 (9.4)</td>
<td>103 (28.5)</td>
<td>212 (58.7)</td>
</tr>
<tr>
<td>How to prevent HIV infection</td>
<td>0 (0)</td>
<td>8 (2.2)</td>
<td>33 (9.2)</td>
<td>112 (31.2)</td>
<td>206 (57.4)</td>
</tr>
<tr>
<td>The signs and symptoms of HIV and AIDS</td>
<td>6 (1.7)</td>
<td>19 (5.2)</td>
<td>58 (16.0)</td>
<td>111 (30.7)</td>
<td>168 (46.4)</td>
</tr>
<tr>
<td>How to obtain condoms</td>
<td>33 (9.2)</td>
<td>24 (6.9)</td>
<td>33 (9.2)</td>
<td>105 (30.0)</td>
<td>155 (44.3)</td>
</tr>
<tr>
<td>About condom effectiveness in preventing the transmission of HIV</td>
<td>21 (5.9)</td>
<td>24 (6.7)</td>
<td>54 (15.2)</td>
<td>111 (31.2)</td>
<td>146 (41.0)</td>
</tr>
<tr>
<td>How HIV diagnosed</td>
<td>9 (2.5)</td>
<td>29 (8.0)</td>
<td>73 (20.2)</td>
<td>108 (29.8)</td>
<td>143 (39.5)</td>
</tr>
<tr>
<td>How to correctly use a condom</td>
<td>47 (13.5)</td>
<td>27 (7.8)</td>
<td>52 (15.0)</td>
<td>86 (24.8)</td>
<td>135 (37.3)</td>
</tr>
<tr>
<td>How to resist peer pressure to engage in sexual behavior</td>
<td>7 (1.9)</td>
<td>23 (6.4)</td>
<td>65 (18)</td>
<td>137 (37.8)</td>
<td>130 (35.9)</td>
</tr>
<tr>
<td>How to find valid information or services related to HIV testing</td>
<td>6 (1.7)</td>
<td>20 (5.5)</td>
<td>70 (19.4)</td>
<td>110 (30.5)</td>
<td>115 (42.9)</td>
</tr>
</tbody>
</table>

n = 362
### Table 10

**Outcome Expectations of High School Health Education Teachers Related to Teaching of HIV Prevention**

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree N (%)</th>
<th>Disagree N (%)</th>
<th>Not Sure N (%)</th>
<th>Agree N (%)</th>
<th>Strongly Agree N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching HIV prevention skills will reduce the number of students who become infected</td>
<td>5 (1.4)</td>
<td>8 (2.2)</td>
<td>31 (8.6)</td>
<td>193 (53.3)</td>
<td>125 (34.5)</td>
</tr>
<tr>
<td>Teaching HIV prevention concepts will reduce the number of students who become infected.</td>
<td>7 (1.9)</td>
<td>11 (3.0)</td>
<td>28 (7.7)</td>
<td>200 (55.2)</td>
<td>116 (32.0)</td>
</tr>
</tbody>
</table>

n = 362
prevention skills (87.8%) in the classroom will reduce the number of students who become infected with HIV (Table 10).

**Attitudes of High School Health Education Teachers Related to Teaching HIV Prevention**

Four items assessed high school health education teachers’ attitudes in relation to teaching HIV prevention. Respondents expressed agreement at a rate of 95% or higher that it is the role of high school health education teachers to teach students how HIV is transmitted and how to reduce the risk of transmitting HIV. More than 95% of high school health education teachers believed that teaching HIV prevention does not encourage students to be sexually active and over 70% disagreed that the best way to teach their students about HIV prevention is by taking an abstinence-only approach (Table 11).

**Testing the Research Questions and Hypotheses**

The research questions and hypotheses that were stated in Chapter 1 are answered in this section as they relate to the final data analyses. Each of the hypotheses is stated in the null format. The corresponding data analysis was done to determine whether the null hypothesis was accepted or rejected.

**Research Question #1**

What are the differences in total hours spent teaching about HIV prevention by high school health education teachers?

**Hypothesis 1.1** There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states
<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree N (%)</th>
<th>Disagree N (%)</th>
<th>Not Sure N (%)</th>
<th>Agree N (%)</th>
<th>Strongly Agree N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you agree or disagree that:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is the role of high school health education teachers to teach students in their classes how HIV is transmitted</td>
<td>2 (0.6)</td>
<td>6 (1.7)</td>
<td>6 (1.7)</td>
<td>110 (30.6)</td>
<td>235 (65.5)</td>
</tr>
<tr>
<td>It is the role of high school health education teachers to teach students in their classes how to reduce the risk of transmitting HIV</td>
<td>4 (1.1)</td>
<td>6 (1.7)</td>
<td>4 (1.1)</td>
<td>113 (31.6)</td>
<td>231 (64.5)</td>
</tr>
<tr>
<td>Teaching HIV prevention encourages students to be sexually active</td>
<td>197 (54.7)</td>
<td>142 (39.4)</td>
<td>10 (2.8)</td>
<td>5 (1.4)</td>
<td>6 (1.7)</td>
</tr>
<tr>
<td>The best way for high school health teachers to teach their students about HIV prevention is by taking an abstinence-only approach</td>
<td>113 (31.7)</td>
<td>141 (39.5)</td>
<td>22 (6.2)</td>
<td>53 (14.8)</td>
<td>28 (7.8)</td>
</tr>
</tbody>
</table>

n = 362
without requirements for HIV prevention instruction in relation to their total hours spent teaching about HIV prevention.

A t-test was calculated and found that there was no statistically significant difference between the total hours spent teaching about HIV prevention in a typical class based on whether teachers taught in a state that required instruction in HIV prevention at the high school level (M = 3.79, SD = 2.74) or in a state that did not require instruction in HIV prevention at the high school level (M = 3.61, SD = 2.67) (t = -0.603, df = 316, p = 0.55). The null hypothesis was thus accepted.

**Hypothesis 1.2** There is no statistically significant difference by high school health education teachers’ level of education in relation to their total hours spent teaching about HIV prevention.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’, education specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was no statistically significant difference in hours spent teaching about HIV prevention in a typical health education class by high school health education teachers’ level of education (t = 0.30, df = 316, p = 0.76). Teachers with undergraduate degrees (M = 3.78, SD = 2.76), did not significantly differ from those with graduate degrees (M = 3.69, SD = 2.69) in relation to the hours spent teaching about HIV prevention in a typical health education class. The null hypothesis was thus accepted.
Hypothesis 1.3  There is no statistically significant difference by high school health education teachers’ degree major in relation to their total hours spent teaching about HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no statistically significant difference in hours spent teaching about HIV prevention in a typical health education class in relation to the major of teachers’ highest completed degree (F = 0.97, df = 5, p = 0.44). Teachers with degree majors in health education (M = 3.79, SD = 2.94), secondary health and physical education (M = 4.86, SD = 3.81), K-12 health and physical education (M = 3.82, SD = 2.91), family and consumer sciences (M = 3.67, SD = 1.95), education administration and leadership (M = 3.39, SD = 2.19), and other majors (M = 3.47, SD = 2.75) did not significantly differ from each other in relation to the hours spent teaching about HIV prevention in a typical health education class. The null hypothesis was thus accepted.

Hypothesis 1.4  There is no statistically significant difference between high school health education teachers’ number of years teaching health education in relation to their total hours spent teaching about HIV prevention.

High school health education teachers’ number of years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that
there was no statistically significant difference in hours spent teaching about HIV prevention in a typical health education class in relation to the number of years that high school health education teachers have been teaching health education \( (F = 1.64, \text{df} = 3, p = 0.18) \). High school health education teachers who had been teaching health education for 0-9 years \( (M = 3.50, \text{SD} = 2.53) \) did not differ significantly from those who had been teaching for 10-19 years \( (M = 4.06, \text{SD} = 3.04) \), 20-29 years \( (M = 4.24, \text{SD} = 2.23) \), or 30-39 years \( (M = 3.19, \text{SD} = 1.13) \) in relation to the hours spent teaching about HIV prevention in a typical health education class. The null hypothesis was thus accepted.

**Hypothesis 1.5** There is no statistically significant difference in the hours spent teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

A t-test was calculated and found that there was no statistically significant difference between the total hours spent teaching about HIV prevention in a typical class in relation to whether high school health education teachers were trained \( (M = 3.85, \text{SD} = 2.74) \) or not trained \( (M = 3.39, \text{SD} = 2.61) \) about HIV prevention \( (t = 1.43, \text{df} = 314, p = 0.15) \). The null hypothesis was thus accepted.

**Hypothesis 1.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was a statistically significant difference between the total hours spent teaching about HIV prevention in a typical class in relation to the
race/ethnicity of the teacher, with non-white teachers (M = 4.76, SD = 3.16) reporting a
greater number of hours teaching about HIV prevention than white teachers (M = 3.62,
SD = 2.65) (t = -2.18, df = 315, p = 0.03). The null hypothesis was therefore rejected.

**Hypothesis 1.7** There is no statistically significant difference with respect to the gender
of high school health education teachers in relation to their total hours spent teaching
about HIV prevention.

A t-test was calculated and found that there was no statistically significant
difference between the total hours spent teaching about HIV prevention in a typical class
in relation to the gender of the high school health education teacher. The number of
hours spent teaching about HIV prevention in a typical health education class by male
teachers (M = 3.55, SD = 2.54) did not differ significantly from the number of hours
spent teaching about HIV prevention by female teachers (M = 3.93, SD = 2.93) (t = -1.24,
df = 315, p = 0.22). The null hypothesis was thus accepted.

**Hypothesis 1.8** There is no statistically significant difference with respect to the age of
high school health education teachers in relation to their total hours spent teaching about
HIV prevention.

The ages of high school health education teachers’ were categorized into five
groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An
ANOVA test was calculated and found that there was no statistically significant
difference in hours spent teaching about HIV prevention in a typical health education
class in relation to high school health education teachers’ age. High school health
education teachers between the ages of 20-29 years (M = 3.94, SD = 2.94) did not differ
significantly from teachers who were between the ages of 30-39 years (M = 3.21, SD =
2.26), 40-49 years (M = 3.97, SD = 3.15), 50-59 years (M = 3.77, SD = 2.55), or 60-69 years (M = 4.43, SD = 2.95) in relation to the hours spent teaching about HIV prevention in a typical health education class (F = -1.38, df = 4, p = 0.24). The null hypothesis was thus accepted.

**Hypothesis 1.9** There is no statistically significant difference by location of the school in relation to their total hours spent teaching about HIV prevention.

The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was calculated and found that there was no statistically significant difference in hours spent teaching about HIV prevention in a typical health education class in relation to school location. High school health education teachers located in rural schools (M = 3.88, SD = 2.82) did not differ significantly from teachers in suburban (M = 3.25, SD = 2.19) or urban (M = 4.21, SD = 3.36) schools in relation to the hours spent teaching about HIV prevention in a typical health education class (F = 2.34, df = 2, p = 0.10). The null hypothesis was thus accepted.

**Hypothesis 1.10** All of the listed independent demographic/background variables will predict a significant amount of variance in the amount of time spent teaching about HIV prevention by high school health teachers.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
• training in HIV prevention
• years teaching health education
• location of the school
• having a state-mandated requirement to teach HIV prevention

Multiple regression analysis was calculated to predict the amount of time spent teaching about HIV prevention by high school health education teachers. A statistically significant relationship was observed \[ F (1, 286) = 5.10, p = 0.03 \]. Race \( t = 2.26, p = 0.03 \) was the only independent variable that predicted the amount of time high school health education teachers spent teaching HIV prevention. Race had an adjusted \( r^2 \) value of .014. This variable predicted 1% of the variance. The null hypothesis was thus rejected.

**Research Question #2**

What are the differences in perceptions of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention?

**Hypothesis 2.1** There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction with respect to outcome expectations related to teaching about HIV prevention.

A t-test was calculated and found that there was no statistically significant difference between the level of outcome expectations of high school health education teachers in relation to whether they taught in a state that required instruction in HIV prevention at the high school level (M = 6.32, SD = 1.52) or in a state that does not
require instruction in HIV prevention at the high school level (M = 6.27, SD = 1.48) (t = -0.31, df = 360, p = 0.76). The null hypothesis was thus accepted.

**Hypothesis 2.2** There is no statistically significant difference by high school health education teachers’ level of education with respect to outcome expectations related to teaching about HIV prevention.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’, education specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ outcome expectations related to teaching HIV prevention with respect to teachers’ level of education (t = -1.45, df = 360, p = 0.15). Teachers with undergraduate degrees (M = 6.15, SD = 1.41), did not significantly differ from those with graduate degrees (M = 6.39, SD = 1.55) in relation to outcome expectations related to teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 2.3** There is no statistically significant difference by high school health education teachers’ degree major with respect to outcome expectations related to teaching about HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no
statistically significant difference in outcome expectations about teaching HIV prevention in relation to the major of teachers’ highest completed degree (F = 0.78, df = 5, p = 0.57). Teachers with degree majors in health education (M = 6.51, SD = 1.41), secondary health and physical education (M = 6.50, SD = 1.60), K-12 health and physical education (M = 6.32, SD = 1.38), family and consumer sciences (M = 6.31, SD = 1.45), education administration and leadership (M = 6.43, SD = 1.40), and other majors (M = 6.10, SD = 1.69) did not significantly differ from each other in outcome expectations about teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 2.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education with respect to outcome expectations related to teaching about HIV prevention.

High school health education teachers’ years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ outcome expectations regarding teaching about HIV prevention in relation to the years that high school health education teachers had been teaching health education (F = 3.43, df = 3, p = 0.01). Post hoc t tests with Bonferroni corrections were used to examine these differences. High school health education teachers who had been teaching health education for 10-19 years (M = 6.69, SD = 1.67) differed significantly from those who had been teaching for 0-9 years (M = 6.09, SD = 1.56), 20-29 years (M = 6.28, SD = 1.49), or 30-39 years (M = 6.16, SD = 2.13) in relation to how much teachers value the
outcome expectations related to teaching about HIV prevention. Therefore, the null hypothesis was rejected.

**Hypothesis 2.5** There is no statistically significant difference in outcome expectations related to teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ outcome expectations about teaching HIV prevention in relation to whether teachers were trained (M = 6.51, SD = 1.42) or not trained (M = 5.59, SD = 1.54) about HIV prevention (t = 3.26, df = 357, p = 0.01). Therefore, the null hypothesis was rejected.

**Hypothesis 2.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ outcome expectations about teaching HIV prevention in relation to the race/ethnicity of the teacher. Non-white teachers (M = 6.22, SD = 1.91) reported no difference in outcome expectations about teaching HIV prevention compared to white teachers (M = 6.32, SD = 1.43) (t = 3.78, df = 358, p = 0.71). Thus, the null hypothesis was accepted.
Hypothesis 2.7 There is no statistically significant difference with respect to the gender of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

A t-test was calculated and found that there was no statistically significant difference between high school health education teachers’ outcome expectations about teaching HIV prevention in relation to the gender of the teacher. The outcome expectations of male teachers (M = 6.28, SD = 1.46) did not differ significantly from the outcome expectations of female teachers (M = 6.33, SD = 1.52) (t = 0.36, df = 359, p = 0.72). The null hypothesis was thus accepted.

Hypothesis 2.8 There is no statistically significant difference with respect to the age of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

The ages of high school health education teachers’ were categorized into five groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ outcome expectations about teaching HIV prevention in relation to high school health education teachers’ age. High school health education teachers between the ages of 20-29 years (M = 6.32, SD = 1.34) did not differ significantly from teachers who were between the ages of 30-39 years (M = 6.32, SD = 1.22), 40-49 years (M = 6.10, SD = 1.60), 50-59 years (M = 6.50, SD = 1.59), or 60-69 years (M = 6.33, SD = 1.83) in relation to outcome expectations about teaching HIV prevention (F = 0.89, df = 4, p = 0.47). The null hypothesis was thus accepted.
**Hypothesis 2.9** There is no statistically significant difference by location of the school with respect to outcome expectations related to teaching about HIV prevention.

The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ outcome expectations about teaching HIV prevention in relation to school location. High school health education teachers located in rural schools (M = 6.30, SD = 1.56) did not differ significantly from teachers in suburban (M = 6.34, SD = 1.28) or urban (M = 6.10, SD = 1.76) schools in relation to outcome expectations about teaching HIV prevention (F = 0.42, df = 2, p = 0.66). The null hypothesis was thus accepted.

**Hypothesis 2.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ outcome expectations related to teaching about HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention
Multiple regression analysis was calculated to predict the outcome expectations related to teaching HIV prevention by high school health education teachers. A statistically significant relationship was observed [F (1, 322) = 8.34, p = 0.04]. Being trained to teach HIV prevention (t = -2.89, p = 0.04) was the only independent variable that predicted high school health education teachers’ outcome expectations related to teaching HIV prevention. Being trained to teach HIV prevention had an adjusted $r^2$ value of .022. This variable predicted 2% of the variance. The null hypothesis was thus rejected.

**Research Question #3**

What factors affect differences related to the barriers perceived by high school health education teachers regarding HIV prevention instruction?

**Hypothesis 3.1** There is no statistically significant difference in perceived barriers to teaching HIV prevention between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.

A t-test was calculated and found that there was no statistically significant difference between high school health education teachers’ perceived barriers to teaching HIV prevention in relation to whether they taught in a state that required instruction in HIV prevention at the high school level ($M = 0.65$, $SD = 0.94$) or in a state that did not require instruction in HIV prevention at the high school level ($M = 0.69$, $SD = 1.08$) ($t = 0.37$, $df = 359$, $p = 0.71$). The null hypothesis was thus accepted.
**Hypothesis 3.2** There is no statistically significant difference by high school health education teachers’ level of education regarding perceived barriers to teaching HIV prevention.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’, education specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was a statistically significant difference in high school health education teachers’ perceived barriers to teaching HIV prevention with respect to teachers’ level of education (t = 2.81, df = 359, p = 0.05). Teachers with undergraduate degrees (M = 0.85, SD = 1.05) perceived significantly more barriers to teaching HIV prevention than those with graduate degrees (M = 0.55, SD = 0.96). Therefore, the null hypothesis was rejected.

**Hypothesis 3.3** There is no statistically significant difference by high school health education teachers’ degree major regarding perceived barriers to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived barriers to teaching HIV prevention in relation to the major of teachers’ highest
completed degree (F = 0.49, df = 5, p = 0.78). Post hoc t tests with Bonferroni corrections were used to examine these differences. Teachers with degree majors in health education (M = 0.63, SD = 0.88), secondary health and physical education (M = 0.55, SD = 1.01), K-12 health and physical education (M = 0.74, SD = 0.91), family and consumer sciences (M = 0.81, SD = 1.05), education administration and leadership (M = 0.46, SD = 1.20), and other majors (M = 0.64, SD = 1.09) did not significantly differ from each other in relation to perceived barriers to teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 3.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived barriers to teaching HIV prevention.

High school health education teachers’ years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ perceived barriers to teaching HIV prevention in relation to the years that high school health education teachers had been teaching health education (F = 3.75, df = 3, p = 0.01). High school health education teachers who had been teaching health education for 30-39 years (M = 0.12, SD = 0.33) perceived significantly fewer barriers to teaching about HIV prevention than those who had been teaching for 0-9 years (M = 0.78, SD = 1.09), 10-19 years (M = 0.62, SD = 0.89), or 20-29 years (M = 0.54, SD = 0.95). Therefore, the null hypothesis was rejected.
**Hypothesis 3.5** There is no statistically significant difference in perceived barriers to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ perceived barriers to teaching HIV prevention in relation to whether teachers were trained or not, with those who were trained to teach about HIV prevention reporting fewer barriers (M = 0.46, SD = 0.74) than those who were not trained (M = 1.02, SD = 1.27) (t = -5.36, df = 356, p < 0.01). Therefore, the null hypothesis was rejected.

**Hypothesis 3.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived barriers to teaching HIV prevention in relation to the race/ethnicity of the teacher. Non-white teachers (M = 0.94, SD = 1.15) reported no difference in the number of perceived barriers to teaching HIV prevention compared to white teachers (M = 0.63, SD = 0.99) (t = -1.79, df = 357, p = 0.08). Thus, the null hypothesis was accepted.

**Hypothesis 3.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived barriers to teaching HIV prevention.
A t-test was calculated and found that there was no statistically significant
difference between high school health education teachers’ perceived barriers to teaching
HIV prevention in relation to the gender of the teacher. The number of barriers perceived
by male teachers (M = 0.64, SD = 1.02) did not differ significantly from the number of
barriers perceived by female teachers (M = 0.70, SD = 0.98) (t = 0.54, df = 358, p =
0.59). The null hypothesis was thus accepted.

**Hypothesis 3.8** There is no statistically significant difference with respect to the age of
high school health education teachers regarding their perceived barriers to teaching HIV
prevention.

The ages of high school health education teachers’ were categorized into five
groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An
ANOVA test was calculated and found that there was a statistically significant difference
in high school health education teachers’ perceived barriers to teaching HIV prevention
in relation to high school health education teachers’ age. Post hoc t tests with Bonferroni
corrections were used to examine these differences. High school health education
teachers between the ages of 40-49 years (M = 0.86, SD = 1.21) perceived significantly
more barriers than teachers who were between the ages of 20-29 years (M = 0.74, SD =
1.20), 30-39 years (M = 0.74, SD = 0.90), 50-59 years (M = 0.46, SD = 0.84), or 60-69
years (M = 0.29, SD = 0.56) (F = .29, df = 4, p = 0.02). Therefore, the null hypothesis
was rejected.

**Hypothesis 3.9** There is no statistically significant difference by location of the school
regarding high school health education teachers’ perceived barriers to teaching HIV
prevention.
The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived barriers to teaching HIV prevention in relation to school location. High school health education teachers located in rural schools (M = 0.62, SD = 0.93) did not differ significantly from teachers in suburban (M = 0.71, SD = 1.15) or urban (M = 0.81, SD = 0.92) schools in relation to perceived barriers in teaching HIV prevention (F = 0.77, df = 2, p = 0.47). The null hypothesis was thus accepted.

**Hypothesis 3.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding barriers to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

Multiple regression analysis was calculated to predict high school health education teachers’ perceptions of barriers related to teaching HIV prevention. A statistically significant relationship was observed [F (3, 319) = 14.25, p < 0.01]. Being
trained to teach HIV prevention (t = 5.65, p < 0.01), level of education (t = -2.45, p = 0.02), and location of the school (t = 2.09, p = 0.04) were the independent variables that showed significant relationships with the barriers perceived by high school health education teachers related to teaching HIV prevention. Being trained to teach HIV prevention alone had an adjusted $r^2$ value of .022. When level of education and school location were added, the adjusted $r^2$ value changed to .110. When considering being trained to teach HIV prevention, level of education and school location, these three variables predicted 11% of the variance. The null hypothesis was thus rejected.

**Research Question #4**

What are the differences in perceived benefits regarding HIV prevention education?

**Hypothesis 4.1** There is no statistically significant difference in perceived benefits to HIV prevention education between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.

A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ perceived benefits to teaching HIV prevention in relation to whether they taught in a state that required instruction in HIV prevention at the high school level. High school health education teachers who taught in a state that required HIV prevention instruction (M = 5.12, SD = 1.42) perceived significantly more benefits related to teaching HIV prevention than high school health educators who taught in states that did not require instruction in HIV prevention at the high school level (M = 4.49, SD = 2.00) (t = -3.46, df = 358, p = 0.01). Therefore, the null hypothesis was rejected.
Hypothesis 4.2  There is no statistically significant difference by high school health education teachers’ level of education regarding their perceived benefits of teaching HIV prevention.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’, education specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived benefits to teaching HIV prevention with respect to teachers’ level of education ($t = -1.87$, df = 358, $p = 0.06$). Teachers with undergraduate degrees ($M = 4.62$, $SD = 1.77$) did not differ significantly in their perception of benefits related to teaching HIV prevention compared to teachers with graduate degrees ($M = 4.97$, $SD = 1.69$). Thus, the null hypothesis was accepted.

Hypothesis 4.3  There is no statistically significant difference by high school health education teachers’ degree major regarding their perceived benefits of teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no statistically significant difference in high school health educators’ perceived benefits to teaching HIV prevention in relation to the major of teachers’ highest completed degree (F
Teachers with degree majors in health education (M = 5.01, SD = 1.73), secondary health and physical education (M = 5.41, SD = 1.18), K-12 health and physical education (M = 4.92, SD = 1.60), family and consumer sciences (M = 4.69, SD = 1.74), education administration and leadership (M = 4.57, SD = 1.83), and other majors (M = 4.63, SD = 1.92) did not significantly differ from each other in relation to perceived benefits to teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 4.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived benefits of teaching HIV prevention.

High school health education teachers’ years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived benefits to teaching HIV prevention in relation to the years that high school health education teachers have been teaching health education (F = 0.37, df = 3, p = 0.78). High school health education teachers who had been teaching health education for 0-9 years (M = 4.76, SD = 1.79) did not differ significantly in their perception of benefits related to teaching HIV prevention from high school health education teachers who had been teaching for 10-19 years (M = 4.86, SD = 1.77), 20-29 years (M = 4.96, SD = 1.63), or 30-39 years (M = 5.08, SD = 1.56). Thus, the null hypothesis was accepted.

**Hypothesis 4.5** There is no statistically significant difference in perceived benefits to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.
A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ perceived benefits to teaching HIV prevention in relation to whether teachers were trained or not, with those who had been trained to teach about HIV prevention reporting more perceived benefits ($M = 5.26$, $SD = 1.38$) than those who were not trained ($M = 4.17$, $SD = 1.99$) ($t = 6.06$, $df = 355$, $p < 0.01$). Therefore, the null hypothesis was rejected.

**Hypothesis 4.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ perceived benefits to teaching HIV prevention in relation to the race/ethnicity of the teacher. Non-white teachers ($M = 4.56$, $SD = 2.10$) reported no difference in perceived benefits related to teaching HIV prevention compared to white teachers ($M = 4.88$, $SD = 1.67$) ($t = 1.07$, $df = 356$, $p = 0.28$). Thus, the null hypothesis was accepted.

**Hypothesis 4.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

A t-test was calculated and found that there was no statistically significant difference between high school health education teachers’ perceived benefits to teaching HIV prevention in relation to the gender of the teacher. The benefits perceived by male
teachers (M = 4.17, SD = 1.75) did not differ significantly from the benefits perceived by female teachers (M = 4.94, SD = 1.72) (t = 1.27, df = 357, p = 0.21). The null hypothesis was thus accepted.

**Hypothesis 4.8** There is no statistically significant difference with respect to the age of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

The ages of high school health education teachers’ were categorized into five groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ perceived benefits to teaching HIV prevention in relation to high school health education teachers’ age. Post hoc t tests with Bonferroni corrections were used to examine these differences. High school health education teachers between the ages of 60-69 years (M = 5.76, SD = 0.70) perceived significantly more benefits related to teaching HIV prevention than teachers who were between the ages of 20-29 years (M = 5.13, SD = 1.28), 30-39 years (M = 4.62, SD = 1.88), 40-49 years (M = 4.64, SD = 1.82), or 50-59 years (M = 4.98, SD = 1.65) (F = 2.73, df = 4, p = 0.03). Therefore, the null hypothesis was rejected.

**Hypothesis 4.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ perceived benefits of teaching HIV prevention.

The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was calculated and found that there was no statistically significant difference in high school
health education teachers’ perceived benefits to teaching HIV prevention in relation to school location. High school health education teachers located in rural schools (M = 4.87, SD = 1.61) did not differ significantly from teachers in suburban (M = 4.97, SD = 1.78) or urban (M = 4.31, SD = 2.11) schools in relation to perceived benefits teaching HIV prevention (F = 2.33, df = 2, p = 0.10). The null hypothesis was thus accepted.

**Hypothesis 4.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding the benefits of teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

Multiple regression analysis was calculated to predict high school health education teachers’ perceptions of benefits related to teaching HIV prevention. A statistically significant relationship was observed [F (2, 319) = 19.92, p < 0.01]. Being trained to teach HIV prevention (t = -5.36, p < 0.01) and having a state mandate requiring HIV prevention instruction (t = 2.38, p = 0.02) were the only independent variables that showed significant relationships with the number of benefits perceived by high school
health education teachers related to teaching HIV prevention. Being trained to teach HIV prevention alone had an adjusted $r^2$ value of .09. When having a state mandate requiring HIV prevention instruction was added, the adjusted $r^2$ value changed to .11. When considering being trained to teach HIV prevention and having a state mandate requiring HIV prevention instruction, these two variables predicted 11% of the variance. The null hypothesis was thus rejected.

**Research Question #5**

What factors affect differences in perceived efficacy expectations regarding teaching HIV prevention?

**Hypothesis 5.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and efficacy expectations of high school health education teachers related to teaching HIV prevention.

A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ efficacy expectations about teaching HIV prevention in relation to whether they taught in a state that required instruction in HIV prevention at the high school level. High school health education teachers who taught in a state that required HIV prevention instruction ($M = 42.9$, $SD = 6.96$) had significantly greater efficacy expectations about teaching HIV prevention than high school health educators who taught in states that did not require instruction in HIV prevention at the high school level ($M = 40.7$, $SD = 7.19$) ($t = -2.88$, $df = 341$, $p = 0.04$). Therefore, the null hypothesis was rejected.
**Hypothesis 5.2** There is no statistically significant difference in efficacy expectations about teaching HIV prevention in relation to high school health education teachers’ level of education.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’, education specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was a statistically significant difference in high school health education teachers’ efficacy expectations about teaching HIV prevention with respect to teachers’ level of education ($t = -3.28, df = 341, p = 0.01$). Teachers with graduate level degrees ($M = 42.9, SD = 6.97$) had significantly greater efficacy expectations about teaching HIV prevention compared to teachers with undergraduate level degrees ($M = 40.3, SD = 7.15$). Therefore, the null hypothesis was rejected.

**Hypothesis 5.3** There is no statistically significant difference by high school health education teachers’ degree major regarding their efficacy expectations related to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no statistically significant difference in high school health educators’ efficacy expectations about teaching HIV prevention in relation to the major of teachers’ highest completed
degree (F = 2.10, df = 5, p = 0.07). Teachers with degree majors in health education (M = 43.4, SD = 5.82), secondary health and physical education (M = 41.7, SD = 6.36), K-12 health and physical education (M = 40.2, SD = 7.85), family and consumer sciences (M = 42.5, SD = 9.43), education administration and leadership (M = 43.3, SD = 7.80), and other majors (M = 42.3, SD = 6.57) did not significantly differ from each other in relation to efficacy expectation about teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 5.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their efficacy expectations related to teaching HIV prevention.

High school health education teachers’ years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ efficacy expectations regarding teaching HIV prevention in relation to the years that high school health education teachers had been teaching health education (F = 3.59, df = 3, p = 0.01). Post hoc t tests with Bonferroni corrections were used to examine these differences. High school health education teachers who had been teaching health education for 30-39 years (M = 45.9, SD = 5.14) had significantly greater efficacy expectation about teaching HIV prevention than high school health education teachers who had been teaching for 0-9 years (M = 41.3, SD = 7.02), 10-19 years (M = 41.8, SD = 7.07), or 20-29 years (M = 43.3, SD = 6.85). Therefore, the null hypothesis was rejected.
**Hypothesis 5.5** There is no statistically significant difference in efficacy expectations related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ efficacy expectations about teaching HIV prevention in relation to whether teachers were trained (M = 44.5, SD = 5.75) or not trained (M = 37.9, SD = 7.04) about HIV prevention (t = 9.42, df = 338, p < 0.01). Therefore, the null hypothesis was rejected.

**Hypothesis 5.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ efficacy expectations about teaching HIV prevention in relation to the race/ethnicity of the teacher. Non-white teachers (M = 41.8, SD = 6.63) reported no difference in efficacy expectations about teaching HIV prevention compared to white teachers (M = 42.0, SD = 7.10 (t = 1.74, df = 339, p = 0.86). Thus, the null hypothesis was accepted.

**Hypothesis 5.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.
A t-test was calculated and found that there was a statistically significant
difference between high school health education teachers’ efficacy expectations about
teaching HIV prevention in relation to the gender of the teacher. Female health education
teachers (M = 42.7, SD = 6.90) reported significantly higher efficacy expectations about
teaching HIV prevention than male health education teachers (M = 40.9, SD = 7.33) (t =
2.36, df = 340, p = 0.02). Therefore, the null hypothesis was rejected.

**Hypothesis 5.8** There is no statistically significant difference with respect to the age of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

The ages of high school health education teachers’ were categorized into five
groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An
ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ efficacy expectations about teaching HIV prevention in relation to high school health education teachers’ age. Post hoc t tests with Bonferroni corrections were used to examine these differences. High school health education teachers between the ages of 60-69 years (M = 45.4, SD = 5.47) reported significantly higher efficacy expectations related to teaching HIV prevention than teachers who were between the ages of 20-29 years (M = 41.4, SD = 6.98), 30-39 years (M = 41.3, SD = 6.93), 40-49 years (M = 40.6, SD = 7.48), or 50-59 years (M = 43.7, SD = 6.60) (F = 3.60, df = 4, p = 0.01). Therefore, the null hypothesis was rejected.

**Hypothesis 5.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ efficacy expectations related to teaching HIV prevention.
The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was calculated and found that there was no statistically significant difference in high school health education teachers’ efficacy expectations about teaching HIV prevention in relation to school location. High school health education teachers located in rural schools (M = 41.7, SD = 7.18) did not differ significantly from teachers in suburban (M = 41.5, SD = 7.33) or urban (M = 43.9, SD = 5.90) schools in relation to efficacy expectations related to teaching HIV prevention (F = 1.77, df = 2, p = 0.17). The null hypothesis was thus accepted.

**Hypothesis 5.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their efficacy expectations related to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

Multiple regression analysis was calculated to predict high school health education teachers’ efficacy expectations related to teaching HIV prevention. A
statistically significant relationship was observed \([F (2, 303) = 41.24, p < 0.01]\). Being trained to teach HIV prevention \((t = -8.47, p < 0.01)\) and teachers’ level of education \((t = 2.46, p = 0.14)\) were the only independent variables that showed significant relationships with the efficacy expectations of high school health education teachers related to teaching HIV prevention. Being trained to teach HIV prevention alone had an adjusted \(r^2\) value of .196. When teachers’ level of education was added, the adjusted \(r^2\) value changed to .209. When considering being trained to teach HIV prevention and teachers’ level of education, these two variables predicted 21% of the variance. The null hypothesis was thus rejected.

**Research Question #6**

What are the differences in attitudes regarding HIV prevention education?

**Hypothesis 6.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and the attitudes of high school health education teachers related to teaching HIV prevention.

A t-test was calculated and found that there was no statistically significant difference between high school health education teachers’ attitudes about teaching HIV prevention in relation to whether they taught in a state that required instruction in HIV prevention at the high school level \((t = 0.73, df = 352, p = 0.47)\). High school health education teachers who taught in a state that required HIV prevention instruction \((M = 12.91, SD = 1.79)\) did not differ significantly from high school health educators who taught in states that do not require instruction in HIV prevention at the high school level \((M = 13.06, SD = 2.04)\) in relation to attitudes about teaching HIV prevention. The null hypothesis was thus accepted.
Hypothesis 6.2 There is no statistically significant difference by high school health education teachers’ level of education regarding their attitudes related to teaching HIV prevention.

For the purpose of this analysis, some of the categories of high school health education teachers’ levels of education were collapsed. Teachers with associates’ and bachelors’ degrees were classified as one group and those with masters’ education, specialist and doctoral degrees were classified as another group. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ attitudes about teaching HIV prevention with respect to teachers’ level of education (t = -0.14, df = 352, p = 0.89). Teachers with graduate level degrees (M = 12.99, SD = 1.92) did not differ significantly with respect to attitudes about teaching HIV prevention compared to teachers with undergraduate level degrees (M = 12.96, SD = 1.89), with both categories of teachers reporting a high level of support for instruction in HIV prevention. Thus, the null hypothesis was accepted.

Hypothesis 6.3 There is no statistically significant difference by high school health education teachers’ degree major regarding their attitudes related to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ degree majors were collapsed. Degree majors were collapsed into six categories: health education, secondary health and physical education, K-12 health and physical education, family and consumer sciences, education administration and leadership, and other. An ANOVA test was calculated and found that there was no statistically significant difference in high school health educators’ attitudes about
teaching HIV prevention in relation to the major of teachers’ highest completed degree (F = 0.73, df = 5, p = 0.60). Teachers with degree majors in health education (M = 12.71, SD = 1.99), secondary health and physical education (M = 13.10, SD = 1.34), K-12 health and physical education (M = 13.16, SD = 1.82), family and consumer sciences (M = 12.88, SD = 1.67), education administration and leadership (M = 13.21, SD = 1.62), and other majors (M = 12.80, SD = 2.10) did not significantly differ from each other in relation to attitudes about teaching HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 6.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their attitudes related to teaching HIV prevention.

High school health education teachers’ years teaching health education ranged from 1-39 years and this range was categorized into four groups: 0-9 years, 10-19 years, 20-29 years, and 30-39 years. An ANOVA test was calculated and found that there was a statistically significant difference in high school health education teachers’ attitudes about teaching HIV prevention in relation to the years that high school health education teachers have been teaching health education (F = 2.73, df = 3, p = 0.04). Post hoc t tests with Bonferroni corrections were used to examine these differences. High school health education teachers who had been teaching health education for 0-9 years (M = 12.65, SD = 1.88) had significantly less supportive attitudes about teaching HIV prevention than high school health education teachers who had been teaching for 10-19 years (M = 13.06, SD = 2.06), 20-29 years (M = 13.25, SD = 1.55), or 30-39 years (M = 13.54, SD = 1.56). Therefore, the null hypothesis was rejected.
**Hypothesis 6.5** There is no statistically significant difference in teacher attitudes related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

A t-test was calculated and found no statistically significant difference between high school health education teachers’ attitudes about teaching HIV prevention in relation to whether teachers were trained (M = 13.00, SD = 1.70) or not trained (M = 12.98, SD = 2.14) about HIV prevention (t = 0.13, df = 349, p = 0.90). The null hypothesis was thus accepted.

**Hypothesis 6.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their attitudes related to teaching HIV prevention.

For the purpose of this analysis, the categories of high school health education teachers’ race/ethnicity were collapsed into two categories: white and non-white. A t-test was calculated and found that there was no statistically significant difference in high school health education teachers’ attitudes about teaching HIV prevention in relation to the race/ethnicity of the teacher. Non-white teachers (M = 12.62, SD = 1.95) reported no significant difference in attitudes about teaching HIV prevention compared to white teachers (M = 13.03, SD = 1.86) (t = 1.23, df = 350, p = 0.22). Thus, the null hypothesis was accepted.

**Hypothesis 6.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their attitudes related to teaching HIV prevention.
A t-test was calculated and found that there was a statistically significant difference between high school health education teachers’ attitudes about teaching HIV prevention in relation to the gender of the teacher. Male health education teachers (M = 13.44, SD = 2.12) reported significantly more supportive attitudes about teaching HIV prevention than female health education teachers (M = 12.59, SD = 1.61) (t = -4.28, df = 351, p < 0.01). Therefore, the null hypothesis was rejected.

**Hypothesis 6.8** There is no statistically significant difference in attitudes related to teaching HIV prevention with respect to the age of high school health education teachers.

The ages of high school health education teachers’ were categorized into five groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-69 years. An ANOVA test was calculated and found no statistically significant difference in high school health education teachers’ attitudes about teaching HIV prevention in relation to high school health education teachers’ age. High school health education teachers between the ages of 20-29 years (M = 13.19, SD = 1.90) reported no significant differences in attitudes about teaching HIV prevention in comparison to teachers who were between the ages of 30-39 years (M = 12.55, SD = 2.02), 40-49 years (M = 13.15, SD = 2.05), 50-59 years (M = 13.18, SD = 1.55), or 60-69 years (M = 13.29, SD = 1.31) (F = 2.07, df = 4, p = 0.09). The null hypothesis was thus accepted.

**Hypothesis 6.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ attitudes related to teaching HIV prevention.

The locations of the schools where high school health education teachers taught were categorized into three groups: rural, suburban, and urban. An ANOVA test was
calculated and found that there was no statistically significant difference in high school health education teachers’ attitudes about teaching HIV prevention in relation to school location. High school health education teachers located in rural schools (M = 13.13, SD = 1.78) did not differ significantly from teachers in suburban (M = 12.76, SD = 1.85) or urban (M = 12.78, SD = 2.66) schools in relation to attitudes about teaching HIV prevention (F = 1.57, df = 2, p = 0.21), with teachers in all geographical settings reporting high levels of support for instruction in HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 6.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their attitudes related to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

Multiple regression analysis was calculated to predict high school health education teachers’ attitudes related to teaching HIV prevention. A statistically significant relationship was observed [F (2, 313) = 11.51, p < 0.01]. Teachers’ gender (t
= 3.87, p < 0.01) and teachers’ years of experience teaching health education (t = 2.73, p = 0.01) were the only independent variables that showed significant relationships with the attitudes of high school health education teachers related to teaching HIV prevention. Teachers’ gender alone had an adjusted $r^2$ value of .043. When teachers’ level of education was added, the adjusted $r^2$ value changed to .063. When considering teachers’ gender and teachers’ years of experience teaching health education, these two variables predicted 6% of the variance. The null hypothesis was thus rejected.

**Research Question #7**

What are the differences in characteristics between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention?

**Hypothesis 7.1** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to state mandates requiring instruction in HIV prevention.

A chi square test was calculated and found that there was a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to whether or not there is a state mandate requiring the instruction of HIV prevention ($\chi^2 = 7.58, df = 1, p = .03$). Of those teachers in states with no mandate requiring instruction in HIV prevention, 87.6% indicated that they currently teach HIV prevention in their health education class. Of those teachers in states that do require instruction in HIV prevention, 92% indicated that they currently teach HIV prevention. Therefore, the null hypothesis was rejected.
**Hypothesis 7.2** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ level of education.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to teachers’ level of education ($\chi^2 = .44$, df = 1, p = .51). Of those teachers with undergraduate degrees, 90.8% indicated that they currently teach HIV prevention in their health education class. Of those teachers with graduate level degrees, 92.7% indicated that they currently teach HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 7.3** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ degree major.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to the major of teachers’ highest completed degree ($\chi^2 = 5.21$, df = 5, p = .39). The null hypothesis was thus accepted.

**Hypothesis 7.4** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to number of years teaching health education.
A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to how many years high school health educators have been teaching health education ($\chi^2 = 3.62$, df = 3, $p = .31$). The null hypothesis was thus accepted.

**Hypothesis 7.5** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to whether or not they were trained to teach HIV prevention.

A chi square test was calculated and found that there was a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to whether or not teachers were trained to teach about HIV prevention ($\chi^2 = 14.99$, df = 1, $p < .01$). Of those teachers who reported being trained to teach about HIV prevention, 96.4% indicated that they currently teach HIV prevention in their health education class. Of those teachers who reported that they were not trained to teach HIV prevention, 85.1% indicated that they currently teach HIV prevention. Therefore, the null hypothesis was rejected.

**Hypothesis 7.6** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the race/ethnicity of the teacher.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently
teaching HIV prevention and those who are not relative to the race/ethnicity of the teacher ($\chi^2 = 2.06, \text{df} = 1, p = .15$). Of those teachers who identified themselves as white, 92.9% indicated that they currently teach HIV prevention in their health education class. Of those teachers who identified themselves as non-white, 86.1% indicated that they currently teach HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 7.7** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to gender of the teacher.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to the gender of the teacher ($\chi^2 = .11, \text{df} = 1, p = .74$). Of the female teachers, 92.4% indicated that they currently teach HIV prevention in their health education class. Of the male high school health education teachers, 91.4% indicated that they currently teach HIV prevention. The null hypothesis was thus accepted.

**Hypothesis 7.8** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ age.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to the teachers’ age ($\chi^2 = 4.05, \text{df} = 4, p = .40$). The null hypothesis was thus accepted.
Hypothesis 7.9 There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the location of the school.

A chi square test was calculated and found that there was not a statistically significant difference between high school health education teachers who are currently teaching HIV prevention and those who are not relative to the location of the teachers’ school ($\chi^2 = 3.04$, df = 2, p = .22). Of those teachers in rural schools, 93.6% indicated that they currently teach HIV prevention in their health education class. Of those teachers in suburban schools, 91.1% indicated that they currently teach HIV prevention. Of those teachers in urban schools, 85.7% indicated that they currently teach HIV prevention. The null hypothesis was thus accepted.

Summary

There were 26 items on the survey that measured high school health education teachers’ attitudes and perceptions related to teaching HIV prevention. The results of the study found that a plurality of high school health education teachers have been teaching health education for less than ten years (46.6%). Ninety-two percent of the respondents currently teach HIV prevention in their health education classes and 93.6% of respondents believed that HIV prevention education should be required. Of those high school health education teachers who were trained to teach about HIV prevention (62.2%), the majority were most recently trained over two years ago (56.4%). In relation to curricular content, of those health education teachers who reported teaching about HIV prevention, the most common topics taught were the influence of alcohol and other drugs
on HIV-related risk behaviors (95.0%), how HIV is transmitted (94.0%), and how to prevent HIV infection (93.4%). High school health education teachers were least likely to teach how to correctly use a condom (44.3%) and how to obtain condoms (54.1%).

Respondents expressed high outcome expectations related to teaching HIV prevention, indicating that teaching about both HIV prevention concepts (87.2%) and HIV prevention skills (87.8%) in the classroom would reduce the number of students who become infected with HIV. The majority of high school health education teachers expressed feeling confident or very confident in their ability to teach all of the curricular topics listed in the survey instrument. More than 50% of the respondents expressed feeling very confident in their ability to teach four topics, including: the benefits of abstinence, how to prevent HIV infection, how HIV is transmitted, and the influence of alcohol and other drugs on HIV-related risk behaviors.

Efficacy expectations of teachers related to teaching HIV prevention were found to be significantly related to the presence of state mandates requiring HIV prevention instruction, the level of teachers’ education, the number of years teachers had been teaching health education, whether or not teachers were trained in HIV prevention and the teachers’ age. Teachers in states with mandates requiring instruction in HIV prevention reported significantly higher efficacy expectations than teachers in states without requirements for HIV prevention instruction. High school health education teachers who had a graduate level degree and were trained to teach HIV prevention were more likely to report higher efficacy expectations than their peers. Those teachers who had been teaching health education for 30-39 years and teachers who were between the
ages of 60-69 years were also more likely to report high efficacy expectations related to teaching HIV prevention.

The results of this study also indicated a statistically significant difference between high school health education teachers’ outcome expectations about teaching HIV prevention relative to the number of years they have been teaching health education and whether or not they had been trained to teach HIV prevention. High school health education teachers who had been teaching health education for between 10 and 19 years had significantly higher outcome expectations related to teaching HIV prevention than their peers. Those health education teachers who were trained to teach about HIV prevention also had higher outcome expectations related to teaching HIV prevention than their untrained peers.

The vast majority of respondents (98.3%) were in agreement that there are benefits to teaching HIV prevention. High school health education teachers were most likely to cite increased awareness about HIV (91.4%) and increased ability of students to avoid engaging in HIV-related high-risk behaviors (88.1%) as benefits of teaching HIV prevention. In relation to benefits perceived by teachers related to teaching about HIV prevention, three factors were identified as being significant as a result of this study. A statistically significant difference was found in perceived benefits to HIV prevention education between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction. High school health education teachers who taught in a state that required HIV prevention instruction perceived significantly more benefits related to teaching HIV prevention than high school health educators who taught in states that did not require
instruction in HIV prevention at the high school level. The benefits perceived by teachers about teaching HIV prevention were also significantly influenced by whether or not teachers were trained in HIV prevention, with those who were trained reporting more perceived benefits than those who were not trained. The age of high school health education teachers was also significant. High school health education teachers between the ages of 60-69 years reported significantly more perceived benefits related to teaching HIV prevention than their younger peers.

The majority (58.2%) of high school health education teachers reported that they perceived no barriers to teaching about HIV prevention. Of the respondents who reported perceiving barriers to teaching about HIV prevention, the most commonly cited barrier was a lack of adequate materials or resources (23.3%). A statistically significant difference was found by high school health education teachers’ level of education regarding perceived barriers to teaching HIV prevention. Teachers with undergraduate degrees perceived significantly more barriers to teaching HIV prevention than those with graduate degrees. Three additional factors were statistically significant in relation to barrier perceptions. The number of years teaching health education was significant with those teachers who had been teaching health education for 30-39 years indicating that they perceived the fewest barriers. A statistically significant difference was also found relative to training about HIV prevention, with teachers who were trained reporting fewer barriers than those who were not trained. The age of teachers was also significant. High school health education teachers between the ages of 40-49 years reported that they perceived significantly more barriers than their peers.
The characteristics of high school health education teachers that differed significantly with respect to whether or not they were currently teaching HIV prevention included having a state mandate requiring HIV prevention instruction and being trained to teach HIV prevention. Of those teachers in states with mandates requiring HIV prevention instruction, 92% indicated that they currently taught HIV prevention. Of the teachers in states without such a mandate, 87% of high school health education teachers reported currently teaching HIV prevention. Of those teachers who were trained to teach HIV prevention, 96% indicated that they currently teach about it, while 85% of the high school health education teachers who were not trained, reported currently teaching about the subject.

High school health education teachers agreed at a rate of 95% or higher that it is the role of high school health education teachers to teach students how HIV is transmitted and how to reduce the risk of transmitting HIV and that teaching HIV prevention does not encourage students to be sexually active. Additionally, over 70% disagreed that the best way to teach their students about HIV prevention is by taking an abstinence-only approach. Teachers’ attitudes related to teaching HIV prevention were related significantly to the number of years that high school health educators had been teaching health education and the gender of the teacher. High school health education teachers who had been teaching health education for fewer years had significantly less supportive attitudes about teaching HIV prevention than their peers. Additionally, in this study, male health education teachers reported significantly more supportive attitudes about teaching HIV prevention than female health education teachers. Finally, the race/ethnicity of health teachers was found to be statistically significant in relation to the
total hours spent teaching about HIV prevention in a typical class, with non-white teachers reporting a greater number of hours teaching about HIV prevention than white teachers.
CHAPTER FIVE

CONCLUSIONS

This chapter contains the following sections: Summary, Accepted Hypotheses, Rejected Hypotheses, Discussion, Implications, and Recommendations.

**Summary**

This study was conducted to examine the following issues:

1. What are the differences in total hours spent teaching about HIV prevention by high school health education teachers?
2. What are the differences in perceptions of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention?
3. What are the differences related to the barriers perceived by high school health education teachers regarding HIV prevention instruction?
4. What are the differences in perceived benefits regarding HIV prevention?
5. What are the differences in efficacy expectations regarding teaching HIV prevention?
6. What are the differences in attitudes regarding HIV prevention education?
7. What are the differences in characteristics between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention?

A four-page, 26-item questionnaire was used to assess secondary health educators’ attitudes and perceptions related to HIV prevention education. The questionnaire was developed based on a comprehensive review of the literature and an expert panel review. The instrument assessed perceived barriers, benefits, efficacy expectations and outcome expectations of high school health education teachers related to
HIV prevention instruction. The instrument also included questions about the participants’ background and demographic characteristics including: school location, age, sex of the teacher, level of education, race/ethnicity, number of years teaching health education, training experience and certification status.

The sample for the study was obtained from the Common Core of Data (CCD) of the United States Department of Education’s National Center for Educational Statistics (NCES – October, 2010). A total of 11,250 high schools were identified in this list and a random sample of 800 high schools was generated based on an *a priori* power analysis. Schools were then categorized with respect to whether or not their state had a mandate requiring HIV-prevention education. After classifying the schools, a sample of 400 schools were randomly selected from each group to prevent over-sampling from either category. A three-wave mailing was performed and included an incentive – a one dollar bill (in the first mailing) -- and a stamped, return envelope to maximize the response rate. Two weeks after the first mailing, a second mailing, which included a first-class postage-paid addressed return envelope was directed to non-respondents. Two weeks following the second mailing, a colored postcard reminder was sent to non-respondents urging their participation.

A total of 800 surveys were sent to lead health education teachers in the selected high schools. Seventy-nine surveys were undeliverable, leaving a potential sample size of 721. A total of 362 high school health education teachers (50%) responded. The majority of high school health education teachers were female (54.7%), white (89.5%), and had a graduate level degree (61%). The majority also had been trained to teach HIV prevention (62.2%). A plurality of the respondents were between the ages of 30
and 39 years of age (28.5%) and had been teaching health education for less than ten years (46.4%).

Ninety-two percent of the responding high school health education teachers currently teach HIV prevention in their health education classes and 93.6% of respondents believe that HIV prevention education should be required. The majority of high school health education teachers expressed feeling confident or very confident in their ability to teach all of the curricular topics listed in the survey instrument. The majority of respondents (98.3%) were also in agreement that there are benefits to teaching HIV prevention with teachers in states requiring HIV prevention instruction perceiving significantly more benefits than those in states that do not require instruction in HIV prevention at the high school level. The benefits perceived by teachers about teaching HIV prevention were also influenced by whether or not teachers were trained to teach HIV prevention and the age of the teacher. Those high school health education teachers who were trained perceived more benefits than their untrained peers, as did teachers between the ages of 60-69 years when compared to peers under the age 59 years.

Health education teachers generally expressed high outcome expectations related to teaching HIV prevention, with the majority agreeing that teaching about both HIV prevention concepts (87.2%) and HIV prevention skills (87.8%) in the classroom will reduce the number of students who become infected with HIV. Both years of experience teaching health education and training to teach HIV prevention was found to significantly increase outcome expectations related to the topic. Efficacy expectations of teachers related to teaching HIV prevention were also found to be influenced by the presence of state mandates requiring HIV prevention instruction, the level of teachers’ education, the
number of years teachers have been teaching health education, whether or not teachers were trained in HIV prevention and the teachers’ age. Teachers in states with mandates requiring instruction in HIV prevention reported higher efficacy expectations than peers in states without requirements for HIV prevention instruction. Those teachers with a graduate level degree and who were trained to teach HIV prevention also reported higher efficacy expectations than their peers, as did teachers who taught health education for 30-39 years and those who were between 60-69 years of age.

Regarding attitudes about teaching HIV prevention, high school health education teachers expressed agreement at a rate of 95% or higher that it is the role of high school health education teachers to teach students how HIV is transmitted and how to reduce the risk of transmitting HIV. More than 95% of high school health education teachers believed that teaching HIV prevention does not encourage students to be sexually active and over 70% concurred in disagreeing that the best way to teach their students about HIV prevention is by taking an abstinence-only approach. Teachers’ attitudes related to teaching HIV prevention were related significantly to the number of years that high school health educators had been teaching health education and to the gender of the teacher. High school health education teachers who had been teaching health education for fewer years had significantly less supportive attitudes about teaching HIV prevention than their peers. Additionally, in this study, male health education teachers were significantly more supportive about teaching HIV prevention than female health education teachers.

The majority (58.2%) of high school health education teachers reported that they perceived no barriers to teaching about HIV prevention. Of those reporting perceived
barriers to teaching about HIV prevention, the barrier most often cited was a lack of adequate materials or resources (23.3%). This study revealed four factors that were statistically significant in relation to perception of barriers. Teachers’ level of education influenced barrier perception, with graduate level teachers perceiving significantly fewer barriers. A significant difference was also found relative to training about HIV prevention, with teachers who were trained reporting fewer barriers than those who were not trained. The age of teachers and their years of experience teaching health education were also significant in relation to perceived barriers. High school health education teachers between the ages of 40-49 years reported that they perceived significantly more barriers than those in other age groups and those who had been teaching health education for 30-39 years perceiving the fewest barriers.

Finally, the race/ethnicity of health teachers was found to be statistically significant in relation to the total hours spent teaching about HIV prevention in a typical class, with non-white teachers reporting a greater number of hours teaching about HIV prevention than white teachers.

**Accepted Hypotheses**

Based on the study, the following hypotheses were accepted:

**Research Question #1**

What are the differences in total hours spent teaching about HIV prevention by high school health education teachers?

**Hypothesis 1.1** There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states
without requirements for HIV prevention instruction in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.2** There is no statistically significant difference by high school health education teachers’ level of education in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.3** There is no statistically significant difference by high school health education teachers’ degree major in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.5** There is no statistically significant difference in the hours spent teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 1.7** There is no statistically significant difference with respect to the gender of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.8** There is no statistically significant difference with respect to the age of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.9** There is no statistically significant difference by location of the school in relation to their total hours spent teaching about HIV prevention.

**Research Question #2**
What are the differences in perceptions of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention?

**Hypothesis 2.1** There is no statistically significant difference between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.2** There is no statistically significant difference by high school health education teachers’ level of education with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.3** There is no statistically significant difference by high school health education teachers’ degree major with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.7** There is no statistically significant difference with respect to the gender of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.8** There is no statistically significant difference with respect to the age of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.9** There is no statistically significant difference by location of the school with respect to outcome expectations related to teaching about HIV prevention.
**Research Question #3**

What factors affect the differences related to the barriers perceived by high school health education teachers regarding HIV prevention instruction?

**Hypothesis 3.1** There is no statistically significant difference in perceived barriers to teaching HIV prevention between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.

**Hypothesis 3.3** There is no statistically significant difference by high school health education teachers’ degree major regarding perceived barriers to teaching HIV prevention.

**Hypothesis 3.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

**Hypothesis 3.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

**Hypothesis 3.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ perceived barriers to teaching HIV prevention.

**Research Question #4**

What are the differences in perceived benefits regarding HIV prevention education?
**Hypothesis 4.2**  There is no statistically significant difference by high school health education teachers’ level of education regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.3**  There is no statistically significant difference by high school health education teachers’ degree major regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.4**  There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.6**  There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.7**  There is no statistically significant difference with respect to the gender of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

**Hypothesis 4.9**  There is no statistically significant difference by location of the school regarding high school health education teachers’ perceived benefits of teaching HIV prevention.

**Research Question #5**

What factors affect differences in perceived efficacy expectations regarding teaching HIV prevention?
**Hypothesis 5.2** There is no statistically significant difference in efficacy expectations about teaching HIV prevention in relation to high school health education teachers’ level of education.

**Hypothesis 5.3** There is no statistically significant difference by high school health education teachers’ degree major regarding their efficacy expectations related to teaching HIV prevention.

**Hypothesis 5.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

**Hypothesis 5.9** There is no statistically significant difference by location of the school regarding high school health education teachers’ efficacy expectations related to teaching HIV prevention.

**Research Question #6**

What are the differences in attitudes regarding HIV prevention education?

**Hypothesis 6.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and the attitudes of high school health education teachers related to teaching HIV prevention.

**Hypothesis 6.2** There is no statistically significant difference by high school health education teachers’ level of education regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.3** There is no statistically significant difference by high school health education teachers’ degree major regarding their attitudes related to teaching HIV prevention.
Hypothesis 6.5  There is no statistically significant difference in teacher attitudes related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 6.6  There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers regarding their attitudes related to teaching HIV prevention.

Hypothesis 6.8  There is no statistically significant difference in attitudes related to teaching HIV prevention with respect to the age of high school health education teachers.

Hypothesis 6.9  There is no statistically significant difference by location of the school regarding high school health education teachers’ attitudes related to teaching HIV prevention.

Research Question #7
What are the differences in characteristics between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention?

Hypothesis 7.2  There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ level of education.

Hypothesis 7.3  There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ degree major.
**Hypothesis 7.4** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to number of years teaching health education.

**Hypothesis 7.6** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the race/ethnicity of the teacher.

**Hypothesis 7.7** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to gender of the teacher.

**Hypothesis 7.8** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the teachers’ age.

**Hypothesis 7.9** There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to the location of the school.

**Rejected Hypotheses**

**Research Question #1**

What are the differences in total hours spent teaching about HIV prevention by high school health education teachers?
**Hypothesis 1.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers in relation to their total hours spent teaching about HIV prevention.

**Hypothesis 1.10** All of the listed independent demographic/background variables will predict a significant amount of variance in the amount of time spent teaching about HIV prevention by high school health teachers.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #2**

What are the differences in perceptions of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention?

**Hypothesis 2.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education with respect to outcome expectations related to teaching about HIV prevention.
**Hypothesis 2.5** There is no statistically significant difference in outcome expectations related to teaching about HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

**Hypothesis 2.6** There is no statistically significant difference with respect to the race/ethnicity of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.7** There is no statistically significant difference with respect to the gender of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.8** There is no statistically significant difference with respect to the age of high school health education teachers with respect to outcome expectations related to teaching about HIV prevention.

**Hypothesis 2.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ outcome expectations related to teaching about HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
• having a state-mandated requirement to teach HIV prevention

Research Question #3

What factors affect the differences related to the barriers perceived by high school health education teachers regarding HIV prevention instruction?

Hypothesis 3.2  There is no statistically significant difference by high school health education teachers’ level of education regarding perceived barriers to teaching HIV prevention.

Hypothesis 3.3  There is no statistically significant difference by high school health education teachers’ degree major regarding perceived barriers to teaching HIV prevention.

Hypothesis 3.4  There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their perceived barriers to teaching HIV prevention.

Hypothesis 3.5  There is no statistically significant difference in perceived barriers to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 3.8  There is no statistically significant difference with respect to the age of high school health education teachers regarding their perceived barriers to teaching HIV prevention.

Hypothesis 3.10  All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding barriers to teaching HIV prevention.

• race/ethnicity
Research Question #4

What are the differences in perceived benefits regarding HIV prevention education?

Hypothesis 4.1 There is no statistically significant difference in perceived benefits to HIV prevention education between high school health education teachers in states that require HIV prevention instruction and those in states without requirements for HIV prevention instruction.

Hypothesis 4.5 There is no statistically significant difference in perceived benefits to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 4.8 There is no statistically significant difference with respect to the age of high school health education teachers regarding their perceived benefits of teaching HIV prevention.

Hypothesis 4.10 All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding the benefits of teaching HIV prevention.
- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #5**

What factors affect differences in perceived efficacy expectations regarding teaching HIV prevention?

**Hypothesis 5.1** There is no statistically significant difference with respect to whether or not states require HIV prevention instruction and efficacy expectations of high school health education teachers related to teaching HIV prevention.

**Hypothesis 5.2** There is no statistically significant difference in efficacy expectations about teaching HIV prevention in relation to high school health education teachers’ level of education.

**Hypothesis 5.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their efficacy expectations related to teaching HIV prevention.
Hypothesis 5.5  There is no statistically significant difference in efficacy expectations related to teaching HIV prevention between high school health education teachers who were trained about HIV prevention and those who were not trained.

Hypothesis 5.7  There is no statistically significant difference with respect to the gender of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.8  There is no statistically significant difference with respect to the age of high school health education teachers regarding their efficacy expectations related to teaching HIV prevention.

Hypothesis 5.10  All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their efficacy expectations related to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

Research Question #6

What are the differences in attitudes regarding HIV prevention education?
**Hypothesis 6.4** There is no statistically significant difference between high school health education teachers’ number of years teaching health education regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.7** There is no statistically significant difference with respect to the gender of high school health education teachers regarding their attitudes related to teaching HIV prevention.

**Hypothesis 6.10** All of the listed independent demographic/background variables will predict a significant amount of variance of high school health teachers’ perceptions regarding their attitudes related to teaching HIV prevention.

- race/ethnicity
- sex of the teacher
- age of the teacher
- level of education of the teacher
- degree major of the teacher
- training in HIV prevention
- years teaching health education
- location of the school
- having a state-mandated requirement to teach HIV prevention

**Research Question #7**

What are the differences in characteristics between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention?
Hypothesis 7.1  There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to state mandates requiring instruction in HIV prevention.

Hypothesis 7.5  There is no statistically significant difference between high school health education teachers who currently teach HIV prevention and high school health education teachers who do not currently teach HIV prevention with respect to whether or not they were trained to teach HIV prevention.

Discussion

A review of the literature examining the inconsistencies in program delivery of sexuality education programs, which are often the context in which HIV prevention topics are taught, have identified factors including school policies, school size, support from school administration, training, efficacy and outcome expectations of instructors and comfort levels related to course topics as being significant in relation to curricular content and teaching methods (Mathews, Boon, Flisher, and Schaalma, 2006; Landry, Darroch, Singh, and Higgins, 2003; Skripak, 1997; Donovan, 1998). Little research has examined the effects that characteristics of instructors of sexuality education courses have on course content, but there is evidence to suggest teachers’ attitudes toward adolescent sexuality, level of confidence teaching about sexuality topics and perceived community support can influence what topics are presented or discussed (Donovan, 1998; Bowden, Lanning, Pippen & Tanner, 2003). Most high school teachers who provide instruction in sexuality education express comfort teaching about topics such as anatomy, reproduction and birth, puberty, and abstinence, but the majority also indicated that they
were “not at all willing” to teach about topics such as birth control, safer sex methods, or homosexuality (Cohen, Byers, Sears and Weaver, 2001). While few studies exist which examine factors related to instruction in sexuality education in public high schools, there is an absence in the literature of comprehensive research related specifically to factors that influence instruction about HIV prevention in public high schools.

According to the findings in this study, ninety-two percent of the study participants indicated that they currently teach HIV prevention in their health education classes with 62% indicating that they had been trained to teach about HIV prevention. In relation to curricular content, high school health education teachers who reported currently teaching about HIV prevention were most likely to teach about the influence of alcohol and other drugs on HIV-related risk behaviors (95.0%), how HIV is transmitted (94.0%), and how to prevent HIV infection (93.4%). Conversely, teachers were least likely to teach how to correctly use a condom (44.3%) and how to obtain condoms (54.1%). Consistent with the topics most commonly presented in the classroom related to HIV prevention, the majority of teachers expressed feeling very confident in their ability to teach about the benefits of abstinence, how to prevent HIV infection, how HIV is transmitted, and the influence of alcohol and other drugs on HIV-related risk behaviors. This is generally consistent with existing literature, which suggests that teachers are less likely to teach about sexuality education topics that they do not feel confident in teaching about or are perceived as controversial (Cantrell, Stenner and Katzenmeyer, 1977).

The vast majority of high school health education teachers in this study believed that teaching about HIV prevention is beneficial (98%), citing most often that increased awareness about HIV (91%) and increased ability of students to avoid engaging in HIV-
related high-risk behaviors (88%) were benefits associated with instruction. Factors that were identified in this study as significantly influencing perceived benefits of instruction included the number of years teaching health education by instructors, the education level of the instructor, whether or not the instructor was trained to teach about HIV prevention, and the presence of a state mandate requiring HIV prevention instruction. These findings are also consistent with findings in the existing literature (Cantrell, Stenner and Katzenmeyer, 1977; Ghaith and Yaghi, 1997).

The majority (58%) of high school health education teachers in this study also reported that they perceived no barriers to teaching about HIV prevention. Of those who reported barriers to teaching about HIV prevention, the most commonly cited barrier was a lack of adequate materials or resources (23%). Teachers in this study with graduate level degrees perceived significantly fewer barriers to teaching HIV prevention than their peers with undergraduate degrees. Those teachers who have been teaching health education the longest also indicated perceiving the fewest barriers to teaching about HIV prevention, as did those teachers who were trained to teach about HIV prevention. These findings are supported by existing literature related to the instruction of sexuality education in public schools (Ghaith and Yaghi, 1997). To further investigate if there was a difference between teachers who were trained to teach HIV prevention and those who were not with respect to level of education, a chi square test was calculated. The test found that training to teach about HIV prevention was not significantly related to the teachers’ level of education. Sixty-six percent of graduate level teachers and 57% of undergraduate level teachers reported that they had been trained to teach about HIV prevention, suggesting that the difference by education level in perceived barriers may
not be due graduate level teachers receiving more training in HIV prevention instruction than undergraduate level teachers.

The number of years of experience teaching health education was a factor that in this study that emerged as having the broadest influence in relation to high school health educators’ attitudes and perceptions about teaching HIV prevention. Outcome expectations, efficacy expectations, fewer perceived barriers and positive attitudes about teaching HIV prevention all increased proportionately as the years of teaching experience increased. While research that specifically examines the issue of instructor training and preparation as it relates to instruction in HIV prevention or sexuality education in public schools is lacking, studies in general education have identified subject matter knowledge, perceived importance of subject matter, intent to teach curricular content, comfort level with the subject and perceived support from the school and community as factors that correlate to teaching methods (Cantrell, Stenner and Katzenmeyer, 1977; Bowden, Lanning, Pippen, Tanner, 2003; Mathews, Boon, Flisher, and Schaalma, 2006; Lartey, Price, Tellojham, Dake, and Yingling, 2007). Most of these findings are consistent with studies in education examining relationships between teacher self-efficacy, student performance and training. A contradiction in the literature related to the number of years of teaching experience as it relates to health teacher attitudes about HIV/AIDS is cited in a similar 2001 study of high school health educators’ knowledge and attitudes about HIV/AIDS, which was conducted by Dawson and colleagues (Dawson, L.I., Chunis M.L., Smith, D.M., and Carboni, A.A, 2001). In that study, the number of years of teaching experience did not significantly relate to teachers’ attitudes about HIV/AIDS.
In relation to teachers’ attitudes, one additional finding in Dawson and colleagues’ study directly contradicted a finding in the current study. In the current study, male health education teachers were significantly more supportive than their female peers about teaching HIV prevention. The inverse, however, was found by Dawson and colleagues (Dawson, L.I., Chunis M.L., Smith, D.M., and Carboni, A.A, 2001). Existing literature does not provide an explanation for this finding, but it may be an indication of a secular trend, given the ten year span between studies.

The age groups that high school health education teachers were categorized into also demonstrated broad influence in relation to teachers’ attitudes and perceptions related to teaching about HIV prevention. Those teachers ages 40-49 years reported the lowest efficacy expectations, perceived significantly lower benefits and perceived the most barriers related to HIV instruction. A review of the literature did not yield similar findings to support these results, indicating that further research may be needed to better understand what characteristics about teachers in this age range may be having a significant negative effect on their attitudes and perceptions relative to teaching about HIV prevention.

Finally, the race/ethnicity of high school health education teachers was found to be significant in relation to the total hours teachers spent teaching about HIV prevention in a typical class. In this study, non-white teachers reported devoting a significantly greater amount of time teaching about HIV prevention topics in their health education classes than their white peers reported. Similar findings were not evident through a search of the literature, with respect to the race/ethnicity of health education teachers as it relates specifically to the time devoted to teaching about HIV prevention in health
education classes has not been extensively researched. This finding may be related to the disproportionately high rate of HIV infection and prevalence of AIDS among minority groups in the United States when compared to whites. According to the CDC, at the end of 2007, African Americans accounted for almost half (46%) of HIV positive cases in the United States and areas with long-term, confidential, name-based reporting in place. In 2006, the rates of new HIV infections in the United States for African Americans and Hispanics/Latinos were 171.4 and 57.5, respectively, per 100,000, were substantially higher than the rate of 23.4 new infections per 100,000 reported among whites in the United States (CDC, 2011b). The significantly greater amount of time that non-white health education teachers reported teaching about HIV prevention in their health education classes compared to white teachers may be an indication that there is a greater awareness among non-white teachers relative to the issue of HIV/AIDS as a result of the disproportionate impact that HIV/AIDS has had on minority groups in the United States.

Implications

The results of this study are consistent with and support existing literature that identifies teacher training, preparation and experience levels as being significantly related to teaching methods, the effectiveness of instruction, and student outcomes. In this study, those high school health education teachers who reported the least experience teaching health education also reported having the least supportive attitudes, perceived the most barriers, had the lowest efficacy expectations and the lowest outcome expectations related to teaching about HIV prevention. While these findings support the importance of teacher preparation and training, they also suggest that teachers who are more recent college graduates may not be fully prepared to provide effective instruction in HIV
prevention. In a review of nationwide programs that provide undergraduate training for teachers, which included 169 colleges and universities, only 9 percent of health education programs required a sexuality education methods course and only 12 percent of schools surveyed offered any courses with HIV/AIDS in the course description (Rodriguez, Young, Ascencio, and Haffner, 1996). This tendency to assign responsibility of sexuality or HIV instruction to teachers who are not appropriately trained in these subjects may be due, in part, to the failure of most states to establish certification requirements related to these topics. While 32 states and the District of Columbia mandate instruction in HIV prevention in public schools, few specify requirements for teachers of both sexuality and HIV prevention education.

In this study, the presence of a state mandate requiring instruction in HIV prevention had a significant effect on two factors related to teachers’ perceptions, but did not appear to be as influential as other variables. Teachers in states with a mandate requiring HIV instruction reported higher efficacy expectations and perceived more benefits than those teachers in states without such a mandate. Of those teachers in states with mandates requiring HIV prevention instruction, 92% indicated that they currently taught HIV prevention while 87% of high school health education teachers in states without mandates reported currently teaching HIV prevention. The likelihood of a teacher to report being trained in HIV prevention was not significantly related to the presence of a state mandate requiring instruction in HIV prevention. In this study, regardless of the presence of a state mandate requiring instruction in HIV prevention, only 36.4% of the teachers who reported being trained to teach HIV prevention were trained within the past two years. Dawson and colleagues also noted a similar finding.
with less than one-third of the health education teachers in states requiring HIV/AIDS education reporting that they had received training within the past two years. The majority of the teachers in that study also reported that the training they received related to HIV/AIDS was self-taught (Dawson, Chunis, Smith, and Carboni, 2001). Similarly, when asked to identify how they were trained to teach about HIV prevention, nearly 45% of the training experiences reported by those high school health educators in this study who indicated that they were trained fell under method categories (journal articles, training manuals, and online modules) which may have likely involved self-teaching.

While current policy requirements related to instruction about HIV prevention may assist in guiding practice, it is evident that the effectiveness of instruction is more closely related to variables that are related to teacher training and preparation or lack thereof. If education policy related to HIV prevention is to be effective, requirements related to teacher training and preparation need to be more explicit.

**Recommendations**

Based on the findings from this study, the following recommendations are made;

1. HIV prevention needs to be a part of pre-professional training for high school health education teachers.

2. State policies requiring instruction in HIV prevention should include more explicit requirements for teacher preparation and training related to HIV prevention instruction.

3. Local school district policies related to training for high school health education teachers should require more frequent training opportunities through in-services, workshops or other types of training that are not self-taught.
4. Further research should be conducted to examine characteristics of high school health education teachers to confirm or reject findings in this study in relation to the teachers’ age.

5. Additional research should be conducted to determine whether the effects on teachers’ attitudes and perceptions about teaching HIV prevention related to years of experience teaching health education are a result of experience only or if there is also a relationship to the teachers’ preparation.

6. The race/ethnicity of health education teachers should be further investigated as it relates to the time spent teaching about HIV prevention in health education courses. Additionally, the curricular content related to HIV prevention should also be compared by the race/ethnicity of the health education teacher for further analysis.

7. Preparation coursework for undergraduate health education teachers should follow established guidelines for HIV prevention instruction.

8. Research should be conducted to assess the impact that HIV prevention instruction presented within the context of high school health education courses has on student risk behaviors associated with the transmission of HIV.

9. In relation to HIV prevention, professional health education organizations should advocate for more consistency in health education teacher preparation and provide training opportunities for continuing education credits.
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APPENDIX A

Survey Instrument
HIV PREVENTION EDUCATION

Directions: Please complete the survey according to the instructions accompanying each item. Please answer items as they pertain to the high school health education classes you teach. Your responses will be confidential.

For this questionnaire, "HIV Prevention Education" is defined as instruction that includes all of the following: risks associated with sexual behaviors, how to resist peer pressure to engage in sexual behavior, how to correctly use a condom, condom effectiveness, how to prevent HIV infection, the influence of alcohol and other drugs on HIV-related risk behaviors, how HIV is transmitted, and how to find valid information or services related to HIV testing. Please refer to this definition when completing this questionnaire.

Please circle the response that reflects your beliefs regarding teaching about HIV prevention.

Do you agree or disagree that:

<table>
<thead>
<tr>
<th>1. It is the role of high school health teachers to teach students in their classes how HIV is transmitted.</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2. It is the role of high school health teachers to teach students in their classes how to reduce the risk of transmitting HIV.</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>3. Teaching about HIV prevention encourages students to be sexually active.</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4. The best way for high school health teachers to teach their students about HIV prevention is by taking an abstinence-only approach.</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
</table>

5. What do you believe are the benefits of teaching about HIV prevention to the high school students in your health education classes? (Please check all that apply.)

___ I currently do not teach about HIV prevention to my students
___ There are no benefits to teaching about HIV prevention
___ Increases awareness about HIV
___ Helps reduce the spread of HIV
___ Increases the ability of students to avoid engaging in HIV-related high-risk behaviors
___ Increases the ability of students to resist peer pressure to engage in sexual behavior
___ Increases the ability of students to communicate with their parents about HIV prevention
___ Increases the ability of students to find valid information or services related to HIV testing
___ Other (please specify) ____________________________

6. What do you believe are the barriers to teaching about HIV prevention to the high school students in your health education classes? (Please check all that apply.)

___ There are no barriers to teaching about HIV prevention
___ I do not have adequate materials (or resources) to teach about HIV prevention
___ HIV prevention is not included in my school’s health education curriculum.
___ I have not been trained to teach about HIV prevention
___ I am not comfortable teaching about HIV prevention
___ There is not a need in my school for HIV prevention education
___ I do not have enough time to teach about HIV prevention
___ Parents do not support teaching about HIV prevention
___ My school administration does not support teaching about HIV prevention
___ Other (please specify): ____________________________
### HIV PREVENTION EDUCATION

7. How confident are you in your ability to teach the following HIV Prevention concepts and skills? (Please circle the number that best represents your confidence level for each question)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Not Confident</th>
<th>Slightly Confident</th>
<th>Moderately Confident</th>
<th>Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The benefits of abstinence</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. How to resist peer pressure to engage in sexual behavior (e.g. through role-play, etc.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c. About condom effectiveness in preventing the transmission of HIV</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d. How to correctly use a condom</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e. How to obtain condoms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f. How to prevent HIV infection</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g. The influence of alcohol and other drugs on HIV-related risk behaviors</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h. The signs and symptoms of HIV and AIDS</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i. How to find valid information or services related to HIV testing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>j. How HIV is diagnosed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>k. How HIV is transmitted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please circle the response that most reflects your feelings regarding the statements below:

8. Teaching HIV prevention **concepts** to prevent HIV (e.g. transmission, prevention, risks, etc.) will **reduce** the number of high schools students who become infected with HIV.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Teaching HIV prevention **skills** will **reduce** the number of high schools students who become infected with HIV in the future.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**- NOTE: PLEASE READ BEFORE CONTINUING -**

If you do not currently teach about HIV prevention, please skip questions 10 and 11 and complete the demographic information section of this survey (questions 12 – 26).
HIV PREVENTION EDUCATION

10. Which of the following topics do you cover in your health education class? (Check all that apply):
   ___ the benefits of abstinence
   ___ how to resist peer pressure to engage in sexual behavior (e.g. through role-play, etc.)
   ___ condom effectiveness in preventing the transmission of HIV
   ___ how to correctly use a condom
   ___ how to obtain condoms
   ___ how to prevent HIV infection
   ___ the influence of alcohol and other drugs on HIV-related risk behaviors
   ___ the signs and symptoms of HIV and AIDS
   ___ how to find valid information or services related to HIV testing
   ___ how HIV is diagnosed
   ___ how HIV is transmitted
   ___ other: ____________________________

11a. How many total hours do you spend teaching specifically about HIV prevention, in a typical health education class? (Please circle one number)

   <1  1  2  3  4  5  6  7  8  9  10  11 + hours

11b. How many total hours do you spend teaching sexuality education topics (e.g. reproduction, relationships, pregnancy prevention, etc.), including those related to HIV prevention, in a typical health education class? (Please circle one number)

   <1  1  2  3  4  5  6  7  8  9  10  11 + hours

DEMOGRAPHIC / BACKGROUND INFORMATION

12. How many years have you taught full time? _____ years

13. How many years have you been teaching high school health education? _____ years

14. How many years have you been teaching HIV prevention to high school students in your health education classes? _____ years

15. Are you certified by your state to teach health education? ___ Yes ___ No ___ Not applicable

16. Location of your school: ___ Rural ___ Suburban ___ Urban

17. In what type of school do you teach? ___ Public ___ Private ___ Charter

18a. What is your highest level of education completed?
   ___ Associate’s degree ___ Bachelor’s degree ___ Education Specialist degree
   ___ Master’s degree ___ Doctoral degree

   b. What is your major for the degree indicated in 18a? _______________________________________

19. In what state do you currently teach? _______________________________________

20. What is your sex? ___ Female ___ Male
HIV PREVENTION EDUCATION

21. What is your race / ethnicity? (Check all that apply)
   ___ African-American       ___ Asian/Pacific Islander       ___ Hispanic / Latino
   ___ White / Caucasian      ___ Other, please identify: ________________________________

22. What age group do you belong to? (Check one)
   ___ 20-29                   ___ 30-39                   ___ 40-49
   ___ 50-59                   ___ 60-69                   ___ 70 or older

23. Do you know anyone who is HIV-positive? (Check one)   ___ Yes   ___ No   ___ Not Sure

24a. Is there a requirement that HIV prevention be taught in your health education class?
   ___ Yes   ___ No   ___ Not Sure

   b. If yes, what type of requirement (Check all that apply)
      ___ State Mandate       ___ District Mandate       ___ School Mandate       ___ Not Sure
      ___ Other: Please specify ________________________________

25. Whether or not it is a requirement in your school, do you believe that HIV prevention education
should be required as part of health education curriculum? (Check one)
   ___ Yes   ___ No

26a. Have you ever been trained to teach about HIV prevention?   ___ YES   ___ NO

   b. If you answered “YES” to 26a, how were you trained? (Check all that apply)
      ___ Workshop       ___ Training Manual
      ___ Undergraduate Education       ___ Online Modules
      ___ Graduate Education       ___ Professional Conferences
      ___ Journal Articles       ___ Other (please specify) ________________________________

   c. If you answered “YES” to 26a, how many total hours have you spent in training to teach about
HIV prevention? (Please circle one number)
      <1 2 3 4 5 6 7 8 9 10 11+ hours

   d. If you answered “YES” to 26a, when were you most recently trained to teach about HIV
prevention? (Check only one response)
      ___ Less than six months ago       ___ Six months to less than one year ago
      ___ One to two years ago       ___ More than two years ago
      ___ Do not recall

THANK YOU FOR YOUR TIME AND PARTICIPATION IN THIS STUDY.
APPENDIX B

Expert Panel
Expert Panel

Robinette Bacon  
School Health Education Coordinator, HIV/AIDS and Human Sexuality  
Nevada Department of Education  
Office of Child Nutrition and School Health  
700 East Fifth Street, Suite 109  
Carson City Nevada 89701  
rbacon@doe.nv.gov

Kelly Bishop  
Lead Health Education Specialist  
Centers for Disease Control and Prevention  
Division of Adolescent and School Health  
4770 Buford Hwy, NE  
MS K29  
Atlanta, GA 30341  
klbishop@cdc.gov

Kurt Conklin, MPH, CHES  
School Health Project Coordinator  
SIECUS  
90 John St. Suite 402  
New York, NY 10038  
kconklin@siecus.org

Tessa Crume  
Evaluator  
Rocky Mountain Center for Health Promotion and Education  
7525 W. 10th Avenue  
Lakewood, CO 80214  
tessac@rmc.org

Sherry Everett Jones  
Health Scientist  
Centers for Disease Control and Prevention  
Division of Adolescent and School Health  
4770 Buford Hwy, NE  
MS K29  
Atlanta, GA 30341  
sce2@cdc.gov
APPENDIX C

Expert Reviewer Cover Letter
Dear ___________,

Thank you very much for your time. I am conducting a national study on “Secondary health education teachers’ attitudes and perceptions toward HIV prevention education” and you have been identified as an authority in the content which will be used in this study. Your participation as an expert for content validity assessment is vital for the success of this national study and your response is very important to me. All responses will be kept confidential.

You do not have to complete the questionnaire attached with this email. I ask that you assess the content of the questionnaire from three perspectives:

1. Please note any wording problems on the questionnaire that need to be corrected for clarification.

2. Please suggest any additional items which you believe will further enhance our results.

3. Please comment on any items on the questionnaire which you believe are not essential to our goal.

I hope that you will extend a professional courtesy by critiquing my questionnaire. Your response within 7 days of receiving this email/survey is greatly appreciated. If you have any questions, please free to contact me by responding to this email, or by contacting my advisor at the University of Toledo, Dr. Susan Telljohann (419-530-4369). Again, thank you very much for your time and help!

Sincerely,

Scott W. Herr, MPH
Student Investigator
University of Toledo
APPENDIX D

Test-Retest Cover Letter – First Mailing
Dr. Telljohann requests your participation in the testing of a questionnaire for a research project entitled, “Secondary health education teachers’ attitudes and perceptions toward HIV prevention education,” which is being conducted by Scott Herr at the University of Toledo under the direction of Susan Telljohann, HSD, CHES. The purpose of this study is to examine health teachers’ attitudes, perceptions and practices related to the instruction of HIV prevention topics, the content presented and the methods of instruction.

We request your help by completing the enclosed questionnaire on two different occasions within a week. The procedure we are using to test this questionnaire is known as “Test-Retest Reliability Analysis”. In order to help us, it is essential that you complete the questionnaire twice within a week in the order that you get the questionnaire in mail. This phase of our national assessment is vital to a quality assessment.

To participate in this study you are being requested to complete the attached survey. The survey will take approximately 15 minutes to complete. Please complete the survey within one week of receiving it. After receiving this completed survey, the same survey will be mailed to you again to complete. There are minimal risks to participation in this study. The only direct benefit to you if you participate in this research may be that you will learn about survey research process and you may learn more about HIV prevention topics. Others may benefit by learning about the results of this research. For your time and expertise in answering this survey, we have enclosed a one dollar incentive.

Your participation and response is important to this study. All responses will be confidential and you will not be individually identified with your questionnaire or responses. Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled and you may discontinue participation at any time. If you choose not to complete the survey, it will not affect you or your standing with the University of Toledo in any way.

If you have any questions at any time before, during or after your participation, you should contact Dr. Susan Telljohann at (419) 530-4950 or by email at: stelljo@utnet.utoledo.edu. If you have questions beyond those answered by the research team or related to your rights as a research subject or research-related injuries, please contact Dr. Jeffrey Busch, Research Compliance Coordinator, at (419) 530-2844.

Thank you for your time and professional courtesy with this study.

Sincerely,

_________________________  _____________________________
Susan Telljohann, HSD, CHES    Scott W. Herr, MPH
Professor of School Health    Student Investigator
APPENDIX E

Test-Retest Cover Letter – Second Mailing
Dear ______________,

You recently completed and returned a questionnaire for a research project entitled, “Secondary health education teachers’ attitudes and perceptions toward HIV prevention education,” which is being conducted by Scott Herr at the University of Toledo under the direction of Susan Telljohann, HSD, CHES. The purpose of this study is to examine health teachers’ attitudes, perceptions and practices related to the instruction of HIV prevention topics, the content presented and the methods of instruction.

To complete the Test-Retest Reliability Analysis of the questionnaire, we request that you complete the enclosed questionnaire on **two different occasions within a week**. In order to help us, it is essential that you complete the **second** enclosed questionnaire within a week of completing the first questionnaire. This phase of our national assessment is **vital** to a quality assessment.

The survey will take approximately 15 minutes to complete. Please complete the survey within **one week** of receiving it. There are minimal risks to participation in this study. The only direct benefit to you if you participate in this research may be that you will learn about survey research process and you may learn more about HIV prevention topics. Others may benefit by learning about the results of this research.

Your participation and response is important to this study. All responses will be **confidential** and you will not be individually identified with your questionnaire or responses. Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled and you may discontinue participation at any time. If you choose not to complete the survey, it will not affect you or your standing with the University of Toledo in any way.

If you have any questions at any time before, during or after your participation, you should contact Dr. Susan Telljohann at (419) 530-4950 or by email at: stelljo@utnet.utoledo.edu. If you have questions beyond those answered by the research team or related to your rights as a research subject or research-related injuries, please contact Dr. Jeffrey Busch, Research Compliance Coordinator, at (419) 530-2844.

Thank you for your time and professional courtesy with this study.

Sincerely,

Susan Telljohann, HSD, CHES
Professor of School Health

Scott W. Herr, MPH
Student Investigator
APPENDIX F

Cover Letter – First Wave Mailing
Dear Health Educator,

You are invited to participate in the research project entitled, “Secondary health education teachers’ attitudes and perceptions toward HIV prevention education,” which is being conducted at the University of Toledo under the direction of Susan Telljohann, HSD, CHES. The purpose of this study is to examine health teachers’ attitudes, perceptions and practices related to the instruction of HIV prevention topics, the content presented and the methods of instruction.

To participate in this study you are being requested to complete the attached survey. The survey will take approximately 15 minutes to complete. Please complete the survey within one week of receiving it. There are minimal risks to participation in this study. The only direct benefit to you if you participate in this research may be that you will learn about survey research process and you may learn more about HIV prevention topics. Others may benefit by learning about the results of this research. For your time and expertise in answering this survey, we have enclosed a one dollar incentive.

Your participation and response is important to this study. All responses will be confidential and you will not be individually identified with your questionnaire or responses. Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled and you may discontinue participation at any time. If you choose not to complete the survey, it will not affect you or your standing with the University of Toledo in any way.

If you have any questions at any time before, during or after your participation, you should contact Dr. Susan Telljohann at (419) 530-4950 or by email at: stelljo@utnet.utoledo.edu. If you have questions beyond those answered by the research team or related to your rights as a research subject or research-related injuries, please feel free to contact Dr. Jeffrey Busch, Research Compliance Coordinator, at (419) 530-2844.

By going to the next page and completing the attached survey – you are giving your informed consent to participate in this research project.

Thank you for your time and professional courtesy with this study.

Sincerely,

______________________________________________________________
Susan Telljohann, HSD, CHES                                      Scott W. Herr, MPH
Professor of School Health                                        Student Investigator
APPENDIX G

Cover Letter – Second Wave Mailing
Lead Health Educator  
Address 1  
Address 2  
City, State ZIP

Date

Re: 2nd Request for HIV Prevention Education Survey

Dear Health Educator,

A couple of weeks ago you should have received a letter, a survey on colored paper, and a token cash incentive from the University of Toledo regarding: “Secondary Health Education Teachers’ Attitudes and Perceptions Toward HIV Prevention Education.” This national assessment is being conducted to examine health teachers’ attitudes, perceptions and practices related to the instruction of HIV prevention topics, the content presented and the methods of instruction.

Perhaps you never received the first mailing. Perhaps you misplaced the original survey or thought it was too late to send it back to us. The good news is this - it is not too late to complete the survey and return it to us! Just in case you misplaced the original survey, we have enclosed another copy for you. Completing the survey requires only 15 minutes of your time and your responses will remain anonymous and confidential.

**Your participation and response is extremely important to a quality assessment!**

For your convenience we have also enclosed another pre-stamped, pre-addressed return envelope. If you have any questions or concerns, please feel free to contact Dr. Susan Telljohann at (419) 530-4369 or by email at: stelljo@utnet.utoledo.edu.

Please complete the survey within the **next seven days**. We appreciate your help! Again, thank you very much for your time and expertise!

Sincerely,

____________________________  _____________________________
Susan Telljohann, HSD, CHES   Scott W. Herr, MPH  
Professor of School Health  
Student Investigator
APPENDIX H

Post Card – Third Wave Mailing
We Need Your Help!

Dear Colleague:

Recently, the Department of Health and Recreation Services at the University of Toledo mailed you a survey in February. If you have completed the survey, thank you. If you have not yet had an opportunity to respond, please consider taking about 15 minutes to complete and return the survey. **Your response will help improve the quality of this study.** If you do not wish to participate in this study, it will not affect your or your family’s relationship with the University of Toledo. Your responses are confidential. Please call at (419) 530-4369 or by email stelljo@utnet.utoledo.edu if you need an additional copy of the survey.

Thank you,

Susan Telljohann, HSD, CHES
Professor of School Health

Scott W. Herr, MPH
Student Investigator
APPENDIX I

Human Subjects Approval Letter
To: Susan K. Telljohann, Ph.D. and Scott Herr  
College of Health & Human Services

From: Mary Ellen Edwards, PhD., Chair  
Kamala London, Ph.D., Vice Chair  
Walter Edinger, Ph.D., Chair Designee

Signed: [Signature]  
Date: 12/02/10

Subject: IRB #107182  
Protocol Title: Secondary Health Education Teachers’ Attitudes and Perceptions toward HIV Prevention Education

On 11/29/10, the Protocol listed below was reviewed by the Vice Chair of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB) via the expedited process. Modifications were requested and approved by the Chair on 12/02/10. You have also been granted a waiver from the requirements of a written consent form. This action will be reported to the committee at its next scheduled meeting.

Items Reviewed:
- IRB Application Requesting Expedited Review
- Information Sheet (version date 12/02/10)
- Survey(s) (version date 12/02/10)

This protocol approval is in effect until the expiration date listed below, unless the IRB notifies you otherwise.

Only the most recent IRB approved Consent/Assent form(s) listed above may be used when enrolling participants into this research.

Approval Date: 12/02/2010  
Expiration Date: 12/01/11

Number of Subjects Approved: 800

Please read the following attachment detailing Principal Investigator responsibilities.