# LONG-TERM CONSEQUENCES OF

# ABSTINENCE EDUCATION

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Stillwater, Oklahoma

2005

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
July, 2007

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# CHAPTER I

# INTRODUCTION

## Statement of the Problem

Debate over what form of sex and HIV/AIDS education is most effective and appropriate rages from local school boards to the floors of Congress. These debates focus on two distinct philosophical positions: comprehensive education and abstinence education. Those promoting abstinence education maintain that celibacy before marriage and monogamy after is the surest way to reduce teen pregnancies and STD infections. They also maintain that sex education inherently includes a moral statement and that the statement should unequivocally define abstinence until marriage and monogamy after as the only morally acceptable behavior (Luker 2006:8, 184-5). Phyllis Schlafly illustrates the salience of this belief in *With God on Our Side* (cited in Irvine 2002:89) in which she states she "would rather see her children infected with sexually transmitted diseases than for them to know about condoms."

Proponents of comprehensive education argue that although abstinence should be encouraged, instruction must be provided with the assumption that some students will be sexually active. According to this perspective, education must cover topics such as contraception, abortion, and sexual orientation so students' sexual activities may be conducted as safely as possible (Luker 2006:26-33; SIECUS 2001).

Within each camp, a network of advocacy, research, professional and activism agencies promote their own preferred methodology and present evidence supporting their claims.[1] Among those advocating comprehensive education, organizations such as SIECUS (Sexual Information and Education Council of the United States) and the National Campaign to Prevent Teen Pregnancy (NCPTP) are supported by research centers such as the Alan Guttmacher Institute (AGI), activist groups such as Planned Parenthood and NARAL, professional groups such as the American Medical Association (AMA) and American School Health Association (ASHA) and interest groups including Jewish Women International and Blacks Educating Blacks about Sexual Health Issues (SIECUS 2001). Promoters of abstinence education, led by groups such as the Christian Coalition, are supported by research by groups including Center for Law and Social Policy (CLASP) and the Medical Institute for Sexual Health, activist groups such as Focus on the Family and the Heritage Institute. They are joined by interest groups such as the National Clearinghouse on Family and Youth and the National Abstinence Education Association, which recently hired Creative Response Concepts, the public relations firm best known for managing the Swift Boat Veterans for Truth campaign during the 2004 presidential election (Center for Media and Democracy 2007). Each group conducts and presents research supporting their given position; however, criteria for what constitutes research have become a focal point in ongoing debate. The federal government has attempted to set research standards but these attempts have devolved into political manipulations (SIECUS 2001; U.S. GAO 2006).

Regardless of which philosophy is implemented or level of research is employed, the effectiveness of sex and HIV/AIDS education is of vital national concern as the

consequences of adolescent and teenage sexual activity impact the life opportunities and health of the adolescents and their offspring. The educational and economic future of the adolescents and the environment in which the offspring are raised as well as the life opportunities of children born to teenage parents have been shown to differ from those of people who delay child-bearing and their children (Maynard 1997; NCPTP 2006a, 2002). Along with adolescent pregnancy, adolescents and young adults account for a disproportionate amount of STD infections, with almost half of all diagnoses occurring in those 15-24 years of age (CDC 2006:57). Adolescent sexual behavior is also correlated with other forms of deviant behavior (Armour & Haynie 2007; Coker et al., 1994; Resnick et al. 1997; Thomas et al. 2000). Thus, the consequences of adolescent sexual behavior are far-reaching and long-lasting.

While the consequences of teenage sexual activity are well documented, research into the effectiveness of the two sex and AIDS/HIV education perspectives has focused primarily on measures of continued adolescent behavior. As abstinence education has increased, primarily due to funding changes by the federal government (to be discussed in the literature review), both camps have attempted to measure the efficacy of the educational programs by analyzing patterns in the age of sexual initiation, the frequency of sexual activity, number of partners, STD rates, contraceptive use, and attitudes toward sexuality (see Bearman & Bruckner 2001, 1999; Frost & Forrest 1995; Jorgensen 1991; Kirby et al. 1997; Lieberman et al. 2000; Olsen et al. 1991; Resnick 1997; Trenholm et al. 2007). Although research centers on adolescent behavior, longitudinal data indicates that when effects of either method are found, they are relatively short-lived (Bearman & Bruckner 2001; Kirby et al. 1997; Lieberman et al. 2000; Rector and Johnson 2005b).

The continued focus on adolescents overlooks the longer-range goals shared by both instructional philosophies: the social benefits derived through increased health of mother and child, and improved life opportunities including educational attainment, and decreased reliance on public assistance. The need for research into long-term effects becomes particularly salient as federal funding and state mandates increasingly reflect the abstinence position. A growing body of research indicates that participation in abstinence programs may reduce student use of contraceptives and safer-sex practices and decrease the incidence of medical disclosure and testing (Bearman & Bruckner 2001; Rosembaum 2006).

**Research Questions**

It has been eleven years since abstinence became the stated goal of educational programs receiving federal funds. As sex and AIDS/HIV education occurs most frequently during early years of secondary education, the first generation of students who participated in programs influenced by the government's pro-abstinence stance are now 23-26 years of age. Given that the broad social impact of adolescent sexual activity is long term, particularly as associated with teen pregnancy, any similarly long-term effects of abstinence education should now be evident in measures of Americans 20-24 years of age. Any change in demographics among this group might indicate an effect (positive or negative) of abstinence education. If abstinence education does provide students with the skills necessary to avoid premarital sexual activity until marriage, we would expect to find lower rates of adolescent and out-of-wedlock birth, and potentially a lower age of first marriage. If abstinence education is effective, children will be born into two-parent

families, so we would also expect to find lower rates of social financial support such as welfare. However, if abstinence education simply leads to a short delay in sexual debut and/or reduced contraceptive use (Bearman & Bruckner 2001; Rosembaum 2006), or if comprehensive education and instruction in effective contraceptive use is more effective, then the growing presence of abstinence education should result in higher rates of teen pregnancy and social financial support, and reduced educational attainment. From these, four particularly salient questions must be asked:

*Question 1: How will strengthened abstinence messages affect the birth rate?*

*Question 2: How will strengthened abstinence messages affect marital status in the 20-24 year old demographic?*

*Question 3: How will stronger abstinence messages affect educational attainment?*

*Question 4: How will strengthened abstinence messages affect income among 20-24 year olds*.

# CHAPTER II

## REVIEW OF LITERATURE

In 2004, there were 415,262 births to teenage mothers in the United States (CDC 2006). When compared to 2003, this represents a decline of 1% among both younger teens (15-17) and older teens (18-19), but an increase among youngest teens (10-14). When compared to 1991 data, the resultant birth rates (22.1, 70.0, and 0.7 respectively) represented a decline of 43% among younger teens, a 26% decline among older teens, and a 2% increase among youngest teens. The 2000 teen pregnancy rate is estimated at 84.5 per 1000 – the lowest since the CDC began recording estimates in 1976. Declines were reported among all racial and ethnic groups other than Hispanic, which rose slightly. Even so, approximately 30% of American students have had sexual intercourse by the time they enter the sixth grade (Kinsman 1999) and one in every three American teenage girls will become pregnant at least once before they turn 20 (NCPTP 2006 cited in NCPTP 2006a).

Even with these substantial declines, American adolescents become pregnant and become parents more frequently than those in other developed nations. Only five nations have teen pregnancy rates of 70 per 1000 or higher: Belarus, Bulgaria, Romania, the Russian Federation, and the United States (AGI 2002). Yet, American teens begin their sexual activity at approximately the same age as do teens in other nations (AGI 2002). Through a combination of empirical and ethnographic techniques, Susan Rose (2005)

notes that differences among national patterns are not found in behavior, but instead are found in cultural attitudes toward adolescent sexuality and the resultant educational and health care policies.

By the age of 44, 99% of all Americans report that they have had sex and 95% report having premarital sex, leading Finer (2007) to conclude "almost all Americans have sex before marriage." Typically, this sexual behavior begins during teen years, with approximately half of all teens reporting sexual experience by the age of 17 (Jaccard & Dittus cited in American Academy of Pediatrics 1999; Santelli et al.2007; Trenholm et al. 2007).[2] Although levels of adolescent sexual activity have dropped, (CDC 2006) teens are beginning their sexual odyssey at a younger age, with sexual activity among those 14 and younger increasing between 1988 and 1995 (Albert, Brown and Flanigan. 2003; Smith 2006; Terry & Manlove 2000). Physiologically, American adolescents are reaching puberty at an earlier age with the median age of menarche now 12.6 and of spermarche, 14.0 (AGI 2000).

At the same time that sexual activity is being initiated earlier, marriage is being delayed. Census data indicates that over the past 25 years, the median age of first marriage among males rose from 24.4 to 27.4 and among females rose from 22.1 to 25.8 (U.S. Census 2007). As a result, American youth will spend an average of 13 years between puberty and marriage (Finer 2007). During that period, they will navigate a world in which sexual behavior is less affected by social structures such as race and gender than they were in the past (National Commission on Adolescent Sexual Health (NCASH) 1995).

Although teens are participating in sex at an earlier age, both teenage pregnancy and adolescent sexual activity appears to have been reduced in recent years. An analysis of the Youth Risk Behavior Surveys (CDC 1998) from 1991, 1993, 1995, and 1997 indicated an 11% drop in sexual experience and a 14% drop in the number of teens reporting multiple sex partners, primarily among males. Furthermore, the analysis indicated a 35% drop in gonorrhea infection among males and an 11% drop among females, a 23% increase in condom use, and a drop in the teen pregnancy rate in every state. CDC researchers noted that these corresponded to an increase in HIV/AIDS education. The time period reflected in this study encompassed two distinct changes in sex education. The first is the reaction to the AIDS crisis in the mid to late 1980s and the corresponding increase in mandated HIV/AIDS education; the second is a nationwide shift from comprehensive to abstinence education.[3]

While those promoting abstinence education claim a link between associated programs, such as virginity pledges, and lower incidence of teenage pregnancy and sexual activity (Rector & Johnson 2005a, 2005b), proponents of comprehensive education note that declines were evident before abstinence education was as widespread as it is currently and were evident in a number of cultures (Singh & Darroch 1999). Others have maintained that the combined influences of both philosophies may have affected adolescent behavior. Analysis by Darroch & Singh (1999) estimates that during the period immediately preceding changes in federal funding that advantage abstinence programs, 25% of the drop in teenage pregnancies can be attributed to abstinence education while comprehensive education, including contraceptive instruction, accounted for 75%.[4] As CDC researchers noted:

> The decreases in sexual risk behaviors and the corresponding improvements in reproductive health outcomes among adolescents are the result of broad efforts by parents and families; schools; community-based organizations; the religious community; the media; federal, state, and local government agencies; and adolescents. The dual approach of delaying first intercourse among all adolescents and increasing condom use among those who are sexually active has succeeded in reducing overall risk through improvements in both behaviors. (CDC 1998)

Even with reduced rates of sexual activity, more than half of all teenagers are sexually experienced. According to the 2002 National Survey of Family Growth (Mosher et al. 2005) 54.1% of males and 57.1% of females aged 15-19 have had oral, anal, or vaginal sex at least once during the preceding 12 months. When specific aspects of sexual behavior are considered, 36% of 15-17 year old males have participated in vaginal sex, 28% in cunnilingus, 40% in fellatio, and 8.1% in anal sex with a female. Among females, 39% reported vaginal intercourse, 38% in cunnilingus, and 30% in fellatio.

Among students who have not had sexual intercourse, "virginity" is a somewhat elusive status, particularly for females. If virginity is defined as vaginal intercourse, youths can participate in other sexual activities while retaining the status of "virgin". Bearman and Bruckner (2001) found that among those who have never had vaginal sex, one third had engaged in heterosexual masturbation, 10% had participated in oral sex and 1% had participated in anal sex. Mosher et al. (2005) similarly found that approximately 12% of teens 15-19 have participated in oral but not vaginal sex. In a New York Times interview (Bernstein 2004), one teen member of a Pentecostal church explains that the drop in teenage pregnancy is explained by just this behavioral change: "More people know about oral sex now. They're doing that instead." It is highly likely that adolescents underreport such activity. Even though youths may not view these behaviors as constituting "having sex," they are nonetheless *sexual*, and thus self-disclosure may be

reduced. Ensuring the honest disclosure of participants when sexual behavior is measured has been noted as problematic ( Nonetheless, present evidence indicates that 1) sexual behavior is common among adolescents, 2) the behavior is varied and 3) males and females are participating at similar rates, although females are more likely to have participated in vaginal intercourse and males are more likely to have participated in oral sex.

**Factors Affecting Sexual Initiation and Behavior**

In an attempt to counteract the social consequences of adolescent sexuality, researchers have looked at social and attitudinal variables that encourage or inhibit early sexual debut. Variables shown to affect sexual debut and behavior include age, gender, race, SES and marital relationship within the family of origin, academic success, career aspirations, religiosity, family views toward adolescent sexuality, romantic involvement, the number of friends currently having sex, perceived peer and cohort norms, early physical development, and alcohol consumption (Billy and Udry 1985; Bruckner, Martin and Bearman 2004; Christopher and Cate 1984; Coker et al. 1994; Herold and Goodwin, 1981; Holder et al. 2000; Kinsman et al. 1000; Resnick et al. 1997; Thomas et al. 2000; VanOss et al. 2006). Behavioral trends indicate that race and gender now exert less influence. As a result, patterns of sexual initiation and activity found in males and females and among different racial groups are converging (Singh & Darroch 1999; Warren et al. 1998).

Even so, research indicates strong racial differences in teen pregnancy, birth, and abortion rates, age of sexual initiation, and contraceptive use. According to 2002 figures,

whites exhibit a lower teenage pregnancy rate than nonwhites (65.0 compared to 113.1 per 1,000) a lower birth rate (39.4 compared to 55.8 per 1,000) and lower abortion rate (16.1 compared to 41.9) (AGI 2006b). Among nonwhites, blacks exhibit a slightly higher pregnancy rate than Hispanics (134.2 compared to 131.5) but a lower birth rate (66.6 compared to 83.4) (AGI 2006b). The lowest abortion ratio was found among Hispanic teens (25.5 per 1000 as compared to 29.0 for whites and 42.6 for blacks). Declines in the pregnancy rate between 1991 and 2006 have been most extreme among black females, dropping by 44% as compared to a nationwide decline of 35% (NCPTP 2006b). Among Hispanic teens, teen pregnancy dropped 22% between 1991 and 2005 (NCPTP 2006b). Pregnancy incidence patterns appear to be due to both an earlier initiation into sexual intercourse and a lower rate of contraceptive use among nonwhites (Kalmuss et al. 2007; NCPTP 2006c). Black males report sexual initiation two years earlier than Hispanics and three years earlier than whites (Warren et al. 1998).

Along with racial distinctions, the effect of religion must be considered in any discussion of adolescent sexuality; however, associations between religiosity and sexual behavior may be more complex than most measures indicate. While many studies use church attendance, Holder et al. (2000) found that "spiritual interconnectedness with friends," age, and religious importance were significantly associated with voluntary sexual activity, while gender, denomination, SES, social support from family, religious attendance, religious motivation, belief in God, divine support and seeking answers through religion were not. They note "spiritually interconnected youth may participate in voluntary faith assemblies, which could act as powerful referent groups and thereby influence behavior and promote resilience toward abstaining from health-risk behaviors."

**Effects of Adolescent Pregnancy**

Approximately 80% of teen pregnancies are unintended (Henshaw 1999). Those who give birth as teens are more likely to use social support services such as welfare (NCPTP 1997 cited in NCPTP 2002). Within five years of giving birth, almost half of all teen mothers receive welfare – nearly 75% among those who are unmarried (U.S. Congressional Budget Office 1990).

According to a 1997 estimate, fewer than half of all teen mothers complete high school (Maynard 1997). Without a high school diploma, young people not only suffer from lower wages and life opportunities, but also become less active citizens. They are less likely to vote or pay taxes (Finer & Henshaw 2006), and 25% of teen mothers give birth to a second child within two years of the first birth (Kalmuss & Namerow 1994). Among those mothers who drop out of school, the incidence of a second pregnancy rises to 38% (Kaufman et al. 2004 and Manlove 1998, cited in Fine & McClelland 2006).

Eighty percent of adolescent fathers do not marry the mother and, on the average, pay less than $800 annually in child support (Brien & Willis 1997). Adolescent mothers are less successful in marriage, whether that marriage takes place during adolescence or later in life. Teenage marriages are twice as likely to fail as those that begin when the mother is 25. When mothers marry after the child is born, 70% of the marriages fail (Lichter 2001 cited in NCPTP 2002). Women who give birth as a teen are significantly more likely to be single at the age of 35 (Lichter et al. n.d. cited in NCPTP 2002).

Pregnant adolescents are almost twice as likely to receive late or no prenatal care (National Center for Health Statistics 2003). Although the long-term health effects of

adolescent child bearing are no longer as serious as they once were (Wolfe & McHugh cited in Hoffman 2006), children born to adolescent mothers continue to suffer the effects of premature birth and/or low birth weight at a higher rate than found among children born to older mothers, including chronic respiratory problems, sight and hearing loss, mental retardation and illness, dyslexia, hyperactivity, cerebral palsy, and infant death (Martin et al. 2006; Wolfe & Perozek 1997). Children of teen mothers are twice as likely to suffer from abuse or neglect as children born to older parents (Hoffman 2006). Emotionally, they are more likely to be impulsive, overactive, anxious, lonely, sad, and suffer from low self-esteem (Terry-Humen et al. 2005).

Educationally, they are more likely to repeat a grade and do not perform as well on standardized tests (Havemann et al. 1997; Hoffman 2006). The National Campaign to Prevent Teen Pregnancy reports that "even after controlling for background characteristics, the children of teen mothers score lower on assessments of cognition, knowledge, and language development compared to the children of older mothers. They are also less likely to read simple books independently and to demonstrate early writing ability compared to the children of mothers aged 20-21," (Terry-Humen et al. 2005).

The effects of being born to an adolescent mother continue into adulthood, with males born to teen mothers more than twice as likely to serve time in prison as males born to mothers 20-21 years of age (Grogger 1997). Females born to adolescent mothers are more than three times as likely to become teenage mothers themselves (Hoffman 2006). Thus, the effect of a single teenage pregnancy may affect multiple generations, perpetuating poverty and blocking educational attainment for decades.

On a larger scale, the loss of educational attainment and better-paying employment, increased health risks, reliance on public support, and increased chances for teenage parenthood and/or incarceration among children born to teens constitute a financial burden passed on to all American citizens. This burden has been estimated $15 billion in 1997 (Maynard 1997:310), at $7 billion in 2001 (NCPTP 2001 cited in NCPTP 2002), and 9.1 billion in 2004 (NCPTP 2007). To combat these social problems, two distinct strategies have been proposed: abstinence education and comprehensive education.

**Abstinence Education**

Proponents of abstinence education assert that adolescent pregnancy and other social challenges associated with adolescent sexuality can best be addressed by embracing social and moral prohibitions against premarital and extramarital sex (Luker 2006:1-33).[5] Proponents describe themselves as "conservative" or as "being on the right", and have close (though not universal) ties to conservative Christianity (Luker 2006:225, 274). According to this view, presentation of information about contraception, abortion, and homosexuality break down social sanctions and thus encourage adolescent sexual activity. Moreover, they assert that the presentation of sexual information may induce psychological trauma in children that rises to the level of molestation and rape (Irvine 2002:133-9).

Supporters note research indicating positive correlations between abstinence and characteristics beneficial to society including reduced chances of being expelled or dropping out of high school and improved chances of attaining a college degree (Rector

& Johnson 2005). Researchers promoting abstinence associate these differences with the ability to focus on academics without the distraction of romantic involvement and with the development of beneficial character traits such as "greater future orientation, greater impulse control, greater perseverance, greater resistance to peer pressure, and more respect for parental and societal values" (Rector & Johnson 2005a). While these correlations are frequently cited, it is possible that the relationship is not causal, but is instead a spurious correlation among several variables all of which are based in socialization to conservative and religious values.

Numerous critiques of abstinence education have arisen. Comprehensive education supporters assert that information presented by abstinence supporters is frequently misstated or scientifically inaccurate. This claim was debated in congress as abstinence funding was renewed in 2002. In response to charges of inaccuracy, Republican representatives argued that "it would be impossible to agree on what information is medically accurate" (Rose 2005).[6]

Scientific misstatements and inaccuracies have also been noted within the curricula used in abstinence programs. Two of the three funding programs do not require that materials be checked for scientific accuracy, although some states participating in the program do require such a check (U.S. GAO 2006). In a 2004 study of abstinence curricula, the Committee on Government Reform – Minority Staff Special Investigations Division (Waxman Report) found that over 80% of curricula researched contained scientific errors or misstatements, including frequent misrepresentation of condom effectiveness, effects of abortion on mother's health and that of subsequent children, and even the number of chromosomes found in humans. Additionally, they found that the line

between religion and science was frequently blurred, as when conception was defined as the point at which life begins. The Waxman Report also noted numerous depictions of gender roles and behaviors that appear to be based in tradition and values associated with fundamentalist religion rather than with scientific fact, noting that "one curriculum teaches that women need 'financial support,' while men need 'admiration.' Another instructs: 'Women gauge their happiness and judge their success on their relationships. Men's happiness and success hinge on their accomplishments'" (Waxman Report 2004:4).[7] Misinformation in abstinence curricula has, in at least one case, been egregious enough to spur the threat of legal action from an entity with no apparent stake in the debate: the makers of Lysol brand products. In 1994, the *Choosing the Best* curriculum advised students to spray Lysol on their genitals after each condom use. Makers of Lysol issued a cease and desist letter, noting that the disinfectant was not designed for use on human bodies (Letter from Maria Kennedy cited in Irvine 2002:120).

A further criticism of abstinence education is the association of fear and/or death with the act of sex, with comprehensive proponents frequently pointing to a scene in the abstinence video *No Second Chance* in which an educator who states "every time you have sex, it's like pulling the trigger – the only difference is, in Russian Roulette, you only have one in six chances of getting killed." When a student asks, "What if I have sex before marriage?" the instructor replies "I guess you'll just have to be prepared to die and you'll probably take with you your spouse and one or more of your children" (Donovan 1998; Fine & McClellan 2006; Rose 2005). This association between sex and death was repeated in the 1998 version of *Choosing the Best*, which stated 'When you use a

condom, it is like playing Russian roulette. There is a greater risk of a condom failure than the bullet being in the chamber" (Cook 1998 cited in Irvine 2002:121).

Finally, evidence presented in support of abstinence education frequently fails to consider outside factors or the presence of spurious correlations. Rector (2002), for example, cites the 1991 study by Kahn and London as he states "individuals who engage in premarital sexual activity are 50 percent more likely to divorce later in life than those who do not," without considering the roles of religiosity, socialization or a host of other factors that may affect both.

Research into the effectiveness of abstinence education has yielded little to indicate its success in reducing sexual initiation or activity, although some studies indicate a temporary reduction in the number of partners and the frequency of subsequent activity (Hendricks et al. 2006; Trenholm 2007). The ground-breaking research of Bearman and Bruckner (2001) compared participants in the National Longitudinal Study of Adolescent Health (Add Health) who participated in an abstinence-endorsed program, virginity pledging, with those who never made pledges to maintain abstinence. They did find evidence of the efficacy of such programs in that "pledgers" reported a sexual initiation approximately 18 months later than nonpledgers; however, they also reported that 88% of pledgers did have sexual intercourse during the study period. Sexually active pledgers were 30% more likely to do so without contraception or safer-sex methods and were less likely to seek medical testing or treatment.

In 2005, Bruckner and Bearman used the same data set to determine if there were significant differences among pledgers, nonpledgers, and inconsistent pledgers in STD diagnoses and sexual behaviors. They found no significant differences in STD rates

among the different pledge groups, as a whole or according to marital status,[8] even though sexual debut was postponed, pledgers married earlier and had fewer partners. They hypothesized that, given social emphasis on vaginal sex in determining the status of virginity, pledgers may participate in alternative sexual behaviors conducive to STD transmission. Results indicated that pledgers were significantly less likely to use a condom at first intercourse (though not at last intercourse or during the preceding 12 months). Of greater potential importance, they found that among participants who reported oral and/or anal sex but not vaginal sex, pledgers were overrepresented. Oral but not vaginal sex was reported by 13% of consistent pledgers, 5% of inconsistent pledgers, and approximately 2% of nonpledgers. Anal but not vaginal sex was reported by 1.2% of pledgers and 0.7% of nonpledgers. Although they concede that the small numbers provide an "insufficient basis" for inference, "the combination of low condom use and over-representation of pledgers provides some support for the hypothesis that this behavioral pattern is associated with greater than expected STD acquisition among pledgers."

These findings resulted in immense national coverage (Rector 2005) and responses from each end of the spectrum. Leslee Unruh, President of the National Abstinence Clearinghouse declared "kids who pledge abstinence are taught that any word that has 'sex' in it is considered a sexual activity. Therefore, oral sex is sex, and they are staying away" (USA Today 2005). From the other perspective, Marty Klein, editor of *Sexual Intelligence: An Electronic Newsletter* wrote:

> Lacking decision-making skills or real knowledge to lean on, they [teens] simplistically decide that non-intercourse sex isn't sex. This allows them to have their (abstinence) cake and eat their (pleasure) cake, too
> '…Abstinence' as an abstract concept is totally different than abstinence

> the method in real life situations. Kids aren't abstractions – they're real people making real decisions in complex circumstances. 'Abstinence' doesn't equip them to make these decisions. Just like people who use the rhythm method are called parents, kids who use abstinence are called sexually active (Klein 2005).

Reactions did not, however, note that Bruckner and Bearman differed from other research in a fundamental and critical manner: the age at which data was collected. Ad Health data was collected at three points of time over a seven-year period. Wave I was collected in 1995, Wave II in 1996, and Wave III in 2001-2. By Wave III, participants were 18-24 years of age (Bearman and Bruckner 2001; Bruckner and Bearman 2005).

Thus, this research gives us a fleeting glimpse of the effect of sex education as it affects young adults in longer time frames – that is, we see some evidence of the lasting effect or lack thereof. Evidence of lasting effects includes significant differences in the age of marriage, reduction in the number of sexual partners, and increase in the number of virgins at age 25. According to the beliefs foundational to abstinence education, these changes should result in a reduction in social problems associated with sexuality, including STD infection; however, this was not the finding of Bearman and Bruckner. Thus, at least the virginity pledge program, may instigate behavioral changes, but these changes are not effective in reducing social problems.

Bearman and Bruckner's findings support earlier findings by Kinsman et al. (1999) which indicated that as early as sixth grade, intentions to maintain abstinence are frequently discarded as students perceive growing acceptance of sexual activity among their peers. Their study, which measured sexual activity and attitudes as students entered and again as they left sixth grade, found that although only 5% of students were sexually initiated between the two times, half of those reported no intention to become sexually

active at time one. They also found significant differences in perceived consequences of sexual activity between those who had been sexually active and those who had not.

Boraswski et al. (2005) implemented an experimental design with a large sample at seven regional schools with baseline measures and repeated measures at 5 months. Results mirrored those of other studies into abstinence programs (see Kirby 1997) in finding increases in HIV/STD information and *intentions* to remain abstinent. They also found that the program had no impact on sexual initiation or continued sexual behavior among sexually experienced students; however, they did find reduced frequency of sexual activity among sexually experienced students five months after the intervention. More problematic, however, were reduced intentions to use condoms immediately after intervention, although five months later they did not find any difference in reported condom use between those in the experimental and control groups.

Differences in behavior patterns are acknowledged by abstinence supporters; however, who offer a different explanation. For example, while acknowledging the Bearman and Bruckner assertion that those who made a virginity pledge during adolescence report a higher level of oral sex before their initial experience of vaginal intercourse (5.1% v. 2.2%), Rector & Johnson point out that, as young adults, pledgers overall report lower rates of oral sex. Thus, they assert overall effectiveness of abstinence pledges and associated educational programs. Similarly, Rector & Johnson (2005) agree that pledgers are less likely to use contraception during first intercourse, but argue that by young adult years, differences between pledgers and nonpledgers are insignificant, and thus "the fact that pledgers are less likely to contracept at first intercourse seems to have little significance."

**Comprehensive Education**

Proponents of comprehensive sex education support instruction, not only in sexuality, but also in related fields such as physical development, sexual health, developing and maintaining meaningful relationships, appreciating one's body, interacting with the other gender, expressing affection, love and intimacy, setting limits and resisting pressure, preventing disease and pregnancy, and the benefits of abstinence. They maintain that sex should be presented as something that should be "consensual, nonexploitative, honest, pleasurable, and protected against unintended pregnancies and sexually transmitted diseases" (NCASH 1995). Because comprehensive education is based on the assumption that adults who are seen as both legitimate and credible must present an honest forum for discussing behavior that is acknowledged as occurring, rather than a forum through which only morally accepted behavior is addressed, comprehensive education also includes other sexual or related behaviors adolescents may engage in, such as homosexuality or abortion.

Comprehensive education is frequently attacked as a vehicle through which morality is divorced from sexual behavior and thus students are more likely to engage in sexual activity. According to this view, any sexual activity other than abstinence before heterosexual marriage and monogamy afterward is injurious, thus any instruction that may increase the likelihood of sexual activity must be viewed as dangerous. Kevin Riley, superintendent of Gretna Public Schools in Nebraska explains: "we would never do that with alcohol and drugs. We wouldn't say, 'we know you drink, so use a designated driver. We know you use drugs, so be careful'" (in Stover 2007). Some research may

appear to support this argument, particularly studies indicating a strong correlation between families of origin presenting strong moral objections to sexual involvement and levels of celibacy (DeLameter & MacCorquodale 1979 cited in Christopher & Cate; Olsen 1991; Rector 2005b; Spanier 1976a, 1976b, 1977 cited in Christopher & Cate). However, repeated studies of students who have participated in comprehensive education indicate no increase in sexual activity or earlier sexual debut and, in some cases, find a delay in sexual initiation similar to those found in studies of abstinence programs (Kirby 1997, 2000, 2001). The American Academy of Pediatrics Policy Statement on Contraceptives and Adolescents (1999) states:

> "There is no evidence that refusal to provide contraception to an adolescent results in abstinence or postponement of sexual activity. In fact, if adolescents perceive obstacles to obtaining contraception and condoms, they are more likely to have negative outcomes to sexual activity. In addition, no evidence exists that provision of information to adolescents about contraception results in increased rates of sexual activity, earlier age of first intercourse, or a greater number of partners."

Comprehensive programs, however, have also proven to be lacking in effecting behavioral changes and other approaches have been shown to be more effective than comprehensive education. A 1997 meta-analysis by Franklin et al. compared comprehensive education to community-based programs. They found that school-based programs were less effective than were those based in the community. They also found higher rates of contraceptive use and lower pregnancy rates among programs that stressed contraceptive distribution along with knowledge-building than were found in education-only programs. These may indicate that any program based solely on in-class instruction may be, to some degree, ineffective.

**Abstinence *v*. Comprehensive Education**

Despite the vigorous debate between those espousing the need for abstinence education and those demanding comprehensive education, the nation as a whole is surprisingly unified in its opinion. According to a 2004 poll by National Public Radio, the Kaiser Family Foundation, and the John F. Kennedy School of Government (2004) 90% of parents of junior and senior high school students saw a need for sexuality education and 67% saw a need for "comprehensive sex education programs that include information on how to obtain and use condoms and other contraceptives." Even though there are significant regional differences in how sexuality education is presented to adolescent students, there are no regional differences in what American adults believe should be taught (Landry, Kaeser and Richards 2003). Darroch, Landry and Singh. (2000) found that 90% of teachers believe students should be taught about contraception. Even among those who self-identify as conservative Christians, 80% supported comprehensive sex education in high schools and 70% supported comprehensive sex education in junior high schools (SIECUS 2001).

Conversely, results of a 2003 national survey (NCPTP cited in NCPTP 2006a) indicated that 94% of adults and 91% of teens believe "it is important that teens be given a strong abstinence message from society"; however, the same survey also found that 68% of adults and 77% of teens reported that providing both abstinence and contraceptive instruction did not constitute sending a "mixed message." When adolescents were asked what strategies would be most effective in preventing teen pregnancy, the most frequently selected of eleven options was "more pregnancy and birth control information" (51.9%) while "abstinence/delaying sex" ranked sixth (26%)[9] (Hacker et al. 2000). The American Academy of Pediatrics (1999) recommends that

practitioners encourage abstinence as a first step, but provide "nonjudgmental" contraceptive advice for adolescents who are sexually active.

Meta-analysis of 12 rigorous studies covering the effectiveness of eight comprehensive and four abstinence programs showed no association between the type of program and abstinent behavior of students, contradicting theories that either form of instruction reduces sexual behavior and the theory that comprehensive education encourages sexual activity (Silva 2002). This finding also forces us to look elsewhere for explanations and successful strategies. Other variables, however, were found to moderate the effects of sex education, including parental involvement, the virginity status of the students, the scope of the program (with smaller scopes more effective than larger),[10] and the age and gender of the students (with younger females more significantly impacted than other students). Silva (2002) also found a significant change over time with effect sizes waning as sex education and HIV/AIDS instruction increased. No association between the number of hours of instruction and abstinent behavior was found.

Few studies of the effectiveness of abstinence education meet acceptable levels of rigor (GAO 2006; Kirby 2002; see Olsen, et al. 1991). Even a review by the Government Accountability Office conducted and released when both the White House and Congress staunchly supported expansion of abstinence programs stated "several factors, however, limit the conclusions that can be drawn about the effectiveness of abstinence-until-marriage education programs. Most of the efforts to evaluate the effectiveness of abstinence-until-marriage education programs included in GAO's review have not met certain minimum scientific criteria," (GAO 2006). Such standards were articulated by the Effectiveness Programs and Research Task Force (ERP) of the National Campaign to

Prevent Teen Pregnancy (2001:115). These requirements include the use of experimental or quasi-experimental design with numerous intervention schools or communities and well-matched comparisons, a post-intervention period of sufficient length to measure lasting impact,[11] a sample of at least 100, measures of actual behavior rather than attitudes or predicted/intended behavior or attitudes, and the proper use of appropriate statistical tests (Kirby 2002). Using these standards, Kirby found no consistent evidence of effectiveness in abstinence programs (Kirby 2001). Research in response by the The Heritage Foundation indicated that abstinence education has been proven effective in at least ten studies (Rector 2002). In response to The Heritage Foundation findings, Kirby subjected the ten programs cited as effective to the listed criteria. In this second round of evaluation, however, Kirby also implemented a second tier of standards described as "if, in addition, the study was particularly well-designed, its evidence of impact was considered to be especially strong" (Kirby 2002). This lack of articulated criteria for "well-designed" reflects poor design in his evaluation process, leaving any interpretation questionable.

Six states have assessed the effectiveness of abstinence programs, and in every case, found it lacking. In 2001-2002 Minnesota evaluated the state's *Education Now and Babies Later* (ENABL) curriculum. Although the study indicated improvements in parent-child communication, the amount of sexual activity among junior high students doubled, as did the number of students reporting an intention to have sex (SIECUS 2006). Maryland evaluated its abstinence program in 2002. Although the final report was not made public, released information indicates increases in sexual activity and in reported intentions to engage in sex (SIECUS 2006). In 2003, Arizona and Pennsylvania

assessments both indicated some success with younger students, but declining effectiveness as students mature (SIECUS 2006). The Pennsylvania report stated "taken as a whole, this initiative was largely ineffective in reducing sexual onset and promoting attitudes and skills consistent with sexual abstinence," (SIECUS 2006). Texas and Kansas evaluated their programs in 2004, both finding no significant change; however, the Texas analysis, conducted by researchers at Texas A&M, noted increases in the percentage of students who had engaged in sexual intercourse at every age, including a 14% increase among tenth grade boys (SIECUS 2006). Researchers in Kansas concluded that effectiveness would be increased by including instruction in contraceptive use and those in Texas simply stated "these programs seem to be much more concerned about politics than kids, and we need to get over that," (Reuters cited in SIECUS 2006).

Like abstinence education, comprehensive education has failed to produce consistently high effectiveness rates (Hendricks 2006; Lieberman et al. 2000; Luker 2006:255). In their analysis of the most appropriate method of sexuality education, the American Academy of Pediatrics (2002) considered comprehensive, abstinence and HIV/AIDS programs, concluding:

> Despite the controversy that surrounds them, it is becoming clear that sexuality education programs can have some effect on delaying the onset of intercourse, reducing sexual activity, and increasing the use of contraception, including condom use. Unfortunately, the magnitude of these effects is relatively small, in keeping with the known limitations of the effects that education can have on complex social and sexual behaviors.

**State and Federal Mandates**

In the 1960s, conservative backlash challenged existing sex education programs throughout America with a goal of ending all such programs (Donovan 1998; Luker Irvine 2002). By the early 1970s, sexuality education had been restricted or abolished in 20 states (Donovan 1998). By the mid 1980s, however, public awareness of HIV/AIDS led to a resurgence of the need for adolescent instruction. With support by Surgeon General C. Everett Koop and the Centers for Disease Control and Prevention, school-based sex and HIV/AIDS education grew (Irvine 2002:89-90). By 1988, 93% of all public school teachers worked in a school in which some form of sex education was presented. In virtually all cases, HIV and STD information was presented; in 90%, abstinence, contraceptive use, and sexual decision-making were covered; and in 64-83% abortion, homosexuality, and safer sex methods were taught. A majority of teachers, however, felt that the level of information was still too low and was presented too late (Haffner 1997 cited in Darroch et al. 2000). By 1998, 15 states required either sexuality education or HIV/AIDS instruction and another 19 states and the District of Columbia required both (Donovan 1998).

As the number of courses grew, backlash against adolescent sexuality instruction also grew, largely due to a perceived focus on contraception and lack of emphasis on abstinence. In addition, the introduction of topics such as abortion or homosexuality and

the assumption that many students would become sexually active before marriage contradicted the moral values of conservative citizens. In the view of these citizens, abstinence was not simply a choice, but was a moral responsibility. Similarly, behaviors viewed as not living up to the abstinence until heterosexual marriage and monogamy after were not seen as "alternatives," but as the result of choosing not to live up to moral standards and thus weakening the fabric of society (Luker 2006:243-259).

Opposition to the growing presence of comprehensive education was initially successful at the local level, affecting the instruction presented within individual school districts. On a national level, abstinence forces were far less successful; however, in 1981 the Adolescent Family Life Act (AFLA) provided limited funding for sexuality education that "promote[s] self-discipline and other prudent approaches" (Adolescent Family Life Act 42 U.S.C. § 300z cited in Fine & McClelland 2006). Janice Irvine (2002:94) notes that passage of AFLA marked the political change from debate over whether or not to fund sex education to debate over what type of sex education should be funded.

In 1981, the American Civil Liberties Union filed suit, alleging that AFLA violated the separation of church and state. In 1985, AFLA was ruled unconstitutional in U.S. District court; however, this finding was overturned in 1988 by the U.S. Supreme Court, which remanded it back to lower court. In 1993 an out-of-court settlement stipulated that AFLA-funded programs refrain from including religious references, be medically and scientifically accurate, allow contraceptive referrals by respecting the "principle of self-determination," and prohibit the presentation of programs in churches or parochial schools during school hours (SIECUS 2001).

In 1994, during reauthorization of the Elementary and Secondary Education Act, Representative John Doolitle (R-CA) introduced an act that would limit the curriculum of sexuality and HIV/AIDS education in school programs. Existing statutes prevented federal restriction of state and local school programs; however, federal influence through funding initiatives remained a potent avenue through which abstinence education could be expanded and comprehensive education could be challenged (SIECUS 2001). Del Stover (2007), senior editor of *American School Board Journal* notes "there's an old political adage that money *is* policy. States and local school districts soon found a way to put federal funds to work, and the abstinence-only movement began to gain momentum."

In 1996, congress approved and President Bill Clinton signed into law the Personal Responsibility and Work Opportunity Reconciliation Act.[12] This welfare reform act included funding for abstinence education. Additional funding for abstinence education was secured by Title V of the Social Security Act, which provided state grants;

**Table 1: A-H Criteria of Abstinence Education**

| | |
|---|---|
| A. | Has the exclusive purpose of teaching the social, psychological, and health gains to be realized by abstaining from sexual activity; |
| B. | Teaches abstinence from sexual activity outside marriage as the expected standard for all school-age children; |
| C. | Teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems; |
| D. | Teaches that a mutually faithful monogamous relationship in the context of marriage is the expected standard of sexual activity; |
| E. | Teaches that sexual activity outside marriage is likely to have harmful psychological and physical effects; |
| F. | Teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society; |
| G. | Teaches young people how to reject sexual advances and how alcohol and drug use increase vulnerability to sexual advances; |
| H. | Teaches the importance of attaining self-sufficiency before engaging in sexual activity. |

the child health block grant's Special Projects of Regional and National Significance; and the Community Based Abstinence Education program. CBAE has become the primary source of abstinence education funding, providing grants to states, communities, and other organizations, including those that are faith-based. All programs, however, must meet the A-H definition of "abstinence education" (Table 1) (Dailard 2006b; Landry et al. 2003; U.S. Dept. of Health and Human Services cited in Fine & McClellan 2006).

The fiscal year 2007 White House funding proposal for abstinence education was $204 million (Fine & McClelland 2006; Finer & Henshaw 2007). As programs have expanded, requirements to provide demonstrable outcomes have been implemented but

were quickly revised to require only evidence that they "create an environment within communities that supports teen decisions to postpone sexual activity until marriage" (DHHS 2005 and DHHS 2006 cited in Fine & McClellan 2006), thus lowering the burden of proof from evidence of *behavioral* changes to one in which only a change in reported *intentions* is required.[13]

Concurrently, the administration's federal guidelines were revised, moving from the A-H definition of abstinence education to 13 "themes" (Dailard 2006a). For the first time, "abstinence" was fully defined: "abstinence means voluntarily choosing not to engage in sexual activity until marriage. Sexual activity refers to any type of genital contact or sexual stimulation between two persons including, but not limited to sexual intercourse," (U.S. DHHS 2006 cited in Fine & McClellan 2006 and in Dailard 2006). In addition, the expansion to 13 themes further limited contents of any sex education requiring that programs refrain from content that might "promote or encourage the use of any type of contraceptives outside of marriage" but at the same time requiring that they instruct that students that contraceptives "may fail to prevent teen pregnancy." Programs must closely associate abstinence with marriage (defined as "a legal union between one man and one woman"), stating that abstinence "significantly increases the probability of a happy, healthy marriage." Information about STDs and contraceptives must be accurate; however, new standards prohibit programs from referring to abstinence as a contraceptive, thus allowing programs to avoid presenting abstinence failure rates (Dailard 2006).[14]

As a result of these policy changes, the percentage of secondary school sexuality educators teaching abstinence as the only way to avoid pregnancy and STDs rose from

2% in 1988 to 23% in 1999, only three years after Section V was implemented (Darroch et al. 2000) and a 2000 study found that only 21% of junior high and 55% of high school sexuality educators taught how to properly use a condom (CDC 2000 cited in Santelli et al. 2006). Lindberg et al. (2006) found a significant shift from comprehensive to abstinence education. The number of students receiving contraceptive instruction dropped by 15% among males and 17% among females, while the number of students receiving only abstinence education increased 15% for males and 13% for females. As a result, approximately one-third of students receive no birth-control instruction.

Although the federal government can indirectly affect the education students receive through funding initiatives, America's educational system is highly decentralized (Gold & Nash 2001), allowing greater decision-making at the state and local levels. As a result, there is great variety in how subjects are approached, including sex and HIV/AIDS education. Distinct regional differences in sex education exist such that teachers in the South, Midwest, and West were more likely to stress the ineffectiveness of contraceptives and those in the South and Midwest were more likely to teach abstinence as the only acceptable option (Landry et al. 1999, 2003).

As of May, 2007, 19 states and the District of Columbia require sex education and 35 states and the District of Columbia require HIV/AIDS education (AGI 2007) (Figure 1). Every state mandating sex education also mandates HIV/AIDS education, but 16 states mandate HIV/AIDS education but not sex education, indicating that for a sizable portion of America's student body, HIV/AIDS instruction is their primary source of formal sex-related education. In eleven states, neither is mandated, but state policies regarding content and/or parental permission are in place. Overwhelmingly, these

programs allow parents to opt-out of their child's participation in sex or HIV/AIDS education; however in three states (Arizona, Nevada, and Utah), parental consent is required. Only four states are silent on the issue.

In those states mandating sex education (Figure 1), six require that abstinence be covered, eight require that it be stressed, and five states along with the District of Columbia are silent on the issue. Fourteen states do not mandate sex education, but do mandate that if it is presented, abstinence be stressed. Four states not mandating sex education require that abstinence be covered. In states mandating HIV/AIDS education, 18 require that abstinence is stressed, 11 require that it is covered, and six states and the District of Columbia are silent. Six states do not mandate HIV/AIDS education, but do mandate that in such courses abstinence be stressed; one state similarly requires that it be covered (AGI 2007).

The picture is quite different when contraception is considered. No state requires that contraception be stressed in either sex or HIV/AIDS education, although 7 states mandating sex education and 16 states (including Oklahoma) mandating HIV/AIDS education require that it cover contraceptives. Seven states not mandating sex education do require that any such program covers contraception and two that do not mandate HIV/AIDS education require that such courses cover contraception (AGI 2007).

Beyond these simple categories, individual state policies and statutes increase the variation found in sex-related education. In Utah, for example, educators are specifically forbidden to answer spontaneous questions from students in a manner conflicting with the law which prohibits "the advocacy or encouragement of the use of contraceptive methods or devices" while in Tennessee the teacher's ability to freely answer such questions is

explicitly protected (AGI 2007). In 2002, only five states addressed discussion of abortion, four of which (Connecticut, Louisiana, Michigan and South Carolina) specifically prohibited it while Vermont required that it be addressed. At that time, discussion of sexual orientation or homosexuality was addressed within the statutes of nine states with Massachusetts and New Jersey requiring that it be addressed and giving no further detail, South Carolina prohibiting any discussion, and Utah prohibiting "advocacy." The remaining five states, including Oklahoma, required that it be presented as abnormal and/or dangerous (AGI 2002).

Policy is more heavily influenced at the local level. Local activism with the backing of organizations such as the American Family Association Law Center made the threat of lawsuit against school districts a powerful tool for eliminating comprehensive education (Irvine 2000:123). A 1994 study by the CDC (cited in Donovan 1998) indicated that 80% of all school districts required instruction in how to avoid STDs including HIV/AIDS and 72% required instruction in pregnancy prevention. By 1999, only 10% of school districts required comprehensive sex education and 23% required abstinence-only.[15] More than 39% of teachers did not teach contraception or presented it as ineffective (Landry et al. 1999, 2003) and 20% of students reported that sex had been presented as "something to fear and avoid" (Hoff et al. 2000 cited in Irvine 2000:121). In a 2006 assessment of local school policies, the Alan Guttmacher Institute (AGI 2006b) found that approximately two-thirds of districts require some form of sex education. Of those, 86% require that abstinence be promoted and 35% require that it be the only option for unmarried people.

Within these studies, evidence is clear that policies do not equal practice, as 60.3% of teachers report presenting contraception as effective, over 70% present abstinence as an option, and nearly 5% do not teach abstinence at all (Landry 2003). In districts where policies have been revised, nearly half report that state directives were the primary motivation for doing so; however, Landry et al. (1999) found no net growth in the number of districts adopting an abstinence policy. Instead, districts are discarding comprehensive policies and increasingly adopting policies commonly described as "abstinence plus" in which abstinence is stressed, but the potential for contraceptive and other topics remains present. It must be noted that this research, based on 1999 data, does not reflect the continuing and expanding presence of federal abstinence funding programs, but does reflect the adoption of policies that allow for greater flexibility than national policies articulate. The effect of mandated abstinence education, then, may not be as simple as a shift in policies or the general content of various programs. Instead, the more nuanced influence of how teachers maneuver through the challenge of providing students with information students request and that teachers and the majority of parents support, while at the same time following district, state, and national funding and avoiding public conflict over information presented. As a result, we see that the number of students being taught that contraceptives (including condoms) are ineffective (40%) far outpaces the number of students being taught that abstinence is the only viable option (23%). As teachers develop strategies that are successful in their particular area, there is also growing evidence of regional differences, with the South, Midwest, and West more likely to teach abstinence as the only or best option, contraceptives as ineffective, and to teach nothing about contraceptives at all. Teachers in the Northeast are much more likely

to teach that abstinence is only one of several options and that contraceptives are effective (Landry 2003).

**Research Challenges**

Although adolescent pregnancy and sexual behavior have long-lasting and broad-ranging consequences, determining the efficacy of educational programs challenges researchers on several levels. Bias in extant research, and measurement methodologies and reliance on questionable self-report data have all been found in previous research. Racial, regional, religious, gender-based, and cohort differences in behavior make identifying trends a tenuous task. Differences in underlying beliefs and values of differing perspectives enhance the potential of "talking past one another" rather than joining in objective research. Even the criteria for what constitutes "fact" or "research" have not been established in this arena.

Faced with these challenges, determining the effectiveness of any form of sexuality education is precarious, particularly since much of the research is conducted via measures of adolescent behavior rather than by looking at long-range effects. While reduction of teenage sexual activity, pregnancy, and STD infection are perceived as *goals*, these may be better described as *means* by which the larger goals of decreased poverty and deviance and increased levels of income, stability, health, and educational attainment may be achieved. Thus, the focus on short-range measures of adolescent behavior may be misleading and ignore the actual impact of programs.

Measures of adolescent behavior, particularly in the area of sexuality, may be seriously compromised by a reliance on the honest responses of subjects. The challenges

introduced by this reliance are clearly illustrated by recent measures of the National Longitudinal Study of Adolescent Health (Add Health) which indicated that more than half of all students who reported having taken a virginity pledge at Wave I denied ever having done so at Wave II and 10% of students who reported previous intercourse at Wave I reported virginity at Wave II (Hollander 2006).

In light of the need for better understanding of the long-range effects of abstinence education and the validity challenges presented by self-report on sexual behavior, research using demographic or other objective measures on adults who were, as teens, exposed to specific sex education philosophies is desirable. Through this, we may gain insight into the effectiveness of the programs in question. Moreover, when we consider the many documented ramifications of issues such as adolescent pregnancy, we can, to some degree, measure the social impact of the programs. Such a measure will increase objectivity, and allow us to distance research from moral passion and individual beliefs. As those in the 20-24 age demographic category frequently used in census data were 9-13 when Section V was enacted, the effect of federal abstinence programs should be evident within this demographic group. Along with those national changes; however, differences in state responses should also impact this age group resulting in state differences within a federally-endorsed abstinence environment. Extant research provides evidence of variables previously associated with abstinence programs and/or effects of teen pregnancy that are frequently tracked by census or other objective data sources. By associating these data with the level of state participation in abstinence education, the social and economic ramifications of abstinence education can be ascertained.

# CHAPTER III

# METHODOLOGY

## Theoretical Foundation

This research will use a grounded theory methodology, *constant comparison*. *Grounded theory* is the research methodology in which empirical analysis is used to explore what is without an *a-priori* theoretical basis. Instead, through the analysis, a theory can be derived. Moreover, grounded theory allows for contradictory interpretations, providing the potential for a thicker, richer interpretation based directly upon an investigation of what is (Glaser and Strauss 1967; Strauss and Corbin 1994).Each of the two primary positions on sex education is based largely in values, beliefs, and morals (Luker 2006); however, sociological research is historically based in an attempt for objective exploration. Emile Durkheim's theory of suicide and Max Weber's theories of bureaucracy were both founded though empirical analysis. In the 1960s, methodology such as that used by Durkheim came to be known as grounded theory (Strauss and Corbin 1994). In much the same way, this research will begin with an objective view of an aspect of society (in this case adolescent sexual behavior and sexuality education) in an attempt to devise an explanation of the discovered trends that may then be subjected to further testing and refinement.

It is important to note that although no *a priori* theory is used, grounded theory does not assume that the researcher has no previous perceptions of the setting, actors, and

processes being investigated. Indeed, such prior knowledge is a necessity for designing grounded theory of adequate robustness and fit. Grounded theory does demand that the researcher ensure that any conclusions based upon the research are, in fact, supported by the results and that the research design does not introduce bias into the findings (Glasner and Strauss 1967). Using this methodology, we would hope to discover "valid fact" and develop fact-based theory.

Though grounded theory is most closely associated with qualitative research there is a growing trend for its application to quantitative work (Strauss and Corbin 1994). Grounded theory requires a methodological collection, review, and analysis of data. During the process, theory is developed and refined (Glasner and Strauss 1967; Strauss and Corbin 1994). Varying levels of theory are possible; however, theory, in this case, consists of "*plausible* relationships proposed among *concepts and sets of concepts"* (Strauss and Corbin 1994). Grounded theory is designed to allow analysis of phenomena that are "conceptually dense," with many possible relationships. Findings are not limited to "if-then" statements, but may represent the complex and potentially contradictory nature of the phenomena, the actors, and the setting, all interacting in a dymanic way. Grounded theory allows the focus to remain on the patterns and processes found in society, the "reciprocal changes in patterns of action/interaction and in relationship with changes of conditions either internal or external to the process itself" (Strauss and Corbin 1994). Yet these relationships and process must be founded in the data analyzed, and, as analysis continues, theory is developed by continuously tailoring the theory to fit analysis findings.

*Constant comparison* methodology is that aspect of grounded theory in which analysis and data collection are tightly interwoven. It is through this continuing interplay that new theory is generated or existing theory is refined (Strauss & Corbin1994:273). Diffusion of grounded theory in to a wide range of disciplines and the attractiveness of a methodology that provides structure while supporting inductive reasoning, as grounded theory does, has lead to misapplication of the theory and research that claims this theoretical basis solely on the utilization of the inductive process (Strauss & Corbin 1994:277). When properly utilized, grounded theory offers a fertile theoretical foundation for investigating complex social issues.

The question serving as the focus of this research introduces the multiple, complex relationships for which grounded theory is best suited: religion, politics, economics, lifespan development, regional cultural differences, gender, race, stigma, and changing social norms. As virtually no research into the effect of abstinence education on young adult behavior (for exceptions, see Bearman and Bruckner 2001; Bruckner and Bearman 2005) and none to date have associated abstinence education with potential long-term consequences, existing lower-level theory has not been developed. Previous associated research is impacted by pre-existing belief systems; however, the shift from research on adolescent behavior (and intent) to objective measures of an adult population provide an opportunity for development of theory applicable to a broader range of behavior.

**Questions to be Addressed**

The goal of this research is to ascertain the economic impact of abstinence education on young adults (20-24 years of age). Previous findings involving adolescents and upon which this line of inquiry is based include repeated findings of long-term consequences of teen pregnancy; findings of differences in marital, sexual, and contraceptive use patterns among teenagers and young adults who did or did not participate in a program closely associated with abstinence education; and distinct differences in the state and regional presentation of sex and HIV/AIDS information. From findings in these areas, the following questions have been formulated.

*Question 1: How will strengthened abstinence messages affect the birth rate?* If abstinence messages are effective and teens abstain from sex thus reducing the chance of pregnancy, we might expect to find lower birth rates among teenagers and thus a lower number of children for those in the 20-24 year old demographic. Conversely, if abstinence messages do not reduce teenage sexual behavior but do reduce the use of contraceptives, we might expect to see a higher birth rate among those living in states with stronger emphasis on abstinence.

*Question 2: How will strengthened abstinence messages affect marital status in the 20-24 year old demographic?* If the abstinence message is effective, we might expect to find a lower age of first marriage among those in states most strident in presenting that message as young adults enter marriage in order to enter sexual relationships. If found, however, a younger age of first marriage might also be reflected in higher divorce rates.

*Question 3: How will stronger abstinence messages affect educational attainment?* If abstinence messages are effective and encourage greater scholastic

achievement in high school, we might expect to see increased educational attainment in areas in which abstinence is stressed. Reduced educational attainment, however, might indicate entry into marriage in order to become sexually active combined with a reduced likelihood of contraceptive use resulting in parenthood.

*Question 4: How will strengthened abstinence messages affect income among 20-24 year olds?* If, as addressed earlier, abstinence is associated with increased educational success, we might expect to see higher incomes and reduced reliance on governmental aid. If abstinence messages lead to reduced contraceptive use without reducing sexual activity and thus increase the chance of pregnancy, income will be reduced and use of government aid might be expected to increase.

Rationale for each of these is found in previous research or is a logical extension of prior findings that any reduction in sexual behavior after abstinence education is temporary,[16] that abstinence education reduces chances of contraceptive use, closely associates sex with marriage, and that pregnancy at an early age is positively correlated with subsequent early pregnancies, reduced educational attainment, reduced income, and increased reliance on social financial support such as welfare (Maynard 1997:291-294; NCPTP 1997 cited in NCPTP 2002; U.S. Congressional Budget Office 1990).

**Analysis Design and Controls**

Analysis will be completed using individual OLS regressions for each dependent variable to determine any association between the type of sex or HIV/AIDS education mandated within each state and the measures predicted by each of the four research questions. Additional correlation analyses will be conducted in which the effects of sex, race, religiousity, and average state income will be controlled in a progressive arrangement. As sex is the most general distinction, it will comprise step one. Step two will reflect the combined effects of sex and race. Both race and sex have been associated with broad, measurable difference in sexual behavior and adolescent pregnancy, as described in the literature review.

Step three will reflect the addition of an additive scale of religiousity to the two previous controls. The additive scale represents three questions from the General Social Survey which ask the respondent to self report how fundamentalist they are, their religious intensity, and how frequently they visit church. A Fundamentalism Score will be derived by multiplying the number of respondents selecting each option by the coded level of that response (fundamentalist = 3, moderate = 2, liberal = 1) then dividing by the total number of respondents in each of the census regions.[17] A Religious Intensity Scale will be similarly devised (4 = very strong, 3 = not very strong, 2 = somewhat strong, 1 = no religion) as will be a Religious Attendance Scale (9 = more than once a week, 8 = every week, 7 = nearly every week, 6 = 2-3 times per month, 5 = once a month, 4 = several times a year, 3 = once a year, 2 = less than once a year, 1 = never). These will then be totaled to represent the level of religiousity within each region.

A final control, the 2005 average income of each state, will be added to the previous three. This progression moves controls from the most universal (sex) to the most local scale to be used (state income). From this, a crude prediction of the economic impact of abstinence education may be constructed. As a stated goal of this research is to present highly objective data, self-reported attitudinal information will only be used as reflected in the religiousity measures. Broad sources of demographic information, including the American Community Survey and the General Social Survey, will be used in keeping with the theoretical basis of the study. Grounded theory seeks an evolution of understanding as the available research expands. As this is an area of inquiry that has not been previously addressed, this study represents the first stage of research.

With these considerations in mind, this study will use state statutes regarding sex and HIV/AIDS education as a predictor of the type of education presented. These will serve as independent variables. This information will be obtained from data maintained by the Alan Guttmacher Institute and updated monthly. The May 1, 2007 (Figure 1) data will be used. AGI provides information on sex education and HIV/AIDS information separately. Within each of these categories, both abstinence and contraception statutes are classified as “covered” (to be coded as 1), “stressed” (coded as 2) or silent (coded as 0) (AGI 2007). The value of contraception instruction will be subtracted from the value of abstinence education for sex education and for HIV/AIDS instruction, providing an index of the relative strength of the mandated abstinence message in each context for each state. These will then be summed for a cumulative measure of the strength of the abstinence message mandated in each state. The sex education measure, the HIV/AIDS measure, and the cumulative measure will each serve as independent variables.

**Figure 1**: State Sex and HIV/AIDS Education Policies (Adapted from AGI 2007)

| | **Sex Education** | | | **HIV/AIDS Education** | | | *Parental Consent* | |
|---|---|---|---|---|---|---|---|---|
| | | *Content Requirements* | | | *Content Requirements* | | | |
| | *Mandated* | *Abstinence* | *Contraception* | *Mandated* | *Abstinence* | *Contraception* | *Opt-in* | *Opt-out* |
| Alabama | | Stress | Cover | X | Stress | Cover | | X |
| Arizona | | Stress | | | Stress | | X | X |
| Arkansas | | Stress | | | Stress | | | |
| California | | Cover | Cover | X | Cover | Cover | | X |
| Colorado | | | | | | | | X |
| Connecticut | | Cover | | X | | | | X |
| Delaware | X | Cover | Cover | X | Cover | Cover | | |
| D.C. | X | | Cover | X | | | | X |
| Florida | X | Cover | | X | | | | X |
| Georgia | X | Cover | | X | Cover | | | X |
| Hawaii | X | Stress | Cover | X | Stress | Cover | | |
| Idaho | | | | | | | | X |
| Illinois | | Stress | | X | Stress | Cover | | X |
| Indiana | | Stress | | X | Stress | | | |
| Iowa | X | | | X | | | | X |
| Kansas | X | | | X | | | | X |
| Kentucky | X | Cover | | | Cover | | | |
| Louisiana | | Stress | | X | Stress | | | X |
| Maine | X | Stress | Cover | X | Stress | Cover | | X |
| Maryland | X | Cover | Cover | | Cover | Cover | | X |
| Massachusetts | | | | X | | | | X |
| Michigan | | Stress | | X | Stress | | | X |
| Minnesota | X | | | | Cover | | | X |
| Mississippi | | Stress | | X | Stress | | | X |
| Missouri | | Stress | Cover | X | Stress | Cover | | X |
| Montana | X | Cover | | X | Cover | | | X |
| Nevada | X | | | X | | | | |
| New Hampshire | | | | X | Cover | | X | |
| New Jersey | X | | | X | | | | X |
| New Mexico | | | | X | Stress | Cover | | |
| New York | | | | X | Stress | Cover | | X |
| North Carolina | X | Stress | | X | Stress | | | |
| Ohio | | | | X | Stress | | | X |
| Oklahoma | | Stress | | X | Cover | Cover | | X |
| Oregon | | Stress | Cover | X | Stress | Cover | | X |
| Pennsylvania | | | | X | Stress | | | X |
| Rhode Island | X | Stress | Cover | X | Stress | Cover | | X |
| South Carolina | X | Stress | Cover | X | Stress | Cover | | X |
| South Dakota | | | | | | | | |
| Tennessee | X | Stress | | X | Stress | | | X |
| Texas | | Stress | | | Stress | | | X |
| Utah | X | Stress | | X | Stress | | X | |
| Vermont | X | Cover | Cover | X | Cover | Cover | | X |
| Virginia | | Cover | Cover | | Stress | Cover | | X |
| Washington | | Stress | Cover | X | Stress | Cover | | X |
| West Virginia | | Stress | Cover | X | Stress | Cover | | X |
| Wisconsin | | Stress | | X | | | | X |

Dependent variables indicated by the questions include fertility and the presence of children, marital status of the respondents (including never married) and educational attainment. Income levels as a percentage of the poverty level, participation in public assistance programs, and the number of weeks worked will serve as indications of poverty status. These measures are available from the U.S. Census Bureau's 2005 American Community Survey.

Using is design, the strength of the abstinence message delivered to students in each state with mandates impacting sex and/or HIV/AIDS education can be compared to potential outcomes measurable through demographic data. Any resultant trends may be used as indicators of the efficacy of abstinence education.

# CHAPTER IV

## FINDINGS

This chapter reflects the findings of the research outlined in previous chapters. Data from the Alan Guttmacher Institute (Figure 1) was used as an indicator of the strength of the abstinence message presented in each state with statutes pertaining to sex education and/or HIV/AIDS education in public schools serving as the independent variable. Dependent variables, included measures of marital status, poverty, educational attainment, and fertility derived from the 2005 American Community Survey. Controls for sex, race, and average state income were also derived from the 2005 ACS. A control for regional religiousity was derived from General Social Survey data. Because of the large N used (48,839), significance measures are somewhat inflated and should be interpreted carefully.

Findings reflect small but significant effects of abstinence education on 20-24 year olds. These effects are substantially weakened, however, when controls are introduced, particularly when findings are controlled for average state income and, to a lesser degree, for regional religiousity. In both sex education and HIV/AIDS education and when the effects of both are combined, the least affected dependent variables were fertility and presence of own children. Predictions regarding poverty, marital status, and educational attainment based on the level of abstinence reflected in state statues were much more significant than were those regarding pregnancies, whether those pregnancies

took place during teenage early adult years. Differences in the effect of sex education as compared to HIV/AIDS education were reflected in marital status, educational attainment, fertility, and poverty.

**Dependent Variables**

***Marriage.*** Respondents were identified as currently married, never married, or divorced/separated. Regression analysis indicates a negative relationships between currently married status and strength of abstinence message in both sex education and HIV/AIDS education (Table 2). Sex education appears to reduce slightly the number of 20-24 year olds who have never been married and increase the number of divorces, although these trends are offset by an increase in never marrieds and decrease in number of divorces associated with HIV/AIDS education (Table 2).

**Table 2:** Regression Analyses Summary of Marital Status

| | ***Sex Education*** | | ***HIV/AIDS Education*** | | ***Combined Sex and HIV/AIDS Education*** | |
|---|---|---|---|---|---|---|
| | ***β*** | ***$R^2$*** | ***β*** | ***$R^2$*** | ***β*** | ***$R^2$*** |
| *Married* | -.072 | .005*** | -.043 | .002*** | -.064 | .004*** |
| *Never Married* | -.080 | .006*** | .026 | .001*** | .037 | .001*** |
| *Divorced or Separated* | .039 | .002*** | -.048 | .002*** | -.072 | .005*** |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

Correlation analyses contradict these findings to some degree, indicating negative association with being currently married in all cases except HIV/AIDS education when sex, race, religiousity, and state income are controlled (Table 3). Never married status was negative in all cases when uncontrolled; however, when sex and race were controlled sex education was strongly positively associated with never being married and remained

so after controls for religiousity and state income were introduced. A positive association between HIV/AIDS education and never married status was found only when sex, race, religiousity, and state income were controlled. Divorce was positively correlated with all three until controlled for sex, race, religiousity and state income, at which point it was negatively correlated with HIV/AIDS education to an extremely small and insignificant degree ($r$ =-.001) (Table 3). Throughout all measures of marital status associations were weak, remaining below $r$ = .10 with the single exception of the strong correlation between sex education and never married status ($r$ = .954) (Table 3), but was more strongly associated with sex education than with HIV/AIDS education.

**Table 3:** Pearson's Correlation Coefficients of Marital Status

| *Variable* | *Controls* | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS Education*** |
|---|---|---|---|---|
| *Married* | | -.072*** | -.043*** | -.064*** |
| | *Sex* | -.072*** | -.043*** | -.063*** |
| | *Sex and Race* | .-.072*** | -.043*** | -.063*** |
| | *Sex, Race and Religiousity* | -.039*** | -.019*** | -.032*** |
| | *Sex, Race, Religiousity, and State Income* | -.016*** | .013** | -.002 |
| *Never Married* | | -.080*** | -.048*** | -.072*** |
| | *Sex* | -.079*** | -.048*** | -.071*** |
| | *Sex and Race* | .954*** | -.047*** | -.071*** |
| | *Sex, Race and Religiousity* | .954*** | -.020*** | -.034*** |
| | *Sex, Race, Religiousity, and State Income* | .954*** | .013** | -.002 |
| *Divorced or Separated* | | .039*** | .026*** | .037*** |
| | *Sex* | .031*** | .021*** | .036*** |
| | *Sex and Race* | .059*** | .021*** | .035*** |
| | *Sex, Race and Religiousity* | .062*** | .007 | .012** |
| | *Sex, Race, Religiousity, and State Income* | .063*** | -.001 | .003 |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

***Educational Attainment.*** Educational attainment was, overall, negatively associated with sex education, HIV/AIDS education, and their cumulative scores (Tables 4 and 5). This association was weak, with regression $\beta$ ranging from -.002 (HIV/AIDS education) to -.045 (sex education) and $R^2$ reaching no higher than .002 (sex education). In all three cases, however, results were significant at the $p$<.001 level (Table 4). These findings

indicate that although other variables are much stronger in influencing and predicting educational attainment, abstinence education is also exerting a significant influence.

**Table 4:** Regression Analysis Summary of Educational Attainment

| | *Sex Education* | | *HIV/AIDS Education* | | *Combined Sex and HIV/AIDS Education* | |
|---|---|---|---|---|---|---|
| | ***β*** | ***R²*** | ***β*** | ***R²*** | ***β*** | ***R²*** |
| *Fertility* | .004 | .000 | .000 | .000 | .002 | .000 |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

Correlation analysis supports the negative association between strong abstinence messages and educational attainment; however, these scores are also weak with no correlation rising to the $r$ = .10 level (Table 5). Differences between sex education and HIV/AIDS education are observable. Correlations between sex education and educational attainment are significant at the $p$ < .001 level when controlled for sex , sex and race, and sex, race and religiousity; however, when state income is introduced, no significance is found. This pattern is repeated when sex education and HIV/AIDS education are combined. When only HIV/AIDS information is considered, significance is found when sex and when sex and race are considered, but disappear when religiousity is introduced, then reappear when controlled for average state income. The only significant positive correlation with educational attainment was with HIV/AIDS education when all controls were in place.

**Table 5:** Pearson's Correlation Coefficients of Educational Attainment

| ***Variable*** | ***Controls*** | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS Education*** |
|---|---|---|---|---|
| *Educational Attainment* | | -.047*** | -.022*** | -.037*** |

| | | | |
|---|---|---|---|
| *Sex* | -.047*** | -.022*** | -.039*** |
| *Sex and Race* | -.041*** | -.020*** | -.034*** |
| *Sex, Race and Religiousity* | -.023*** | -.007 | -.017*** |
| *Sex, Race, Religiousity, and State Income* | -.008 | .015*** | .005 |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

***Fertility and Parenthood.*** Fertility and parenthood were measured using two scales. *Fertility* reflected the birth of a child within the last 12 months and thus indicated parenthood during early adult years. *Presence and age of own children* reflected the birth of a child at any point before survey participation and thus included the presence of children born during teen years. Although this variable reflects the strongest measure of stated goals of sex education, no regression analysis indicated any predictive influence of any type of education on fertility in either the teenage or young adult years. In all cases, $R^2$ = .000 and $\beta$ never reached the .01 level (Table 6). Correlation analyses (Table 7) indicate a similar pattern with modest negative associations after controlling for sex.

**Table 6:** Regression Analyses Summary of Fertility and Parenthood

| | ***Sex Education*** | | ***HIV/AIDS Education*** | | ***Combined Sex and HIV/AIDS Education*** | |
|---|---|---|---|---|---|---|
| | ***β*** | ***R²*** | ***β*** | ***R²*** | ***β*** | ***R²*** |
| *Fertility* | .004 | .000 | .000 | .000 | .002 | .000 |
| *Presence and Age of Own Children* | -.007 | .000 | -.009 | .000 | -.009 | .000* |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

**Table 7:** Pearson's Correlation Coefficients of Fertility and Parenthood

| ***Variable*** | ***Controls*** | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS Education*** |
|---|---|---|---|---|
| *Fertility* | | .004 | -.035*** | .002 |
| | *Sex* | -.041*** | -.034*** | -.043*** |
| | *Sex and Race* | -.038*** | -.034*** | -.041*** |
| | *Sex, Race and Religiousity* | -.024*** | -.024*** | -.027*** |
| | *Sex, Race, Religiousity, and State Income* | -.013** | -.010* | -.013** |
| *Presence and Age of Own Children* | | -.007 | -.009 | -.009* |

| | | | |
|---|---|---|---|
| *Sex* | -.049*** | -.039*** | -.049*** |
| *Sex and Race* | -.046*** | -.037*** | -.047*** |
| *Sex, Race and Religiousity* | -.028*** | -.024*** | -.030*** |
| *Sex, Race, Religiousity, and State Income* | -.013** | -.005 | -.010** |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

***Poverty.*** Poverty was measured using three variables. The *PUMS poverty index* reflects the percentage of the official poverty level per person within a household (U.S. Census Bureau 2006:66). The *PUMS SSI/AFDC/other* represents individual participation in government sponsored financial aid programs including Supplemental Security Income, Aid to Families with Dependent Children, welfare, etc. *Weeks worked in past 12 months* reflects ongoing employment status. Thus, a positive relationship between PUMS poverty index and an educational philosophy would indicate that exposure to that philosophy reduced poverty and a positive relationship between weeks worked and a philosophy would indicate that exposure to that philosophy increases employment. Conversely, a positive relationship between PUMS SSI/AFDC/other and a teaching philosophy would indicate that exposure to that philosophy increased financial dependence on others.

PUMS poverty index and PUMS SSI/AFDC/other were weakly but significantly negatively associated with sex education, HIV/AIDS education, and the two combined (Table 8). As with educational attainment, $R^2$ were extremely low even though significance was found indicating both the presence of some influence and the presence of other, much more influential agents. Weeks worked results repeated this pattern, although the direction of the weak associations was positive in this case (Table 8).

**Table 8:** Regression Analyses Summary of Poverty

| | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS*** |
|---|---|---|---|

| | | | | | Education | |
|---|---|---|---|---|---|---|
| | ***β*** | ***R²*** | ***β*** | ***R²*** | ***β*** | ***R²*** |
| *PUMS Poverty Index* | -.081 | .007*** | -.057 | .003*** | -.078 | .006*** |
| *PUMS SSI/AFDC/Other* | -.025 | .001*** | -.011 | .000* | -.02 | .000*** |
| *Weeks Worked in Past 12 Months* | .009 | .000* | .001 | .000* | .011 | .000* |

*N* = 48,839; * = *p*<.05; ** = *p*<.01; *** = *p*<.001

Correlation analyses (Table 9) indicated a more complex relationship between poverty and the relative strength of abstinence messages which must be examined individually. PUMS poverty index indicated weak, negative associations when controls are in place for sex, for sex and race, and for sex, race, and religiousity. When controls for state income are added, no association between sex education and poverty index is found (*r* = .000). At the same time, a positive relationship (*r* = .20) significant at the *p* = .001 level exists between HIV/AIDS education and poverty level. These findings indicate a relationship such that lower incomes are associated with increased focus on abstinence unless only HIV/AIDS education is considered and sex, race, religiousity, and state income are controlled.

**Table 9:** Pearson's Correlation Coefficients of Poverty

| ***Variable*** | ***Controls*** | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS Education*** |
|---|---|---|---|---|
| *PUMS Poverty Index* | | -.081*** | -.057*** | -.078*** |
| | *Sex* | -.080*** | -.057*** | -.077*** |
| | *Sex and Race* | -.073*** | -.054*** | -.071*** |
| | *Sex, Race and Religiousity* | -.037*** | -.029*** | -.038*** |
| | *Sex, Race, Religiousity, and State Income* | .000 | .020*** | .013** |
| *PUMS SSI/AFDC/Other* | | -.025*** | -.011* | -.021*** |
| | *Sex* | -.026*** | -.011* | -.022*** |
| | *Sex and Race* | -.028*** | -.012** | .001 |
| | *Sex, Race and Religiousity* | -.003 | .004 | .002 |
| | *Sex, Race, Religiousity, and State Income* | -.006 | .002 | -.006 |
| *Weeks Worked in Past 12 Months* | | .009* | .011* | .011* |
| | *Sex* | .010* | .011** | .012** |
| | *Sex and Race* | .015*** | .013** | .016*** |
| | *Sex, Race and Religiousity* | .001* | .009* | .011* |
| | *Sex, Race, Religiousity, and State Income* | .003 | .000 | .002 |

*N* = 48,839; * = *p*<.05; ** = *p*<.01; *** = *p*<.001

Participation in programs such as SSI or AFDC indicate striking differences between sex education and HIV/AIDS education. With no controls, both are weakly and negatively associated with participation in aid programs; however, while the relationships with sex education and with both sex education and HIV/AIDS combined are highly significant, the relationship with HIV/AIDS education alone is significant only at the $p<.05$ level (Table 9). Given the large *N* of this survey, this difference is particularly striking. When controlling for sex, race, and religiousity, no significant relationship is found, nor is one indicated when additionally controlling for state income. In interpreting these results, it is vital to consider that only participants 20-24 years of age were considered and that less impact was observable when controlling for religiousity than when controlling for race or sex (Table 9).

Weeks worked indicated a similar lack of significance when all controls were introduced; however, significance was increased when controls for race were added to those for sex. The impact of race, however, was much more observable when only sex education was considered than when only HIV/AIDS education was considered or when both were considered together (Table 9).

**Independent Variables**

***Sex Education.*** Regression analyses indicate a weak but significant causal effect in which the strength of the abstinence message impacts marital status and poverty. Students in sex education classes with strong abstinence messages are more likely to be divorced and less likely to be married or never married, are more likely to have lower incomes and

less likely to participate in governmental financial aid programs (Table 10). Fertility, either as teens or as young adults, is not affected by the strength of the abstinence message ($R^2$ = .000) (Table 10).

**Table 10:** Regression Analyses Summary

| | ***Sex Education*** | | ***HIV/AIDS Education*** | | ***Combined Sex and HIV/AIDS Education*** | |
|---|---|---|---|---|---|---|
| | ***ß*** | ***R²*** | ***ß*** | ***R²*** | ***ß*** | ***R²*** |
| *Married* | -.072 | .005*** | -.043 | .002*** | -.064 | .004*** |
| *Never Married* | -.080 | .006*** | .026 | .001*** | .037 | .001*** |
| *Divorced or Separated* | .039 | .002*** | -.048 | .002*** | -.072 | .005*** |
| *Educational Attainment* | -.045 | .002*** | -.002 | .000*** | -.037 | .001*** |
| *Fertility* | .004 | .000 | .000 | .000 | .002 | .000 |
| *Presence and Age of Own Children* | -.007 | .000 | -.009 | .000 | -.009 | .000* |
| *PUMS Poverty Index* | -.081 | .007*** | -.057 | .003*** | -.078 | .006*** |
| *PUMS SSI/AFDC/Other* | -.025 | .001*** | -.011 | .000* | -.02 | .000*** |
| *Weeks Worked in Past 12 Months* | .009 | .000* | .001 | .000* | .011 | .000* |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

Correlation analyses (Table 11) indicate a weak but consistent significance of sex education in all measured dependent variables, particularly the positive relationship between sex education and never married status ($r$ = .954) when controlled for race and sex. Religiousity and state income consistently affected results. In all but two measures, these controls reduced the correlation substantially (Table 11). Never married status was unaffected by these controls and the association with divorce was somewhat strengthened when these controls were applied (Table 11). Although regression analysis indicated no effect of abstinence education on childbearing, correlation analysis indicated a weak but negative relationship (Tables 10 and 11).

**Table 11:** Pearson's Correlation Coefficients Summary

| *Variable* | *Controls* | ***Sex Education*** | ***HIV/AIDS Education*** | ***Combined Sex and HIV/AIDS Education*** |
|---|---|---|---|---|
| *Married* | | -.072*** | -.043*** | -.064*** |
| | *Sex* | -.072*** | -.043*** | -.063*** |
| | *Sex and Race* | .-.072*** | -.043*** | -.063*** |
| | *Sex, Race and Religiousity* | -.039*** | -.019*** | -.032*** |
| | *Sex, Race, Religiousity, and State Income* | -.016*** | .013** | -.002 |
| *Never Married* | | -.080*** | -.048*** | -.072*** |
| | *Sex* | -.079*** | -.048*** | -.071*** |
| | *Sex and Race* | .954*** | -.047*** | -.071*** |
| | *Sex, Race and Religiousity* | .954*** | -.020*** | -.034*** |
| | *Sex, Race, Religiousity, and State Income* | .954*** | .013** | -.002 |
| *Divorced or Separated* | | .039*** | .026*** | .037*** |
| | *Sex* | .031*** | .021*** | .036*** |
| | *Sex and Race* | .059*** | .021*** | .035*** |
| | *Sex, Race and Religiousity* | .062*** | .007 | .012** |
| | *Sex, Race, Religiousity, and State Income* | .063*** | -.001 | .003 |
| *Educational Attainment* | | -.047*** | -.022*** | -.037*** |
| | *Sex* | -.047*** | -.022*** | -.039*** |
| | *Sex and Race* | -.041*** | -.020*** | -.034*** |
| | *Sex, Race and Religiousity* | -.023*** | -.007 | -.017*** |
| | *Sex, Race, Religiousity, and State Income* | -.008 | .015*** | .005 |
| *Fertility* | | .004 | -.035*** | .002 |
| | *Sex* | -.041*** | -.034*** | -.043*** |
| | *Sex and Race* | -.038*** | -.034*** | -.041*** |
| | *Sex, Race and Religiousity* | -.024*** | -.024*** | -.027*** |
| | *Sex, Race, Religiousity, and State Income* | -.013** | -.010* | -.013** |
| *Presence and Age of Own Children* | | -.007 | -.009 | -.009* |
| | *Sex* | -.049*** | -.039*** | -.049*** |
| | *Sex and Race* | -.046*** | -.037*** | -.047*** |
| | *Sex, Race and Religiousity* | -.028*** | -.024*** | -.030*** |
| | *Sex, Race, Religiousity, and State Income* | -.013** | -.005 | -.010** |
| *PUMS Poverty Index* | | -.081*** | -.057*** | -.078*** |
| | *Sex* | -.080*** | -.057*** | -.077*** |
| | *Sex and Race* | -.073*** | -.054*** | -.071*** |
| | *Sex, Race and Religiousity* | -.037*** | -.029*** | -.038*** |
| | *Sex, Race, Religiousity, and State Income* | .000 | .020*** | .013** |
| *PUMS SSI/AFDC/Other* | | -.025*** | -.011* | -.021*** |
| | *Sex* | -.026*** | -.011* | -.022*** |
| | *Sex and Race* | -.028*** | -.012** | .001 |
| | *Sex, Race and Religiousity* | -.003 | .004 | .002 |
| | *Sex, Race, Religiousity, and State Income* | -.006 | .002 | -.006 |
| *Weeks Worked in Past 12 Months* | | .009* | .011* | .011* |
| | *Sex* | .010* | .011** | .012** |
| | *Sex and Race* | .015*** | .013** | .016*** |
| | *Sex, Race and Religiousity* | .001* | .009* | .011* |
| | *Sex, Race, Religiousity, and State Income* | .003 | .000 | .002 |

$N$ = 48,839; * = $p$<.05; ** = $p$<.01; *** = $p$<.001

***HIV/AIDS Education.*** Regression analysis of HIV/AIDS education indicated a consistently weaker effect on all dependent variables. Like sex education, HIV/AIDS

education was not found to predict any change in fertility at teen or at young adult periods. Although the slope of the equation ($\beta$ = -.009) was slightly more extreme than that of sex education ($\beta$ = -.007), the difference was minimal and neither reached the level of significance (Table 10). The influence of HIV/AIDS education on poverty was minimal and was strongest when predicting poverty index (Table 10). Like sex education, HIV/AIDS education appears to negatively impact both income and participation in governmental financial aid programs, although these effects are weaker than those found in sex education (Table 10). Virtually no impact on employment was found, although the relations ($\beta$ = .001, $R^2$ = .000) reached significance at the $p$ = .05 level.

Correlation analyses also indicate a weaker relationship between HIV/AIDS education and all variables than found when considering sex education (Table 11). The only exception to this pattern was the number of weeks worked, which was roughly equal to the findings in sex education, both of which are weak. Fewer findings reached significance and significance levels were frequently lower when HIV/AIDS education was considered than when sex education was considered (Table 11).

***Combined Sex and HIV/AIDS Education***. The most striking finding is the overall lack of any predictive effect of the dual programs on childbearing when considering either the fertility variable ($\beta$ = .002, $R^2$ = .000, $p$ = .649) or the presence of own children variable ($\beta$ = -.009, $R^2$ = .000, $p$ = .048). Conversely, the combined programs do appear to influence marital status such that that strength of the abstinence message reduces the likelihood of both married and divorced status but increases the likelihood of never married status (Table 10). This pattern is echoed when HIV/AIDS education is

considered, but not when sex education is considered (Table 10). The combined programs also appear to influence poverty such that both income and participation in governmental financial aid programs is reduced as the abstinence message is strengthened (Table 10).

Correlation analyses indicate a consistent impact when controls for religiousity and state income are added to those of sex and race. In every case except participation in governmental aid programs, correlations were substantially reduced when these controls were introduced (Table 11). Although regression analyses indicated no impact on childbearing, fairly weak negative correlations for both fertility and presence and age of own children were found (Table 11).

**Summary of Findings**

Findings were consistently significant, even though the strength of correlations and predictive power of regressions were, with few exceptions, extremely low. No regression resulted in an $R^2 \geq .01$, indicating little if any causal effect which can be attributed to the strength or weakness of the abstinence message. Though most correlations were similarly weak, particularly after all controls were employed, a strong positive correlation ($r = .954$) was found between never married status and sex education. Repeated differences were found when sex education was compared to HIV/AIDS education such that sex education exerted a larger causal influence and was more weakly correlated with the outcome variables considered.

# CHAPTER V

# DISCUSSION

In this chapter, the research question, literature review, methodology, and results will be synthesized and an interpretive explanation will be offered. Research limitations and future research will be discussed. As required of any grounded theory research, theoretical insight based on the findings will be offered. Moreover, this chapter reflects the researcher's subtle shift in perspective from that of objective narrative to that of insight gained through research. The shift allows us to place the findings within the context of the society in which it has occurred and in which we live. Thus, a level of instinctive understanding is melded with objective research findings, a concept Weber introduced as *verstehen*. Through *verstehen*, Weber argued, sociologists may know not only the mechanics of a phenomena, but also the experience itself, allowing a deeper level of understanding than can be found in other sciences (Ritzer 1992:115-117).

This research explores four questions:

*Question 1: How will strengthened abstinence messages affect the birth rate?*

*Question 2: How will strengthened abstinence messages affect marital status in the 20-24 year old demographic?*

*Question 3: How will stronger abstinence messages affect educational attainment?*

*Question 4: How will strengthened abstinence messages affect income among 20-24 year olds*.

Analyses indicate that the strength of the abstinence message presented has virtually no causal effect on fertility and parenthood, poverty, educational attainment, or marital status. Significant correlations were found, particularly with marital status and the PUMS poverty index; however, these do not indicate any causal relationship and are more likely indications of spurious relationships by which the local or regional views toward adolescent sexuality, marriage, education, parenthood, and socioeconomics are tightly interwoven and jointly impacted by religious, racial, and regional norms, values, beliefs, and traditions. Most notable were the strong positive relationship between never married status and sex education; however, this was found only when correlations were completed and not when regression analysis was performed, again indicating a strong likelihood of spurious relationships.

A second notable finding was the difference in effects of sex education and those of HIV/AIDS education. This finding is particularly salient when the nature of sex education is compared to that of HIV/AIDS education. Sex education is mandated in 19 states and the District of Columbia while HIV/AIDS education is mandated in 35 states and the District of Columbia. While only 37% of states mandating sex education stress abstinence, 50% of states mandating HIV/AIDS education do so. At the same time, more states mandate that contraception be covered in HIV/AIDS education than in sex education classes. As a result, more students receive HIV/AIDS education and, once there, they are more likely to receive both a strong abstinence message and contraceptive information (AGI 2007).

The social costs of adolescent sexual activity, and particularly of adolescent childbearing, are long-lasting and far-reaching. Not only are the adolescents and their children affected, but society itself suffers consequences including the cost of social support, increased likelihood of incarceration (and assumably increased criminality), and a less healthy, less educated future work force. Efforts to address these social problems have included efforts to prevent or modify adolescent sexual behavior, including comprehensive and abstinence education programs.

While programs in representing either philosophy focus on classroom-based, educational intervention, forces that affect adolescent sexual initiation and behavior are many and varied. Although research tends to focus on a single aspect or a small subset of indicated variables, adolescents are subjected to these forces as a whole, including contradictory or conflicting messages. The complex nature of factors affecting sexual initiation and behavior make it likely that no two adolescents receive quite the same composite message. The variation in messages is further complicated by our decentralized educational system which precludes any uniformity in sexuality education content. The resultant variation both structurally through the educational system and through systemic variables such as race and religion and individually through variables such as perception of peer behavior and romantic involvement create a complex nexus of factors that must be considered when addressing research into adolescent sexuality or potential solutions to the consequential social problems.

This extreme level of variation and the powerful nature of many of the factors shown to affect sexual initiation and behavior present salient research challenges. How, for example, can macro level variables such as race, or socioeconomic status be

effectively measured concurrently with individual measures such as relationship with parents, influence of peers, or being "in love"? How can these be further placed within a context when the proposed educational solutions (comprehensive and abstinence education) when both the context and the solution are dynamic and regionally determined? Even were such a methodology devised, how can we be certain of the values measured when the primary means of data collection is self-report on a topic proven to result in a higher level of nondisclosure? As a result of these challenges, the bulk of extant research focuses on a limited number of variables and/or a limited sample, frequently focusing on a single school district or a comparison among a half dozen or fewer schools. These research challenges, along with potential researcher bias, have contributed to conflicting research results, some supporting and espoused by those advocating abstinence education and some supporting and espoused by those advocating comprehensive education.

When researchers have attempted to take a broader, national view, a very different picture emerges. Analyses of Ad Health data, metanalysis of previous studies, and this research into the long-term effects (if any) of abstinence messages all indicate the same result: *neither abstinence nor comprehensive education substantially influences adolescent behavior*. Within the profound network of influences, classroom education is but one of many voices. Parents, peers, media, partners, church, local norms, and a multitude of other voices present simultaneous messages and any true understanding of adolescent behavior (as well as any attempt to affect that behavior) must acknowledge this thick, rich context.

When viewed through this lens, however, questions arise about the nature of the current debate and the passion which it inspires. If it is this myriad of other social influences that is more salient and neither educational approach is effective in solving problems that are so long-lasting and far-reaching, why does our social focus remain on the debate between the two perspectives? Why are congressional hearings acrimonious, local school boards besieged and bullied, and why are hundreds of millions of tax dollars spent on ineffective programs, even though the cost of not effectively addressing the problems are so high? Of course, the fight between the two positions and the support for each is driven by the vested interests of individuals, organizations, and institutions promoting one view or the other.

If the implementation of sexuality education is a strategy, a means by which broader social issues may be addressed and research broad-ranging, longitudinal, and more objective research indicates that strategy is ineffective, we should expect to see reduced support for that educational program, regardless of the philosophical view. In the case of sexuality education, we see just the opposite reaction, with increasingly fervent support for both perspectives. This might indicate that sexuality education serves another purpose. In other words, it serves as a means by which a goal other than reducing adolescent sexual behavior is served.

When viewed through this lens, the in-depth qualitative research of Kristin Luker (2006) becomes a salient source of insight. She reports that in virtually every interview conducted during research that spanned more than twenty years, the overriding value was one of responsibility and the overriding difference between the two camps was the definition of that word. “For liberals,” she reports, “responsibility is planning ahead, but

for conservatives, it is accountability, not preventing the consequences but living with them," (Luker 2006:193). Thus the distinction between the two camps is not a divergence in strategy, but a difference is fundamental values. These values are supported through the espoused positions, with liberals supporting a comprehensive education that enforces the importance of proactive means to avoid serious consequences (i.e. condom use to avoid pregnancy and STD infection) and with conservatives advocating abstinence education that frames adolescent sexuality and the consequences as one and the same thing.

In framing both arguments as means to prevent the consequences of adolescent sexuality, both camps are employing the vocabulary of rationalization. The goal is to perpetuate their underlying values, but the means to that goal are couched in terms of STD rates, teenage motherhood, and premature infants. Of greatest importance is the observation that this rationalization is not occurring on the psychological level, but on a broad social level. Support for the proposition of social rationalization can be found in the willingness of all parties to ignore objective, rational data to the extent that congressional member have debated whether or not it is possible to discern "what information is medically accurate" (Rose 2005).

**Research Limitations and Future Research**

Research has indicated a large number of variables that affect entrance into sexual activity and teenage pregnancy (see pages 15-16). While this model focuses only on those variables for which a large sample size and objective measures are available, other variables remain unmeasured and, in many cases, unmeasurable (Deming as cited in

Kiser 2006). Rose (2005) notes that cross-cultural investigations into adolescent sexuality and fertility require that the social context in which the sex and education take place must be considered to fully understand measurable dynamics. Other researchers note that highly individual variables such as relationships among the family of origin, strength of romantic ties, and behavior of referent groups exert tremendous influence.

Any research, including this study, that seeks to explain a phenomena as complex as sexuality without considering gender, time, place, social norms, and numerous other variables can provide only limited knowledge. Moreover, these variables are not static and the dynamic nature of social roles and expectations make measures of sexual behavior and the transition from adolescence to adulthood transient at best. Construction of a model incorporating the myriad of potent social dynamics and influential social structures affecting young people today is truly a Herculean task and research must, to a large degree, rely on small, indicative slices of information .This model, then, is very limited in scope, but serves as a foundation in the process of expanding theory based on observation as proposed by grounded theory.

This limitation is reflected in the low level of explanatory power in the regression analyses, even when findings reached high levels of significance. Abstinence education is exerting an influence that can be measured well into young adulthood, but the influence exerted explains very little of the variance found. Future research should consider a larger number of variables, including broader social changes. The high levels of significance with low levels of explanatory power may also indicate that the effects of abstinence education are only beginning to affect the adult population. As abstinence funding

continues to grow, the long-term effects of abstinence education may gain greater explanatory power.

This research is further limited by the nature of the American educational system. As discussed earlier, our system is highly decentralized and the actual content of educational programs varies greatly. Furthermore, within any state or district policy, individual instructors maintain great latitude in classroom presentations and instructional content. Ascertaining the actual content of our nation's classes is far beyond the scope of this paper. Similarly, the analysis of state statutes used in this research was limited whether abstinence and/or contraception were covered or stressed with no provision for mandated framing of how either or both was presented.

Future research should include a wider range of variables, but should also carefully consider the target of measurement. Selecting levels of adolescent sexual activity, contraceptive use, teen pregnancy and other frequently-used variables may indicate the effectiveness of the programs; however, it also encompasses the assumption that support for such programs is based upon their perceived effectiveness. This research presents an alternative interpretation, that support is expanding despite growing evidence of their ineffectiveness. Instead, these educational programs serve to perpetuate fundamental value sets and a vocabulary of rationalization allows social actors to maintain and expand program support regardless of the program's inability to address stated goals. Further research into this proposed explanation, both in terms of adolescent sexuality and in terms of other social problems, should be conducted.

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## END NOTES

1. Though the level of research varies between and within camps, each group asserts the validity of studies supporting their own position. The term "research" used here reflects the acceptance of studies by members of one or both camps and does not necessarily reflect the academic understanding of the term. Thus, studies that might not rise to the standard of "research" within the academy will be presented as research in this study.

2. Santelli, et al. based their results on an analysis of four nationally-administered surveys, three of which were longitudinal in scope. Surveys include the National Survey of Family Growth (NSFG) (1988 and 1995) , the National Survey of Adolescent Males (NSAM) (1988 and 1995), the Youth Risk Behavior Survey (YRBS) (1991, 1993, 1995, and 1997), and the National Longitudinal Study of Adolescent Health (Add Health) (1995).

3. Research into classroom presentations and teacher responses indicates that much, if not most, education is neither truly "abstinence only" nor comprehensive, but a blend of the two frequently referred to as "abstinence light". As this research focuses on the stated goals and limitations as mandated by state-level statutes or policies, the actual content of individual classes is not addressed; rather, it is assumed that policy will affect the content and presentation in such a manner that mandates toward abstinence education will increase the level of abstinence influence even in abstinence light classrooms.

4. Findings by Darroch and Singh were contested by Mohn, Tingle, and Finger (2002) who argued that the study contained methodological errors. Their own findings, after corrections, indicated that abstinence accounted for 100% of the decline; however, to achieve this level of impact, Mohn et al. removed pregnant teens who married from the study, did not account for pregnancies resulting in abortion or miscarriage, did not account for changes in contraception use, and relied on subject reports of their sexual behavior over a period of years.

5. Advocates of abstinence education also frequently assert the need to embrace sanctions against out-of-wedlock births, homosexuality, abortion, pornography, and other sexual behaviors.

6. Examples of such misstatement were found in the process of this literature review, as when Robert Rector of the Heritage Foundation (2002) claimed that two-thirds of all STDs occur in people 25 or younger, attributing this number to CDC reports. Those reports, however, indicate that people 25 or younger account for "almost half" of reported cases (CDC 2005). Similarly, literature supporting abstinence education notes that those who participate in adolescent sexual behavior are likely to experience "emotional and psychological injuries" (Rector 2002) although no scientific data supportive of this statement exists (Finer 2007).

7. In response to similar allegations, the state of Rhode Island ruled that abstinence curricula offered by Heritage Community Services could not be used in the state, citing "serious privacy and discrimination concerns" including medical inaccuracy ("condoms are virtually useless against humn papillomavirus"), gender bias ("curriculum encouraged girls to 'wear modest clothing that doesn't invite lustful thoughts,' taught that men were 'strong' and 'courageous' and said 'real women' were 'caring'") and religious instruction ("A video urged students to remain abstinent until marriage because it would 'honor (their) relationship with Jesus.'") (Charleston Post & Courier cited in Contemporary Sexuality 40:15).

8. STD infection rates were ascertained by urine tests for Chlamydia, gonorrhea, and trichomoniasis. Additionally, females who reported previous sexual activity were tested for human papilloma virus. Non-participation (8%) indicated no significant bias.

9. Students were allowed to select as many options as desired. Other results were: Education about relationships: 33.2% Communication with parents: 32.5%; Making it easier to get birth control: 31.3%; Education about parenting realities: 29.5%; More job training: 20%; More afterschool activities: 18.2%; Money for college 15.3%; Learning from friends: 13.1%; Other 4.3%.

10. In the study cited, "scope" was never clearly defined but presumably refers to the depth and breadth of covered topics. The finding that smaller scopes are more effective than larger scopes is one that indicates a need for replication and further exploration, but may indicate that, at least as presented, current instruction makes sex boring and students tend to tune out, a point also supported by cross-cultural ethnographic work by Susan Rose (2005).

11. To ensure a measure of lasting effect, Kirby et al. recommended 2-4 months in studies of condom or contraceptive use and 6 months in studies of postponement/initiation of sexual activity.

12. President Clinton has since stated that "abstinence-only is an error." (Edmonton Journal cited in Contemporary Sexuality 40:15).

13. This shift is particularly problematic in light of the research by Rosenbam (2006) which indicates that more than half of students making a pledge of virginity deny

making any such pledge one year later and of Bearman and Bruckner (2001) which indicates that only 12% of students reporting such a pledge maintained virginity.

14. Comprehensive education advocates have asserted that, just as failure rates for "laboratory use" and "real use" for other contraceptives are required, "real use" failure rates for abstinence can be measured by determining the number of students who have pledged abstinence but not maintained that position. See Dailard 2003.

15. Other results were abstinence-plus: 34%; no policy: 33%. Student distributions result in 45% of students in districts offering abstinence-plus, 32% in districts with abstinence-only; 14% in districts with no policy, and only 9% in districts requiring comprehensive education.

16. Bearman and Bruckner do indicate a more lasting decrease in sexual behavior, but the population studied is those who have taken virginity pledges rather than those students who have participated in abstinence education. As religiosity is negatively associated with sexual behavior and virginity pledge programs are frequently centered in churches rather than schools, the potential of a collinear relationship is very high.

17. Regions include: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific.

# APPENDIX

VITA

Vicky L. Elias

Candidate for the Degree of

Master of Science

Thesis: LONG-TERM CONSEQUENCES OF ABSTINENCE EDUCATION

Major Field: Sociology

Biographical:

Personal Data: Born February 21, 1958 in Amarillo, Texas; married August 8, 1975; mother of four sons; grandmother of three.

Education: Graduated College High School, Bartlesville, Oklahoma in 1976; received Bachelor of Arts with Department Honors, Oklahoma State University, 2005; received Certificate of Women's Studies, Oklahoma State University, 2005; completed requirements for the Master of Science Degree in Sociology, Oklahoma State University, July, 2007.

Experience: Previous employment includes secretarial work, domestic abuse shelter Intake Worker, technical writing, and drug detoxification work. Volunteer work including various positions with the Cherokee Council, B.S.A.; President, Oklahoma Women's Political Caucus charter member Bartlesville Parents Involved in Education;. Educational involvement includes monthly column in *The Daily O'Collegian*, Off Campus Student Association representative, President, Sociology Graduate Student Association; member Psy Chi, Phi Eta Sigma, National Society of Collegiate Scholars and Phi Kappa Phi, and charter member *Academia degli Intronati*.

Professional Memberships: American Psychological Association and Community - Academic Consortium for Research on Alternative Sexualities

Name: Vicky L. Elias Date of Degree: July, 2007

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: LONG-TERM CONSEQUENCES OF ABSTINENCE EDUCATION

Pages in Study: 79 Candidate for the Degree of Master of Science

Major Field: Sociology

Scope and Method of Study: This research applies previous findings in the effect of adolescent pregnancy to the 20-24 year old demographic in order to ascertain the potential long-term effects of abstinence education on marital status, fertility, poverty, and educational attainment.

Findings and Conclusions: Non-predictive but significant associations between the strength of the abstinence message and marital status, poverty, fertility, and educational attainment were indicated. Students receiving a strong abstinence message are slightly more likely to divorce, less like to be married or never married, have reduced educational attainment and lower incomes. They are, also less likely to participate in government aid programs and work more weeks.

Although findings were significant, the model explained only a small portion of variance, indicating 1) the need for more robust models of abstinence education and 2) the ineffectual nature of both abstinence and comprehensive sexuality education in light of other social influences. The need for research incorporating a wider array of social forces is discussed as is the social adoption of a vocabulary of rationalization in which educational programs that serve to perpetuate value sets are framed as means to address social problems.

ADVISER'S APPROVAL: Kenneth J. Kiser, Ph.D.