A SCIENTIFIC REVIEW OF ABSTINENCE AND ABSTINENCE PROGRAMS

TECHNICAL ASSISTANCE MODULE

Abstinence Education Grantees

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Technical Assistance Module for Abstinence Education Grantees

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PREFACE

This resource encompasses the current social scientific literature on abstinence education—and the value it holds for children, adolescents, adults and society as a whole—in one document that we encourage you to reference. Its purpose is to help you better understand what the research shows in the following ways:

- provides a review of the scientific literature on the benefits of abstinence until marriage particularly for adolescents and young adults;
- highlights the link between premarital abstinence, educational attainment, physical and psychological health, and marital success;
- addresses the ways in which premarital abstinence helps to ensure that children are born and reared in married families, and discusses the recent role that abstinence has played in driving down teen pregnancy rates in the United States; and
- provides a review of current abstinence education efforts.

This review offers abstinence educators an overview of the individual and societal benefits of abstinence, and a summary of the most recent research evaluating abstinence education programs.

Use the valuable information contained in this review to strengthen your presentations and programs, communicate the abstinence until marriage message confidently and effectively, and communicate the need for abstinence education to potential partners, constituent groups, and the media. For further research in support of communicating the abstinence until marriage message, see the numerous references provided in the appendix.

The "Abstinence Initiatives and Programs" section features a review of current research on abstinence education efforts—including faith-based, private sector, and federally-funded programs. The results, though limited, are meant to share lessons learned, encourage more extensive research and evaluation, where needed, and encourage adjustments in programs to improve their effectiveness. In particular, Dr. Wilcox emphasizes the need for rigorous evaluation of abstinence education programs and the importance of publishing findings in peer-reviewed scientific journals.

While reading this review, keep in mind that funding of abstinence education programs by the federal government was limited until 1996 when, as part of Welfare Reform, funding was authorized for states and territories to implement abstinence education programs. States began receiving funds in fiscal year 1997. As part of this legislation, abstinence education programs had to follow the newly created definition of abstinence education including the A-H elements.

Since the initial funding of these programs, the federal government has encouraged them to be evaluated as a means of assessment and improvement; however, since fiscal year 2006 all Community-Based Abstinence Education (CBAE) programs that receive funding are required to designate 15 percent of their overall budget to vigorous third-party evaluations. In part, this explains why published scientific research has been limited, and why one conclusion of this review is that the research findings have been mixed. Dr. Wilcox also explains a few of the many complexities involved in analyzing evaluation results and provides insight into what is needed to improve future evaluation efforts.

In the last section, "Assessing Recent Scientific Findings Related to Abstinence Education," Dr. Wilcox highlights five features of programs that are likely to change sexual behavior. Grantees are encouraged to consider implementing these features in order to improve program effectiveness.

We hope that this scientific review will encourage and challenge you, stimulate new thought and action, and ultimately benefit those you serve—youth, their parents, the community and, ultimately, the nation.

INTRODUCTION

In the last half-century, the United States has witnessed dramatic changes in sexual behavior, and related beliefs, among adults and adolescents. In 1960, for instance, most adolescents entered adulthood (age 18) as virgins, most adults did not cohabit before marriage, and the public clearly supported the norm that sex ought to be reserved for marriage. Now, most adolescents enter adulthood sexually experienced, most adults cohabit before marriage, and the majority of the public does not support the attitudinal norm that sex ought to be reserved for marriage.[1] Clearly, the sexual revolution of the 1960s and 1970s had a dramatic impact on the sexual ecology of the United States. One of the most important consequences of this revolution in sexual behavior and beliefs is that the institution of marriage is much less likely to govern and guide the expression of sexual intimacy between adolescents and adults. More specifically, abstinence before marriage is now the exception to the behavioral and attitudinal norm when it comes to sex.[2]

The changes associated with the sexual revolution raise profound questions about the individual and environmental consequences of changing patterns of sexual behavior; public and private efforts to respond to the sexual revolution also raise important questions. At the individual level, how is sex before marriage related to the likelihood that any individual will experience a nonmarital pregnancy, a sexually transmitted infection (STI), social problems, psychological health problems, or a healthy and happy family life? At the environmental level, how have changing patterns of sexual behavior affected rates of nonmarital pregnancy and STIs, health care costs, as well as the quality and stability of American family life? Finally, have recent efforts—both public and private—to promote abstinence among adolescents and young adults met with any success?

This review answers these questions by reviewing the individual and environmental consequences of abstaining from sex before marriage, and by evaluating the scientific literature on abstinence education. Of course, few topics in American public life generate as much controversy as teenage sex and abstinence education.[3] For that reason, this review strives to offer an objective and succinct overview of the medical and social scientific literature on abstinence, abstinence education, sexual behavior, and sex education found in peer-reviewed journals or academic books, and a small number of reputable think tanks.

What does the science suggest about the individual and environmental consequences of abstinence and premarital sex? This review comes to eight particularly important conclusions from the scientific literature.

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[1] Laumann *et al.* 1994: 198, 206-7, 328; Thornton and Young-DeMarco 2001.

[2] Luker 2006; Thornton and Young-DeMarco 2001.

[3] Luker 2006.

EIGHT CONCLUSIONS

1. **Sexual abstinence before marriage is typically associated with better physical and psychological health among American adolescents and adults.** Studies indicate that Americans who had their first sex in marriage are significantly more likely to report that they are happy and emotionally satisfied with their sex lives, and less likely to report that they are depressed, compared to adolescents and adults who are or were sexually active before marriage. They are also much less likely to suffer from STIs and infertility.

2. **Abstinence before marriage fosters a healthy and happy family life for children, adolescents, adults, and society as a whole.** Adolescents who are abstinent have better relationships with their parents, and individuals who are virgins until they marry are more likely to enjoy happy and stable marriages. At the societal level, higher rates of abstinence are associated with higher levels of family stability and lower levels of nonmarital pregnancy, divorce, and single-parenthood. Thus, abstinence before marriage plays an important role in increasing the odds that children are born into and reared in a household with both their mother and their father.

3. **Adolescents who abstain from sex before marriage are significantly less likely to become enmeshed in a "problem behavior syndrome" characterized by a range of antisocial behaviors—from drinking to academic failure.** Premarital sex, especially when initiated in early adolescence, seems to act as a gateway for some adolescents into problematic social networks and behaviors. Specifically, studies find that teenagers who engage in sex before marriage are more likely to be delinquent, to be addicted to alcohol or drugs, and to have problems in school, compared to their peers who abstain from having sex.

4. **The physical and psychological effects of abstinence are gendered, with females benefiting most from premarital abstinence.** This review finds, for instance, that women and especially girls are significantly more likely to suffer depression from premarital sex, compared to men and boys. Females also benefit from abstinence more than males when it comes to their physical health, because they are more likely to suffer from an STI, infertility, or an out-of-wedlock pregnancy if they are sexually active before marriage. On the other hand, this review also finds that men and boys are more likely to suffer from social problems—e.g., academic difficulties and drinking—if they engage in premarital sex.

5. **Abstinence seems to be particularly important for younger adolescents.** Most studies indicate that adolescents who engage in sex well before the median age of their peers (that is, who engage in sex at age 15 or earlier[4]) are especially likely to experience a teenage pregnancy, an STI, psychological problems, poor academic performance, and delinquency. One reason that early sexual activity seems to be associated with a range of medical and social pathologies is that it increases the likelihood that teenagers will have multiple sexual partners before they reach adulthood. Another reason why early sexual activity harms teenagers is that it tends to distance them from the influence of their parents and push them towards the influence of their peers, who may be involved in antisocial behaviors.

6. **On a number of outcomes, premarital sex appears to harm only a minority of the population of sexually active adolescents and adults. Nevertheless, given the range of harms associated with premarital sex, it seems likely that a majority of adolescents and adults (particularly females) who engage in premarital sex will experience at least one type of physical, psychological, social, or marital harm as a consequence of engaging in premarital sex.** Premarital sex increases the odds that adolescents and adults will experience negative outcomes such as an STI, an out-of-wedlock birth, and depression. Nevertheless, it is important to acknowledge that for almost any particular medical, psychological or social outcome, only a minority of adolescents and

4 Terry-Humen *et al.* 2006: 2. Data from the 2002 National Survey of Family Growth indicate that the mean age at first intercourse in the United States is now 16.4.

adults experience harm from engaging in sex before marriage. For instance, one recent study found that 4.5 percent of adolescent females who abstained from sex and drugs suffered from depression, compared to 15.1 percent of females who engaged in sex alone, and 25.5 percent of females who engaged in sex and drug use.[5] Moreover, this review finds that some research indicates that sex has no negative psychological effects when it takes place in a committed context. Accordingly, discussions of the consequences of premarital sex should be attentive to the subtleties of the research, and they should accurately state, but not exaggerate, the negative effects of engaging in sex before marriage; discussions of premarital sex that do not nuance the effects of premarital sex will not be credible to policy makers, the public, or adolescents. At the same time, given the array of negative consequences associated with premarital sex, it seems likely that most adolescents and adults who engage in sex before marriage will experience at least some harm from this behavior.

7. **Private efforts to promote abstinence have succeeded in changing adolescent sexual behavior.** This review finds that recent voluntary initiatives, such as the virginity pledge movement led by groups such as *True Love Waits*, have increased rates of virginity among adolescents, and they have also reduced the onset of teenage sex, the number of sexual partners, and sexual infidelity among adolescents. Studies also suggest that they have played an important role in driving down the teenage pregnancy rate in the last decade or so. At the same time, these initiatives are not full-proof: most teenagers who take virginity pledges, or who attend religious services on a regular basis, do go on to have sex prior to marriage.

8. **Based on the research to date, the effects of public efforts to promote abstinence through abstinence education are unclear.** This review finds that the research on abstinence education is mixed at best, and of limited scientific value. Although a number of studies suggest that some abstinence education programs do succeed in delaying the onset of sexual activity and reducing the number of sexual partners adolescents have, many reviews and studies of abstinence education conclude that the average abstinence program in public schools does not influence the sexual behavior of teenagers. Moreover, many of these reviews and studies are of limited value because they have not studied abstinence education programs focusing on adolescents 14 and older—the primary target audience—that have been retooled in the last few years to take advantage of insights gleaned from recent program evaluation research. Thus, the existing literature suggests that more rigorous and longitudinal studies of recent abstinence education efforts are required to determine the present effectiveness of abstinence education. Fortunately, recipients of federal abstinence education grants ar\e now required to spend 15 percent of their grants on program evaluation; this should soon increase the number of valuable program evaluations of current abstinence education efforts.

In summarizing medical and social scientific research on abstinence-related topics, this review acknowledges that the sciences are often better prepared to document associations between abstinence and a range of medical, psychological, and social outcomes than they are to prove that abstinence causes particular outcomes. Indeed, some of the associations this review documents between abstinence or premarital sex and a range of outcomes may be a consequence of "selection effects," or the pre-existing differences between individuals who have sex before marriage, sex at unusually early ages, or refrain from sex until marriage. For instance, religious teenagers are less likely to engage in delinquency than secular teenagers; hence, the association between premarital sex and delinquency may be in part a consequence of underlying differences in religiosity between teen virgins and teens who are sexually active.[6] It is also possible that the direction of causality runs from particular social or psychological states to sexual behavior, rather than the other way around. There is some evidence, for instance, that depression leads to adolescent sexual activity, rather than vice versa. For these reasons, this review represents an initial effort to review the growing scientific literature on the links between premarital sex or abstinence and a range of medical, psychological, social, and family outcomes. Future research will have to explore these substantive and methodological issues in

[5] Waller *et al.* 2006: 145.

[6] Smith and Faris, 2002. For a discussion of religion, sex, and selectivity, see Regnerus 2007: 49-52.

greater detail to determine if abstinence is exercising a genuinely causal role on these outcomes.

Nevertheless, the literature to date strongly suggests that adolescents and adults who abstain from sex before marriage do better on a range of health, psychological, and social outcomes. The literature also suggests that there are important environmental benefits that flow from abstinence until marriage. This review now turns to a more detailed review of that medical and social scientific literature, and to a review of the literature that analyzes the effectiveness of public and private initiatives and programs designed to promote abstinence.

CHILDREN AND FAMILIES

Pregnancy and Childbearing

One of the most tangible consequences of sexual abstinence before marriage is that adolescent girls and women are not at risk of becoming pregnant, having a child outside of wedlock, or having a child before they have the economic, emotional, and social resources to devote themselves to childrearing. A large body of research indicates that children are most likely to thrive when their parents are married and when their parents are mature enough to face the challenges of married life and parenting.[7] Thus, the best way to ensure that pregnancies occur within marriage, and to raise the odds that children are born and reared by married parents who are mature enough to raise them, is to abstain from sexual activity until marriage.

Of course, most adolescents and adults end up having sex before marriage. What are the odds sexually active women will become pregnant? On average, recent estimates suggest 85 percent of sexually active women who are not using contraception and are in a romantic relationship will become pregnant in the first year of their relationship.[8] The odds decline dramatically for women who engage in perfect use of contraception—that is, who use their preferred method(s) of contraception "consistently and correctly" on every occasion; between .05 (Norplant) and .3 (Pill) and 2 (Condom) and 19 (Spermicide) percent of these women will become pregnant in the first year of a sexual relationship.[9]

However, most sexually active adolescents and adults do not use contraception perfectly. Sexually active females engaging in typical use of contraception—that is, relying on contraception in the way that average persons do—face a risk of pregnancy in their first year of sexual activity that ranges from 1.3 (Norplant) to 7.3 (Pill) to 13.8 (Condom) to 27.0 (Spermicides) percent; overall, an average of 11.8 percent of sexually active women using contraception will become pregnant in their first year of use.[10] Moreover, the rate of contraceptive failure among adolescent girls and young women is markedly higher. One recent study found that 14.6 percent of sexually active, unmarried, and not cohabiting teens and 30.6 percent of cohabiting teens became pregnant in their first year of contraceptive use.[11] This same study found that between 13.2 and 17.3 of unmarried, sexually active women ages 20-24 became pregnant in their first year of contraceptive use.[12] Pregnancy rates were even higher among adolescent girls and young adult women whose income fell below 200 percent of poverty.[13]

Why are sexually active women relying on "typical use" of contraception so much more likely to become pregnant than women relying on "perfect use," and why are adolescent girls especially vulnerable to a contraceptive failure—i.e., pregnancy? Women relying on typical use are more likely to forget to take their oral contraception every day, may have a partner who, on occasion, wants to have sex without a condom, or may feel ambivalent about pregnancy and thereby occasionally wish to engage in uncontracepted sex.[14] Adolescents are less developed emotionally and cognitively than their adult peers; consequently, they have greater difficulty exercising self-control and are more likely to use contraception incorrectly or inconsistently.[15] One recent study found that 65 percent of teens aged 14 and under and 79 percent of teens aged 15-19 used contraception at first sex but rates of consistent contraception are markedly lower among sexually active teenagers; recent estimates indicate that 55 percent of teens use contraception consistently across the duration of their first sexual relationship.[16] But, over time, an even smaller number of teens use contraception consistently across all of their relationships.[17]

Of course, adolescents who commit to abstinence do not always honor that commitment. For instance, most teenagers who take a pledge to abstain from sex before marriage ultimately go on to have sex before marriage, and they are somewhat less likely to use contraception at

7 Maynard 1997; McLanahan, Donahue, and Haskins 2005.

8 Trussell 2004: 792.

9 Trussell 2004: 773, 792.

10 Fu *et al.* 1999: 60.

11 Fu *et al.* 1999: 61.

12 Ibid.

13 Ibid.

14 Edin and Kefalis 2005.

15 Howard and McCabe 1990: 21.

16 Franzetta *et al.* 2006: 2-3; Manlove *et al.* 2006a: 189, 198.

17 Franzetta *et al.* 2006: 2-3.

first intercourse than adolescents who did not pledge.[18] Nevertheless, because they typically experience first sex 18 months later than teens who do not pledge, teenage girls who pledge are less likely to become pregnant as teenagers.[19]

The environmental consequences of adolescent and adult premarital sex are large when it comes to pregnancy and childbearing. From 1960 to 1998, birth rates more than doubled for unmarried teens aged 15-19 from 15.3 to 41.5 percent, as well as for unmarried women aged 15 to 44 from 21.6 to 44.3.[20] As a consequence, large numbers of children are born every year to teenage girls and to unmarried women. For instance, in 2005, 420,000 adolescent girls under the age of 20 in the United States gave birth—83 percent out of wedlock.[21] More generally, more than 1.5 million women of all ages gave birth to a child out of wedlock.[22] Thus, because large numbers of adolescents and adults are engaging in premarital sex, millions of children are being born every year into family contexts that do not bode well for their future financial, emotional, and social welfare.

On the other hand, there is good news to report when it comes to teenage pregnancy. In the last decade and a half, teen pregnancy rates declined markedly. Among adolescents aged 10 to 14, birth rates have fallen 50 percent since 1991; among adolescents aged 15 to 19, birth rates have fallen 35 percent.[23] This decline in teenage pregnancy can be attributed to a combination of less teen sexual activity and more contraception among sexually active teenagers. In 1988, 49 percent of never-married girls and 40 percent of boys aged 15-19 reported they were virgins; by 2002, 54 percent of never-married girls and boys aged 15-19 reported they were virgins.[24] This means that virginity rose by 35 percent among this group of adolescent males and by 10 percent among this group of adolescent females. Likewise, contraception use increased from 71 percent of females aged 15-19 using some type of contraception at first sex in 1992 to 75 percent in 2002. Research by John Santelli, a public health expert at Columbia University, on pregnancy rates among adolescent females aged 15-17 suggests that increases in abstinence account for between 23 and 53 percent of the recent decline in teenage pregnancy, and that improvements in contraceptive use account for between 47 and 77 percent of this decline.[25] Taken together, this research suggests that teens can change their sexual behavior, and that a range of civic, public, and religious initiatives have succeeded in driving down the nation's rate of teen pregnancy.

Family Life

Abstinence before marriage is linked to stronger and more satisfying families, according to a growing body of research. Specifically, adolescents and adults who abstain from sex before marriage are more likely to enjoy better family relationships, and are also more likely to provide a good family life to any children that they bring into the world. Furthermore, research on the collective consequences of the sexual revolution for families in the United States and Europe strongly suggests that a social norm of abstinence until marriage is likely to improve the strength of marriage and family life in the United States.

Abstinence before marriage appears to increase solidarity between adolescents and their parents, and between married spouses. As noted above, adolescents who have sex as teenagers, especially at early ages, are significantly more likely than virgins to distance themselves from their parents, both by rejecting their parents' norms and by spending less time with them.[26] By contrast, virgins are more likely to maintain close ties with their parents, and to abide by their values.[27]

When it comes to marriage, adults who succeed in reserving sex and a shared domicile for marriage are more likely to enjoy happy and stable marriages. By contrast, couples who have sex before marriage, especially couples who cohabit, are more likely to experience difficulties in their marriage.[28] For instance, one study of 2,034 married adults found that those who had cohabited prior to marriage reported less marital happiness and more marital conflict, compared to similar couples who did not cohabit.[29] Abstinence before marriage is also linked to greater marital stability. For

18 Bruckner and Bearman 2005: 275; Manlove *et al.* 2003.

19 Rector, Johnson, and Marshall 2004.

20 Ventura *et al.* 2000: 24.

21 Hamilton *et al.* 2006.

22 Ibid.

23 Ibid.

24 Abma *et al.* 2004.

25 Santelli *et al.* 2004; Santelli *et al.* 2007.

26 Bingham and Crockett 1996.

27 Ibid.

28 Dush *et al.* 2003; Stanley *et al.* 2006.

29 Dush *et al.* 2003: 544.

instance, studies almost always find that cohabitation is associated with an increased divorce risk, with estimates ranging from as low as a 33 percent increased divorce risk to a 151 percent increased risk of dissolution.[30] Studies also indicate that men and women who marry as virgins are significantly less likely to divorce.[31] For instance, a study relying on the National Health and Social Life Survey found that men who marry as virgins are 37 percent less likely to divorce than other men, and that women who marry as virgins are 24 percent less likely to divorce than other women.[32] Thus, adults who remain abstinent until marriage are more likely to enjoy a satisfying and stable marriage.

What accounts for the links between premarital sex and marital difficulties? University of Chicago sociologist Edward Laumann and his colleagues suggest that people who acquire a taste for sexual activity at an early age, and who have multiple partners, are less likely "to be sexually exclusive over the remainder of their life, with the result that divorce is a more likely outcome for them."[33] Cohabitation and premarital sex have also been linked to a shift towards more individualistic and less marriage-oriented norms and values. That is, the experience of engaging in sex or cohabitation seems to make persons more likely to adopt attitudes that place a priority on individual expression and de-emphasize the value of marriage and marital permanency; in turn, such individuals are more likely to adopt beliefs and behaviors that are incompatible with interdependent marital roles, and they are less likely to invest in their marriages.[34] These are two reasons why sex before marriage appears to be harmful to marital quality and stability.

As noted above, adolescents and adults who engage in sex before marriage are (obviously) much more likely to have children outside of wedlock, compared to those who do not have premarital sex. More than 14 percent of unmarried adolescents and 10 percent of unmarried adults engaging in typical use of contraception will become pregnant in the first year of a relationship; furthermore, more than one third of sexually active females have not consistently used contraception at each act of intercourse.[35] As a consequence, a substantial minority of adolescent and adult women engaged in nonmarital sex, either with or without contraception, is likely to have a child outside of wedlock.

Children born to unmarried mothers are significantly more likely than children born to married parents to suffer from poverty, physical and sexual abuse and neglect, psychological problems such as depression, delinquency and criminal activity, and educational failure.[36] For instance, one study found that boys raised outside of an intact, married home were 2 to 3 times more likely to end up in prison as young adults.[37] Another study found that children raised in single-parent families are about twice as likely to drop out of high school and to have a teenage pregnancy later in life.[38] After surveying the literature on family structure, Penn State sociologist Paul Amato concluded, "Research clearly demonstrates that children growing up with two continuously married parents are less likely than other children to experience a wide range of cognitive, emotional, and social problems, not only during childhood, but also in adulthood."[39]

Of course, over the last 40 years, more children have been born and reared outside a married home at least in part because the sexual revolution undercut the norm of premarital sexual abstinence. Most scholars who have studied the nation's recent retreat from marriage over the last four decades agree that the sexual revolution played an important role in fueling this retreat.[40] Dr. George Akerlof, a Nobel-prize-winning economist at the University of California-Berkeley, is particularly perceptive in this regard. In two different studies, he argues that the sexual revolution—aided in part by widespread contraception—fueled a dramatic increase in premarital sex, and reduced the normative imperative that men should take responsibility for the children they help bring into the world by marrying; these two developments, in turn, led to dramatic increases in nonmarital childbearing.[41] From this research, Dr. Akerlof concludes that the sexual revolution played an important role in the nation's retreat from marriage over the last four decades, and is indirectly responsible for the social consequences of that retreat. In his words: "Just at the time,

30 Cherlin 1992; Dush *et al.* 2003; Laumann *et al.* 1994: 501.

31 Finger *et al.* 2001; Kahn and London 1991; Laumann *et al.* 1994.

32 Laumann *et al.* 1994: 503.

33 Laumann *et al.* 1994: 505.

34 Dush *et al.* 2003: 541. See also Amato and Rogers 1999, Axinn and Thornton 1992; Stanley *et al.* 2006.

35 Fu *et al.* 1999: 61; Franzetta *et al.* 2006: 4.

36 Wilcox *et al.* 2005.

37 Harper and McLanahan 2004.

38 McLanahan and Sandefur 1994.

39 Amato 2005.

40 Akerlof *et al.* 1996; Ellwood and Jencks 2004; McLanahan 2004; Nock 2005; Wilcox 2006.

41 Akerlof *et al.* 1996; Akerlof 1998.

about 1970, that the permanent cure to poverty seemed to be on the horizon and just at the time that women had obtained the tools to control the number and timing of their children, single motherhood and the feminization of poverty began their long and steady rise."[42] Furthermore, he thinks the retreat from marriage caused in part by the sexual revolution was also implicated in the "crime shock and the substance abuse shock" of the 1970s and 1980s.[43] Indeed, a number of other studies find that the retreat from marriage is strongly linked to increases in child poverty, crime, and substance abuse since the 1960s.[44] The bottom line is this: the erosion of the norm of premarital sexual abstinence, both in belief and behavior, appears to have played an important role in the weakening of American family life and, in turn, some of the nation's most pressing social problems.

Thus, the norm that sex should be reserved for marriage would seem to increase the likelihood that any individual could enjoy a strong and satisfying family life; furthermore, increased public support for such a norm would also seem likely to foster happier and healthier families in the United States as a whole. In turn, given the connection between strong families and the social welfare of the United States, it is also possible that increases in premarital abstinence would also have important, indirect positive consequences for the welfare of the nation. Indeed, future research will have to determine what, if any, impact recent increases in teenage virginity have had on the quality of family life and the social welfare of the United States.

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42 Akerlof *et al.* 1996: 313.

43 Akerlof 1998: 289.

44 Wilcox *et al.* 2005.

PHYSICAL AND MENTAL HEALTH

Sexually Transmitted Infections

One of the most common consequences of engaging in premarital sex is acquiring a sexually transmitted infection (STI). More than 50 percent of sexually active American adolescents and adults will contract some type of STI over the course of their lives—from human papillomavirus (HPV), the most common STI in the United States, to human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS), the most serious STI in the United States.[45] Indeed, one recent report finds that more than half of sexually active young adults will contract an STI by age 25.[46] STI symptoms include ulcers, genital discharge, pelvic inflammation and discomfort during intercourse and urination, nausea and abdominal pain, and a weakened immune system; over time, STIs can lead to genital cancers, infertility, miscarriages, premature births, sexual dysfunction, secondary infections, and, in some cases, death.[47] The only way to avoid acquiring an STI is to abstain from sex or to engage in sexual intercourse with someone who has had no other sexual partners or has been tested and has no STIs.

Adolescents and young adults under age 25 account for a majority of STI cases in the United States. For instance, bacterial STIs such as chlamydia and gonorrhea are most common among adolescents and young adults; indeed, two-thirds of reported cases of chlamydia and gonorrhea occur in adults younger than 25.[48] Likewise, estimates of HPV infection indicate that as many as 80 percent of sexually active young women may be infected with one of the many viruses associated with this papovavirus group.[49] Nevertheless, many adolescents acquire STIs without exhibiting immediate symptoms, and therefore do not realize they are infected; only later, often years later, when they suffer from infertility or cervical cancer do they endure the long-term consequences of their infection.

Adolescents, especially adolescents who engage in sex in early adolescence, are particularly likely to acquire an STI.[50] This is largely because they are more likely to have multiple sexual partners and less likely to use condoms consistently, compared to adults.[51] For instance, one study found that only 28 percent of sexually active teenage females and 47 percent of sexually active teenage males consistently use condoms.[52] As Stephen and Shelagh Genuis of the University of Alberta observed in a review on STIs in the *American Journal of Obstetrics and Gynecology*, "The practical reality is that individuals, especially young people, are less able to make consistent, safer health choices when they are sexually aroused."[53] There is also an important biological reason why adolescent girls are particularly vulnerable to STIs: because their cervixes are not fully developed, adolescent girls and women under 25 are more vulnerable to acquiring STIs.[54] So, sex is a particularly risky undertaking for adolescents who are insufficiently developed—both intellectually and physically—for the challenges of sexual intercourse.

STIs are also particularly problematic for females. As Willard Cates, a leading STI researcher, notes: most STIs "show a 'biological sexism.'"[55] Females are more likely to acquire an STI from any given sexual encounter than are males. For instance, one study found that the risk of being infected with gonorrhea from a single sexual encounter with an infected partner is about 25 percent for men and 50 percent for women.[56] As importantly, women are more likely to suffer long-term consequences from STIs such as infertility, pelvic inflammatory disease (PID), pelvic pain, and cancer, compared to men.[57]

When it comes to contraception, only condoms provide any measure of protection from STIs. How much protection do they provide? When used consistently and correctly, condoms are highly effective in preventing the transmission of HIV, the virus that causes AIDS.[58] For instance, studies

45 Genuis and Genuis 2004: 1104.

46 Cates *et al.* 2004.

47 Ibid; Cates 2004.

48 Cates 2004: 192.

49 Cates 2004: 207.

50 Cates 2004: 192.

51 Cates 2004: 192.

52 Franzetta *et al.* 2006: 4.

53 Genuis and Genuis 2004: 1107.

54 Moscicki *et al.* 1989.

55 Cates 2004: 192.

56 Ibid.

57 Ibid.

58 Center for Disease Control and Prevention 2001; National Institute of Allergy and Infectious Diseases 2001.

suggest that consistent condom use reduces the odds of being infected by HIV between 85 and 94 percent.[59] For discharge diseases other than HIV, latex condoms, when used consistently and correctly, appear to reduce the risk of transmission of gonorrhea, chlamydia, and trichomoniasis.[60] Studies suggest that condoms are less protective when it comes to STIs passed through genital skin to skin contact, such as herpes, HPV, and chancroid.[61] For instance, one study found that consistent condom use was not associated with protection from genital warts, an HPV-related disease, and, for women, herpes.[62] Thus, in general, the scientific literature suggests that consistent and correct condom use provides an important measure of protection for some STIs, and substantially less protection for other STIs.

Nevertheless, condoms are typically not used consistently and correctly, particularly among adolescents. As noted above, for instance, only a minority of adolescents consistently use condoms, even though they are the group most vulnerable to STIs.[63] Furthermore, condom breakage or slippage occurs in between 1.6 and 3.6 percent of all acts of intercourse; indeed, condom failure is more common among adolescents who are less experienced with sex.[64] For all these reasons, typical condom use may provide only limited protection for many STIs, particularly skin-to-skin infections, for sexually active females. By contrast, abstinence before marriage, and mutual fidelity within marriage, protects adolescents and adults—especially women—from a range of STIs, some of which are debilitating and even deadly.

The collective costs that the United States incurs for current levels of STIs, primarily a consequence of nonmarital sex, are large. Studies indicate that approximately 15 million Americans are infected every year with STIs, most of them young adults and adolescents.[65] The annual direct health costs in the United States associated with the symptoms and complications associated with STIs—from infertility to cervical cancer to AIDS—top 16 billion dollars.[66] The psychological costs associated with these symptoms and complications—from sexual dysfunction to marital problems to depression—are inestimable.[67] For all of these reasons, increases in sexual abstinence outside of marriage—insofar as they are connected to declines in STI rates—would clearly bring marked economic, medical, and psychological benefits to the nation.

Psychological Well-being

Marriage seems to be the relationship venue most conducive to psychologically-satisfying sex, according to a growing body of research from the social sciences. Studies also indicate that adolescents who abstain from sex prior to marriage are less likely to suffer from a range of psychological pathologies. Furthermore, these studies indicate that abstinence is particularly valuable to adolescents and teenage girls.

A number of studies suggest that adults who waited to have sex until they married, and who have remained faithful to their spouses since they married, report higher levels of life satisfaction, compared to adults who engaged in premarital sex or adulterous sex.[68] By contrast, as Dartmouth economist David Blanchflower and his colleague Andrew Oswald note, "Those [adults] who have ever had sex outside their marriage also report notably low happiness scores."[69]

This pattern extends to emotional satisfaction with sex itself. Data taken from the National Health and Social Life Survey, the most comprehensive study of sex in America to date, indicates that a "monogamous sexual partnership embedded in a formal marriage evidently produces the greatest satisfaction and pleasure."[70] Specifically, adults in marriages characterized by fidelity over at least the last 12 months were more likely to indicate that they were "extremely" or "very" emotionally satisfied by their sexual relationship, compared to cohabiting and noncohabiting adults—especially adults who had more than one partner

59 Center for Disease Control and Prevention 2001; National Institute of Allergy and Infectious Diseases 2001. Pinkerton and Abramson 1997; Warner *et al.* 2004: 337; Weller and Davis 2002.

60 Shlay *et al.* 2004.

61 Shlay *et al.* 2004; Warner *et al.* 2004: 336-337. National Institute of Allergy and Infectious Diseases 2001. But see Winer *et al.* 2006: 2651, who found that women whose partners consistently used condoms were "70 percent less likely to acquire a new infection than were women whose partners used condoms less than 5 percent of the time."

62 Shlay *et al.* 2004: 158.

63 Franzetta *et al.* 2006: 4.

64 Cates 2001: 231.

65 Cates 2004: 192.

66 Institute of Medicine, 1997.

67 Genuis and Genuis 2004: 1106.

68 Blanchflower and Oswald 2004; Else-Quest *et al.* 2005; Laumann *et al.* 1994: 360.

69 Blanchflower and Oswald 2004: 405.

70 Laumann *et al.* 1994: 364.

in the last 12 months.[71] They were also much more likely to report positive feelings about sex—e.g., sex makes them feel "loved," "wanted," and "taken care of"—and less likely to report negative feelings about sex—e.g., sex makes them feel "anxious," "scared," and "guilty"—than sexually active unmarried adults, or adults with more than one partner in the last 12 months.[72] Further research using this same data found that the association between marriage and emotional satisfaction only holds for women, after taking into account a range of demographic and background characteristics.[73] Nevertheless, sexual fidelity was strongly associated with higher levels of emotional satisfaction with sex for both men and especially women.[74]

A number of social scientific studies find that adolescent premarital sex, particularly casual sex (where there is no romantic relationship), is linked to psychological pathologies such as depression, suicide ideation, and suicide attempts.[75] For instance, one study using the National Longitudinal Study of Adolescent Health found that adolescents who engaged in sex (but not drugs and alcohol) were three and one-half times more likely to be depressed than adolescents who abstained from sex, alcohol, and drugs.[76] Studies indicate that the association between adolescent sex and psychological problems is particularly strong for teenagers who have sex before the median age of sexual onset among their peers (that is, who have sex at age 15 or earlier).[77]

The association between adolescent sex and psychological problems is also markedly stronger for girls than it is for boys. For instance, the Add Health study mentioned above found that the association between sex and depression was almost twice as powerful among teenage girls compared to boys. Specifically, after controlling for a range of demographic factors, this study found that 4.5 percent of girls who abstained from sex, drugs, and alcohol were depressed, compared to 15.1 percent who experimented with sex (but not drugs or alcohol), whereas 3.6 percent of boys who abstained from sex, drugs, and alcohol were depressed, compared to 8.8 percent who experimented with sex (but not drugs of alcohol).[78] Indeed, another study found that sex was associated with higher levels of depression among teenage girls and lower levels of depression among teenage boys.[79] This gendered pattern also extends to other psychological outcomes. A study of 12 through 16-year-old students found that sexually active girls were 6.3 times more likely to report having attempted suicide than were virgin girls; by contrast, sexually active boys were less likely to have attempted suicide.[80]

What may account for the positive relationship between sexual abstinence before marriage and psychological well-being among adults, adolescents, and particularly younger adolescents and females? Adults and adolescents who have sex before marriage are more likely to acquire STIs, to have more than one sexual partner over the course of their life, and to engage in casual sex—all factors that are associated with negative psychological outcomes. As noted above, adolescents and adults who acquire an STI are more likely to experience physical pain, guilt, and shame than those without any record of infection; they are, thus, more vulnerable to psychosexual difficulties and to depression.[81] Furthermore, as indicated earlier, adolescents who engage in sex at early ages, and teenage girls, are more likely to acquire an STI, which may in turn influence their psychological well-being.

Obviously, adults and adolescents who have premarital sex are also more likely to have more than one partner compared to peers who abstain from sex before marriage. For instance, one study found that 55 percent of sexually-experienced 19-year-old females had three or more partners over the course of their teenage years; this same study found that 66.4 percent of sexually experienced 19-year-old males had three or more partners.[82] This research suggests that, for most adolescents and adults, premarital sex is a gateway into sex with more than one partner. This is a problem, in part, because a number of studies suggest that entering into and then breaking up with serious romantic partners is emotionally traumatic, particularly for teenage

71 Laumann *et al.* 1994: 364. Waite and Joyner 2001: 239.

72 Ibid, p. 366-368.

73 Waite and Joyner 2001: 265.

74 Ibid: 256-258.

75 Grello *et al.* 2003; Grello *et al.* 2006; Hallfors *et al.* 2004; Hallfors *et al.* 2005; Kaltiala-Heino *et al.* 2003; Kowaleski-Jones and Mott 1998; Orr *et al.* 1991; Ramrakha *et al.* 2000; Rector, Johnson, and Noyes 2003. But see Bigham and Crockett 1996 and Sabia 2006a.

76 Waller *et al.* 2006.

77 Else-Quest *et al.* 2005; Tubman *et al.* 1996.

78 Else-Quest *et al.* 2005; Tubman *et al.* 1996: 145-147.

79 Kowaleski-Jones and Mott 1998.

80 Orr *et al.* 1991.

81 Genuis and Genuis 2004: 1006.

82 Santelli *et al.* 1998: 272.

girls and adult females.[83] For instance, one study found that college students who had multiple partners were significantly more likely to report that they "regretted" a decision to engage in sexual activity, compared to students who had only partner.[84] Adolescents and adults with multiple partners are also more likely to acquire STIs and, in the case of females, to get pregnant, events which can cause emotional distress.[85]

Adolescents and adults who are sexually active prior to marriage are, by definition, also more likely than abstainers to engage in casual sex with a non-romantic partner. Casual sex is common among adolescents and adults who engage in premarital sex. Studies suggest that between 60 and 85 percent of sexually experienced adolescents have engaged in intercourse with a casual sex partner.[86] Casual sex, in turn, is associated with higher reports of depression than is romantic sex, especially among younger adolescents and females.[87] Indeed, University of Tennessee psychologist Deborah Welsh and her colleagues found that psychologically distressed females were most likely to engage in casual sex, whereas the males who reported the lowest levels of depression were most likely to engage in casual sex. She speculates that adolescent females who engage in casual sex may get caught in a "vicious depressive cycle" where they seek out sexual relationships to "fill an internal void" only to end up getting more depressed because the relationship does not develop into a committed, romantic relationship.[88] She also argues that females are more likely than males to suffer depression in connection with casual sex because they tend to attach more emotional significance to sex than do males; indeed, given her results, she hypothesizes that the most confident men in her sample were taking advantage of the most vulnerable women in her sample.[89]

At the individual level, then, adults and adolescents who abstain from sex before marriage are more likely to enjoy psychological health thus avoiding psychological pathologies. The link between abstinence and mental health is particularly strong for young adolescents and females. Future research will have to determine if changes in adolescent and adult sexual activity are linked to environmental changes in psychological health in the society at large. At the collective level, for instance, increases in premarital sex among adolescents may help account for increases in the adolescent suicide rate from the 1960s to 1990.[90] Likewise, recent declines in sexual activity may be linked to declines in the adolescent suicide rate since 1990.[91] New research will have to take up empirical topics such as the link, if any, between rates of adolescent sexual activity and adolescent suicide.

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83 Monroe *et al.* 1999; Joyner and Udry 2000.

84 Oswalt *et al.* 2005.

85 Terry-Humen *et al.* 2006; Howard and Wang 2004.

86 Grello *et al.* 2003; Manning *et al.* 2004.

87 Grello *et al.* 2003; Grello *et al.* 2006.

88 Grello *et al.* 2006: 265.

89 Ibid: 257, 265. See also Buss 1988; Hill 2002.

90 Institute for American Values 2003.

91 Ibid.

SOCIAL WELFARE

Social Behavior

A large body of research suggests that abstinence is associated with more virtuous behavior among adolescents, particularly teenage boys. Specifically, studies indicate that teenage virgins are significantly more likely to avoid alcohol, drugs, delinquency, crime, and educational problems.[92] By contrast, teenage sex—particularly sex initiated before most of one's peers—is associated with entry into a "problem behavior syndrome" that encompasses substance abuse, antisocial behavior, and academic difficulties.[93]

Adolescents who abstain from sex are less likely to be involved in antisocial or risky behaviors such as drinking, drug use, and delinquency. One study of 1,052 urban adolescents found that abstinence was associated with significantly lower levels of tobacco, alcohol, marijuana, and other illegal drug use.[94] A study of 3,054 Massachusetts high school students found that students "with more [sexual] partners are more likely to have greater frequency and severity of lifetime and recent drug use."[95] Another study using Add Health, a national sample of adolescents, found that teen virgins had a delinquency score that was at least "50 percent lower than the predicted delinquency scores for those who [sexually] debuted on-time."[96]

Not surprisingly, given that they are less likely to become enmeshed in problem behaviors, teenagers who abstain from sex are also more likely to thrive in school. Even after controlling for initial academic achievement, one study found that virgins were more likely to have higher educational goals and achievements.[97] Another study found that abstaining teenage girls were significantly less likely to drop out of school than their peers.[98]

The research on social behavior indicates that—for this domain—teenage sex is especially problematic when it takes place early in adolescence and when boys engage in sexual activity. For instance, a study of 1,167 high school students in suburban New York found that early and persistent sex among teenagers was particularly likely to be associated with alcohol problems and delinquency.[99] The Add Health study noted above found delinquency was especially common among teenagers who had sex before most of their peers; specifically, this study reports that "experiencing early [sexual] debut is associated with a 20 percent increase in predicted delinquency compared to youth debuting on-time."[100] (But note that a new study looking at twins in the Add Health dataset suggests that the association between early sex and later delinquency is not causal.)[101] Still, another study using Add Health data found that "early teen sex is associated with a higher probability of suspension, a higher probability of unexcused absences from school, a lessened affinity for school, and reduced aspirations to attend college."[102]

Finally, a number of studies focusing on the academic consequences of teenage sex indicate that those consequences are strongest for boys.[103] One longitudinal study of 1,120 Florida adolescents found that boys who experienced sex between waves of the study were significantly more likely to suffer a decline in their academic performance, relative to peers who remained virgins. The authors concluded: "To the extent that adolescent premarital coitus has long-term effects on academic performance, and to the extent that school performance is a good indicator of success in later life, premarital coitus may have far-reaching negative consequences for a white male's future well-being."[104] Another study, by University of Georgia economist Joseph Sabia, which relies on a number of sophisticated econometric methods to control for selection effects and endogeneity, finds that adolescent sexual activity is associated with lower academic achievement among boys but not girls.[105]

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92 Armour and Haynie 2007; Finger *et al.* 2004; Kowalksi-Jones and Mott 1998; Rosenbaum and Kandel 1990; Sabia 2007a; Sabia 2007b; Schvaneveldt *et al.* 2001; and, Upchurch and McCarthy 1990.

93 Silver and Bauman 2006. See also Armour and Haynie 2006.

94 Silver and Bauman 2006.

95 Shrier *et al.* 1996: 381.

96 Armour and Haynie 2007: 148.

97 Schvaneveldt *et al.* 2001.

98 Upchurch and McCarthy 1990: 229-230.

99 Tubman, Windle, and Windle 1996.

100 Armour and Haynie 2007: 148.

101 Harden *et al.* 2007.

102 Sabia 2007b: 23.

103 Billy *et al.* 1988; Sabia 2007a; Sabia 2007b.

104 Billy *et al.* 1988: 209.

105 Sabia 2007a.

What accounts for the link between abstinence and virtuous behaviors, and between teen sex and risky or antisocial behaviors? Perhaps the most fundamental process at work is that teenage sex is associated with entry into a peer-centered rather than a parent-centered social milieu, where teens are more likely to take their normative cues from sexual partners and from sexually active peers.[106] As Ohio State University sociologists Stacy Armour and Dana Haynie observe, "participation in sexual activity may correspond to growing interest/concern in peer socialization and a corresponding shift from a parental orientation."[107] Practically, teens who become sexually active also seem to shift their time and activities away from adult-monitored domains and toward peer-centered domains, which increases opportunities for delinquency and substance abuse.[108] Furthermore, one reason that teen sexual activity seems to be particularly problematic for young adolescents is that they are more likely to be thrust into this peer-oriented milieu before they are ready to handle the pressures associated with it. Thus, sexual activity, particularly among young teens, appears to act as a gateway into risky and antisocial norms and behaviors for adolescents.

Abstinence also appears to be related to pro-social behaviors because a focus on sexual relationships and sexual conquests may distract teens from focusing on their schoolwork. As Armour and Haynie observe, "postponing sexual debut may open up avenues for adolescents and young adults to invest in human and social capital that can protect them from engaging in potentially problematic behaviors in adolescence and young adulthood."[109]

This pattern may be particularly important for boys. In trying to explain why abstinence appears to be more important for boys' school performance than girls' performance, Dr. Sabia hypothesizes that the "experience of first sexual intercourse may reveal new information to males on the immediate benefits of sex, and this information may induce boys to choose immediate investments in sex over schooling. For example, teenage boys may realize a social status gain from losing their virginity and view additional sexual 'conquests' as a means to achieve even greater social status. Females may not experience such status gains from pursuing sex over education."[110] His observations dovetail with scholarship on gender and adolescents which finds, on average, that boys and girls experience sex somewhat differently: that is, boys are more likely to view sex in hedonistic or social status terms, and girls are more likely to view sex in connection with intimacy and emotional commitment.[111] As Stanford psychologist Eleanor Maccoby notes, boys are more likely to devote time and energy to being "known" as sexually successful because "manhood is displayed by having sexual relations with multiple females."[112] Consequently, boys who have sex, and come to see it as a means for gaining social status, may become distracted from focusing on their academic work. By contrast, boys who abstain from sex are probably better able to keep their focus on academic achievement.

To date, a large and growing body of research has demonstrated an association between abstinence and positive social outcomes, as well as an empirical connection between teenage sex and risky and antisocial behaviors. Future research will have to determine if changes in sexual behavior among adolescents are also associated with changes in social environmental factors such as adolescent delinquency rates, educational attainment, and substance abuse.

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106 Armour and Haynie 2007; Jessor and Jessor 1975; Rodgers and Rowe 1990.

107 Armour and Haynie 2007: 142.

108 Ibid.

109 Ibid: 150.

110 Sabia 2007a: 25-26.

111 Buss 1988; Grello *et al.* 2006; Hill 2002; Maccoby 1998; Rhoads 2004.

112 Maccoby 1998: 208.

ANSWERING COMMON CONCERNS

Does Premarital Sex Exercise a Causal Role on Family, Psychological, and Social Outcomes?

Obviously, premarital sex is causally implicated in the health outcomes of premarital pregnancy and STIs. But it is less clear that premarital sex exercises a causal role in shaping the familial, psychological, and social welfare of adolescents and adults. All of the studies cited in this review control for a wide range of socioeconomic variables that may confound the relationship between sexual activity and familial, psychological, and social outcomes. This gives us somewhat more confidence that sexual activity may be causing these outcomes.

Nevertheless, it is still possible that controlling for these observable variables is not enough. It may be that unobservable variables—such as genetic endowments, personality traits, or religiosity—actually account for some of the relationship between sex and these outcomes. In other words, some of these studies may not adequately deal with "selection effects" where certain types of people are more likely to select/choose adolescent sexual activity and, say, adult divorce. Indeed, Dr. Sabia's research indicates that the link between sexual activity among teenage boys and poor academic achievement appears to be in part a consequence of unobserved heterogeneity, such that the kinds of boys who engage in sexual activity and do poorly in school differ from the kinds of boys who are virgins and do well in school that appear to have nothing to do with sexual activity per se.[113]

It is also possible that some of the studies in this review do not correctly specify the direction of causality. In other words, some of the "outcomes" in this study may actually be driving adolescents and adults to engage in premarital sex. At least one study, for instance, suggests that depression leads adolescent girls to engage in premarital sex.[114]

Fortunately, some of the newest research on adolescent sexual activity has begun to address these methodological challenges with more rigorous statistical techniques. For instance, one longitudinal study using Add Health's nationally representative data by Dr. Denise Hallfors, a senior research scientist at the Pacific Institute for Research and Evaluation, and her colleagues found that teenage depression was not consistently associated with later sexual activity among girls; however, sexual activity was associated with later depression.[115] Her research suggests that the direction of causality between sex and depression has not been misspecified. So, findings such as the Hallfors study increase the likelihood that sexual activity is causally related to depression among teenage girls.

But even some of the latest studies are not definitive, since most studies, including the one by Dr. Hallfors and her colleagues, do not measure all the unobserved variables that may cause teens to become sexually active and to experience an increase in depression. Indeed, another study suggests that sex does not cause depression among teenage girls once the association between sexual activity and depression is tested with fixed effect models that try to address the issue of unobserved heterogeneity head on.[116] On the other hand, given the fact that fixed effects models have their own limitations, it is still quite possible that the empirical association between adolescent sexual activity and depression among teenage girls is a causal one.[117]

The methodological challenges associated with studying a social behavior like sexual activity in the real world, where adolescents and adults cannot be assigned randomly to engage in premarital sex, are obviously large. Future research will have to attend more carefully to issues of selection than has much of the current research. At the same time, a number of newer studies focusing on the consequences of adolescent sex have relied on particularly sophisticated statistical models to address this issue of selection in a more compelling manner. Many of these studies—such as research by Dr. Sabia that finds a link between teenage sex and negative educational outcomes among teenage boys using a range of different statistical methods—suggest that the association between premarital sex and negative social, psychological, and family outcomes

113 Sabia 2007a,b.

114 Grello *et al.* 2003.

115 Hallfors *et al.* 2005.

116 Sabia 2006a.

117 For instance, Grello *et al.* 2006 suggest that female depression causes sex, which in turn causes even more depression. Fixed effects models cannot handle such "feedback" patterns.

is causal rather than coincidental.[118] But more research is needed to provide us with greater confidence that causal inferences are justified in thinking about the empirical associations between premarital sex and a range of outcomes.

Finally, it should also be noted that evidence that "selection" effects help to account for some of the individual-level associations between premarital sex and negative social and psychological outcomes does not amount to conclusive proof that there is no causal link between broader shifts in the nation's sexual climate and the social environment. Clearly, for a range of cultural, policy, and economic reasons, more adolescents and adults are "selecting" into premarital sex now than was the case a half-century ago.[119] What is very clear from the historical record of the last half-century is that this large-scale behavioral and normative transformation in American sexual behavior is also implicated in the breakdown of family life in the United States, among other social ills.[120] So the broader sociocultural forces—including increasing popular acceptance of nonmarital sex—associated with increases in persons' likelihood of selecting into premarital sex appear to have played a causal role in undermining one of the nation's most important institutions: the family. As suggested above, future research should determine if collective changes in sexual behavior, as well as changes in the normative climate surrounding sexuality, have also affected the psychological and social welfare of the nation in other domains of social life.

Is it Marriage or Relationship Context that Really Matters in Determining the Consequences of Premarital Sex?

Opponents of abstinence education, including some scholars who study sex, argue that it is not premarital sex per se that is linked to harmful psychological, social, and familial outcomes; rather it is the context of premarital sex that matters in determining whether or not sex has harmful consequences for adolescents and young adults.[121] For instance, University of Wisconsin psychologist Nicole Else-Quest and her colleagues argue that their research on the psychological and physical consequences of premarital sex "indicate that characterizing premarital sex as necessarily harmful is misleading and inaccurate. Although abstinence-only advocates claim that premarital sex is detrimental to well being, there is little evidence of this in the current study. Insofar as first sexual experiences are related to later functioning, the context of the experience is the crucial element."[122]

So under what contexts do these scholars acknowledge that premarital sex may be linked to harmful outcomes? Most of the newest research in this area focuses on psychological outcomes, and it suggests that casual sex with an uncommitted partner, early sex (before most of one's peers), having sex with multiple partners, coercive sex, or having sex while using drugs or alcohol are harmful, and that more committed, long-term sexual relationships are not psychologically harmful to older adolescents and young adults.[123] For instance, after studying the link between sex and depression using the Add Health data, University of Minnesota sociologist Ann Meier concluded that about 14 percent of the adolescents who engaged in first sex experienced higher levels of depression within one year of first sex.[124] In particular, she finds that dissolving a relationship "lacking emotional commitment, especially if one is female or young relative to age norms, makes one particularly vulnerable to increases in depression associated with first sex. In addition, sex among teens who are both young and female increases depression regardless of the relationship context."[125] But because most of the teenagers she studied did not experience an increase in depression after engaging in sex outside of marriage, Dr. Meier rejects any efforts to make "sweeping generalizations with regard to [the] effects" of teen sex.[126]

Advocates of abstinence should be careful in making generalizations about the consequences of premarital sex for adolescents and young adults. On some outcomes, such as depression, it does appear that most teens and adults who enter into a sexual relationship will not be harmed on a particular outcome by that sexual activity.

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118 Sabia 2007a, b. See also, for instance, Hallfors *et al.* 2005; and, Meier 2007.

119 D'Emilio and Freedman 1998; and, Laumann *et al.* 2004.

120 Akerlof *et al.* 1996; McLanahan 2004.

121 Else-Quest *et al.* 2005. Grello *et al.*2006; Meier 2007; Santelli *et al.* 2006b.

122 Else-Quest *et al.* 2005.

123 Else-Quest *et al.* 2005. Grello *et al.*2006; Hallfors *et al.* 2005; Meier 2007; Santelli *et al.* 2006b.

124 Meier 2007: 1834.

125 Ibid: 1835.

126 Ibid: 1838.

Nevertheless, there are at least three problems with stressing a contextual rather than a categorical perspective on adolescent premarital sex. First, given the array of potential consequences of premarital sex, particularly for females—from pregnancy to STIs to depression to future marital difficulty—it seems likely that a majority of females who engage in premarital sex as teenagers will experience some negative physical, psychological, or social outcome as a consequence. For instance, research suggests that a majority of sexually active adolescent and adult females will acquire at least one STI over the course of their life.[127]

Second, critics of the norm that sex should be reserved for marriage do not seem to understand the sociological function of moral norms in a society. Norms exist in large part to protect the collective interests of a society and, often, to protect the most vulnerable members of a society.[128] Obviously, social norms do not always maximize the interest of particular individuals. For instance, norms against dishonesty may even harm the financial welfare of company executives who might be tempted to rely on fraudulent accounting to make their company's financial performance look better than it is to investors (think Enron); nevertheless, executives' adherence to the norm of truthfulness and, more particularly, generally accepted accounting principles serve the welfare of the market, stock owners, and of less savvy investors who rely on executives' integrity to make investment decisions. In this case, even though some individuals—particularly men—may "benefit" from premarital sex, the norm of premarital sexual abstinence protects adolescents and adults from the harms associated with engaging in casual sex before they are ready to enter into a committed, long-term relationship.

As importantly, this norm serves the common good by reducing the odds that children are born out of wedlock, that adolescents and adults are infected with costly STIs, that marriages fail, and that psychological harm may impact thousands if not millions of adolescents who engage in premarital sex. Indeed, the norm that sexual activity should be reserved for marriage obviously maximizes the likelihood that people will experience sex in precisely the context that virtually all scholars acknowledge is best for adults, their communities, and any children they may conceive—that is, a committed, faithful, long-term relationship, such as marriage.

Third, critics of abstinence also do not acknowledge that premarital sex among adolescents appears to function as a "gateway" into precisely the kinds of sexual activity that virtually all scholars acknowledge is bad for adolescents. Specifically, the majority of teens who have first sex outside of marriage, including teens who have their first sex in a committed relationship, also engage in casual sex, sex with more than one partner, and sex without condoms.[129] Thus, even if adolescents or adults begin their sexual activity in a romantic relationship that does not necessarily harm them, they have broken the norm that sex ought to be reserved for marriage; in so doing, they have increased the odds that they will engage in future sexual behavior that is much more likely to prove physically, psychologically, or socially harmful to them. By contrast, those who abstain from sex before marriage are free of falling into a sexual-relational trajectory that leads into multiple partners and casual sex, both factors that are universally known to put adolescents and adults, especially females, at risk for serious physical or psychological harm.

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127 Genuis and Genuis 2004: 1104; Cates 2004: 207

128 Wax 2007.

129 Manning *et al.* 2004. Franzetta *et al.* 2006.

ABSTINENCE INITIATIVES AND PROGRAMS

Successes and Failures

Since 1981, with the passage of the Adolescent Family Life Act (AFLA), a range of public and private initiatives and programs have sprung up to promote abstinence.[130] Initiatives such as the *True Love Waits* campaign, founded in 1993, which has served more than 2.5 million teenagers, and the passage of federally-funded abstinence promotion programs in 1996 (Section 510 of the Social Security Act) and 2000 (Community-Based Abstinence Education) proved particularly important in focusing public attention on the need for and value of abstinence, particularly among adolescents.[131] Since 1998, annual federal funding for abstinence programs increased from $60 million in FY 1998 to $168 million in FY 2005.[132] (By comparison, comprehensive sex education programs received approximately $428 million in FY 2002.)[133]

To date, the record associated with private and especially public efforts to promote abstinence is mixed. The scientific evidence indicates that religious and civic efforts to promote abstinence have registered important achievements when it comes to influencing the behavior of adolescents in the United States. For instance, abstinence pledge initiatives such as *True Love Waits* appear to have succeeded in increasing virginity rates, delaying the onset of first sex, reducing the number of sexual partners, and driving down teenage pregnancy rates among the adolescents who pledged to remain virgins under its sponsorship.[134] One study using the Add Health data found, for instance, that the median age of first sex for adolescents who consistently reported pledging at two waves of the survey was about two years later than the median age for adolescents who did not pledge.[135] Another study using this same dataset found that only 4.3 percent of consistent pledgers became pregnant before age 18, compared to 9.7 of those who did not pledge.[136] This means that non-pledgers were more than twice as likely to become pregnant than their peers who did not take a pledge to abstain from sex. Still another study indicates pledging is also associated with lower levels of non-conjugal sexual activity, such as oral and anal sex, contrary to what some press reports have claimed.[137] In sum, then, religious and civic initiatives to promote abstinence have had an important influence on the lives of millions of American adolescents.

At the same time, it is important to acknowledge that religious and civic efforts on behalf of abstinence have not succeeded in meeting their most fundamental goal. Specifically, studies indicate that most teenagers who pledge to remain abstinent ultimately go on to break their vow.[138] For instance, in looking at data from three waves of Add Health, sociologists Hannah Bruckner and Peter Bearman found that 61 percent of consistent pledgers had sex before marriage (compared to 90 percent of non-pledgers).[139] They also found that pledgers are less likely to use contraception at first intercourse (though they use contraception at similar levels to other adolescents and adults if they remain sexually active).[140] Thus, research indicates that private initiatives to promote abstinence have not yet succeeded in getting most of the teenagers they serve to remain abstinent before they marry.

The research on public programs to promote abstinence, in particular publicly-funded abstinence education, is more mixed than the research associated with private efforts on behalf of abstinence. Four major reviews of research on abstinence and comprehensive sex education found no consistent evidence that abstinence education influenced the sexual behavior of adolescents.[141] For instance, one review found that, on average, abstinence programs "do not delay the initiation of sexual intercourse" among adolescents.[142] However, three out of four of these reviews also concluded that most comprehensive sex education

130 Santelli *et al.* 2006a: 75.

131 Ibid; Regnerus 2007.

132 Santelli *et al.* 2006a: 75.

133 Republican Study Committee 2002.

134 Bearman and Bruckner 2001; Bruckner and Bearman 2005; Regnerus 2007; Rector, Johnson, and Marshall 2004.

135 Bruckner and Bearman 2005.

136 Rector, Johnson, and Marshall 2004: 3.

137 Uecker, Angotti, and Regnerus 2007.

138 Regnerus 2007; Bruckner and Bearman 2005.

139 Ibid: 275.

140 Ibid: 276.

141 DiCenso *et al.* 2002; Kirby 2001b; Manlove *et al.* 2004. Scher *et al.* 2006.

142 DiCenso *et al.* 2002: 6.

programs do not succeed in delaying the onset of sexual intercourse among teens.[143]

Another study looked at the average effects of abstinence *and* comprehensive sex education among American adolescents and found that these programs did not influence the sexual behavior of teenagers. This study's author, economist Joseph Sabia, concluded, "I do not find any consistent empirical evidence that sex education [of either type] achieves its intended goals of delaying first intercourse, encouraging contraceptive use, or preventing pregnancy."[144] Finally, a recent evaluation of four publicly-funded abstinence education programs around the country by Mathematica Policy Research, Inc. concluded that these programs did not have a statistically significant effect on the onset of intercourse or contraceptive use among the students they served.[145] (However, as noted below, there are a number of methodological problems with the Mathematica study.) Thus, much of the research to date on abstinence education indicates that, on average, it has not succeeded in its objectives of promoting sexual abstinence among American teenagers or delaying the onset of first sex.

However, there are a growing number of exceptions to this general pattern of nonfindings. I was able to identify nine credible peer-reviewed articles and one unpublished study, which suggest that particular abstinence education programs or initiatives connected to public schools have succeeded in influencing adolescent sexual behavior.[146] For instance, one study of a community-wide, abstinence-oriented pregnancy prevention program in Monroe County, New York found that pregnancy rates among teenagers aged 15-17 declined faster in Monroe County than in similar counties in New York not exposed to the campaign.[147] Specifically, this study found that sexual activity and teenage pregnancy in the county fell in the wake of the program; indeed, the adolescent pregnancy rate fell 22 percent from 63.4 per 1000 females in 1993 to 49.5 in 1996 and this decline in teen pregnancy was significantly larger than declines in similar New York counties that did not experience this intervention.[148] Another study found that high school students exposed to the curriculum *Sex Can Wait* were more likely to remain virgins and to have abstained from sex in the last 30 days.[149] Still another study of 550 seventh-graders in Virginia found that students who were enrolled in an abstinence education program called *Reasons of the Heart* were about 50 percent less likely to lose their virginity one year after the program than students receiving the state's generic family life education program.[150] Finally, one recent study of 662 African-American sixth and seventh graders in Philadelphia found that adolescents who were enrolled in the *Making a Difference* abstinence education program were significantly more likely to delay sexual activity compared to adolescents enrolled in a comprehensive sex education program, and that the effects of this abstinence program lasted as much as two years after the students concluded the program.[151] In general, then, these studies provide evidence that some abstinence education programs are succeeding in changing adolescent sexual behavior.

Although research provides mixed support for the idea that private and public abstinence programs have influenced the behavior of individual adolescents, research on collective patterns of abstinence among teenagers in the nation at large is more encouraging. Pediatrician John Santelli and his colleagues have found that the percentage of sexually active teenage girls aged 15-17 fell from 50.6 percent in 1991 to 42.7 percent in 2001.[152] They estimate that this increase in abstinence accounted for 53 percent of the decline in teenage pregnancy that the United States experienced over the 1990s (with increases in teenage contraceptive use accounting for the other 47 percent of the decline).[153] Increases in adolescent abstinence and concomitant declines in teenage pregnancy are likely a consequence, in part, of the pro-abstinence message that public and private abstinence initiatives and programs have advanced with vigor since the early 1990s.

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143 DiCenso *et al.* 2002: 6; Kirby 2001b. Scher *et al.* 2006.

144 Sabia 2006b: 75.

145 Trenholm *et al.* 2007.

146 Borawksi *et al.* 2005; Denny *et al.* 2002; Doninger *et al.* 2001; Howard and McCabe 1990; Jemmott *et al.* 1998; Jorgenson *et al.* 1993; St. Pierre *et al.* 1995; Weed *et al.* 1992; and, Weed *et al.* 2007a. Note: I do not include Robert Lerner's peer-reviewed article (2004) in this list because it does not provide sufficient information about program attrition and selection in its analysis of the Best Friends program.

147 Doninger *et al.* 2001.

148 Doninger *et al.* 2001: 53-56.

149 Denny *et al.* 2002.

150 Weed *et al.* 2007a.

151 Jemmott 2006.

152 Santelli *et al.* 2004: 84.

153 Ibid: 85.

Assessing Recent Scientific Findings Related to Abstinence Education

How do we make sense of the fact that many studies suggest that abstinence initiatives and programs have either a small effect or no effect on the behavior of adolescents and young adults? There are at least three important methodological limitations with the research to date that may lead researchers to a finding of "no effect" when in fact initiatives and programs are influencing the sexual behavior of adolescents and young adults. First, most studies compare teenagers in abstinence programs to teenagers in "control" programs that also incorporate messages about sexual responsibility and even abstinence.[154] Thus, one possibility is that both the "control" health education/ comprehensive sex education programs and the "treatment" abstinence programs are encouraging teens to abstain from sex or postpone sex. Indeed, this is one serious problem with the Mathematica study of abstinence programs; most of the programs that were assessed were compared to programs that also encouraged students to abstain or delay sexual activity.[155]

A second and related limitation characteristic of much of the research comparing the effects of abstinence education with the effects of comprehensive sex education is that treatment and control groups are typically not kept separate from one another.[156] As sex education researcher Stan Weed and his colleagues observe, "Students randomly assigned to the two groups don't live in [isolation in] these groups—they interact with friends, siblings, and dating partners in the other groups."[157] Consequently, students who are exposed to the abstinence education "treatment" can, and probably do, share the insights, norms, and skills they acquire from abstinence education with their peers in control groups who have not had direct exposure to abstinence education. Given that research shows that peers exercise a very powerful influence on teenage sexual activity,[158] it is quite possible that over the course of a year or two after an abstinence education program begins, program effects diffuse into the control group. For instance, the Mathematica study compared students exposed to abstinence education programs with control groups of students who were not exposed to abstinence education programs 2 1/2 to 5 1/2 years after the programs had concluded. It is quite possible that students in the control groups were "contaminated" by abstinence messages and norms in the period after the programs concluded and before students in both groups were tested. Consequently, the Mathematica study may be unintentionally minimizing program effects associated with the abstinence education efforts it evaluated.[159]

A third methodological limitation associated with this research is that many of the abstinence studies, as sex education researcher Doug Kirby has noted, do not have large samples—say, over 500. This means that modest program effects may be missed by much of the current research on abstinence. For instance, the Mathematica study acknowledges that they may be missing "site-specific impacts" on adolescent sexual activity because of the "smaller sample size available for estimating impacts" at the sites they evaluated.[160] This is particularly problematic for their evaluation of the *ReCapturing the Vision* program, which had positive but not statistically significant effects in reducing teenage sexual behavior; as the study acknowledges, because of the comparatively small size for their *ReCapturing the Vision* sample, program effects would have to be larger than .25 of a standard deviation to register as statistically significant.[161] Thus, one reason that most studies have not found statistically significant effects associated with abstinence education to date is that they have not been able to assess programs with sufficiently large sample sizes. Accordingly, future research, with larger sample sizes and with controls that do not incorporate messages promoting abstinence or sexual responsibility, might be more likely to demonstrate statistically significant program effects for abstinence initiatives and programs.

Fortunately, since the fall of 2006, recipients of federal grant money for abstinence education are required to allocate 15 percent of their grant money towards rigorous evaluations of their program effectiveness.[162] These evaluations should address some of these methodological limitations. They will also be valuable in determining if recent efforts to retool abstinence education programs to take advantage of the latest insights derived from the existing program evaluations are increasing the successes of current abstinence education efforts. Moreover, these evaluations

154 DiCenso *et al.* 2002: 6.

155 Trenholm *et al.* 2007: XV.

156 Weed *et al.* 2007b.

157 Ibid: 4.

158 Trenholm *et al.* 2007:53..

159 Weed *et al.*2007b: 4.

160 Ibid: xxii.

161 Ibid: 26.

162 Administration for Children and Families 2006: 4.

should be helpful to grant recipients themselves, who can use the information they receive from these evaluations to make any necessary program improvements. Finally, because the federal government started awarding five-year grants in 2006, rather than three-year grants, as it had done previously, recipients of federal money for abstinence education now have more time to measure program outcomes and make improvements to their programs.[163]

Despite the limitations of current research on abstinence education programs, a few conclusions can be drawn about what seems to work and not to work in influencing the sexual behavior of adolescents and young adults. The research on sex education and public health suggests that three strategies are not likely to work in abstinence education and initiatives. First, just providing *information* to teenagers and young adults about the risks associated with nonmarital sex—e.g., pregnancy, STIs, and depression—does not appear to influence their behavior.[164] Information alone does not seem to motivate adolescents and young adults to change their behavior.[165] Second, programs that rely only on teachers and schools seem to be less likely than programs that enlist peers and other institutions—families, local media, religious institutions, etc.—into efforts to promote abstinence.[166] Third, programs that offer only limited interaction with students over a short period of time seem less likely to influence behavior, compared to programs that offer sustained contact with students over a long period of time.[167] Many abstinence education programs appear to have been affected by one of these limitations; this may account for the fact that many studies to date do not find that abstinence education influences adolescent sexual behavior.

At the same time, and more fundamentally, the effectiveness of abstinence education programs is also compromised by the fact that they receive so little reinforcement from the popular culture and most other institutions that influence adolescents and young adults; indeed, many of them promote nonmarital sexual activity.[168] It is difficult to foster abstinence when the internet, popular culture, and peer culture are not supportive of sexual restraint.[169]

Although many abstinence (and comprehensive sex) education programs do not appear to influence the sexual behavior of adolescents and young adults, some do. Research suggests there are at least five features of programs that are likely to change sexual behavior.

1. Programs that present a clear and compelling normative message to young people—e.g., that tell teenagers to abstain for the sake of their partners and any future children they might conceive—are more likely to influence sexual behavior than programs that just provide participants with information.[170]
2. Programs that link adolescents and young adults to adults and especially peers with whom they have a strong, positive connection are more likely to be effective, compared to programs led by adults, including teachers, with whom students do not have strong ties.[171]
3. Programs that help students plan for the future—both professionally, educationally, and in terms of their family life down the road—and suggest ways that abstinence will help them reach their future goals also seem to have more success in changing sexual behavior.[172]
4. Programs that involve students in service activities are more likely to succeed than programs that do not.[173] It is not entirely clear why these programs seem to be particularly successful in reducing teen sexual activity. These programs may encourage students to grow in virtue, they may have greater success in establishing positive bonds between program leaders and students, or they may provide students with opportunities to use their free time in ways that are constructive, and reduce the chances that students engage in antisocial or risky behavior including sex; whatever the mechanism, programs that involve students in service activities are more likely to succeed in promoting abstinence and delaying sexual debut among teenagers.[174]
5. Programs that partner with institutions in the larger community—such as local media, youth

163 Administration for Children and Families 2006: 4.

164 Howard and McCabe 1990: 21; Kirby 1984; Kirby 2001.

165 Ibid.

166 Howard and McCabe 1990; Doninger *et al.* 2001.

167 Kirby 2001a.

168 Sabia 2006b: 795.

169 Kirby 1999; Regnerus 2007; Trenholm *et al.* 2007.

170 Hunter 2001; Kirby 2001a.

171 Kirby 2001a.

172 Weed *et al.* 2007a.

173 Kirby 2001a.

174 Ibid.

organizations, and religious institutions—and that pursue a vigorous public campaign to change community norms in favor of abstinence also appear more likely to succeed.[175] Such programs appear to build "plausibility structures" for the norm of premarital sexual abstinence.[176] These programs lend an important measure of legitimacy and social support to a norm that does not receive much support in the larger society.[177] The successful community effort to promote abstinence in Monroe County, New York, *Not Me, Not Now,* is one such example of an abstinence initiative that succeeded by establishing multiple plausibility structures for abstinence, and by enlisting local media and young people in an effort to develop a compelling and effective social marketing campaign in favor of abstinence.[178] Given the importance of peer norms in influencing sexual behavior, such programs can be particularly valuable if they are able to enlist teenagers themselves—as *Not Me, Not Now* did—in social marketing campaigns to change adolescent norms about the value of abstinence.[179] In sum, successful abstinence programs are likely to offer a clear and compelling message that links premarital abstinence to a vision of the good life, to involve trusted adults and especially peers in delivering that message, to involve young people in opportunities to serve their communities, and/or to develop a larger community initiative that incorporates a strong social marketing campaign and cooperation with other public and private institutions that influence adolescents and young adults.

175 Doninger *et al.* 2001.

176 Berger 1967.

177 Hunter 2001; Regnerus 2007.

178 Doninger *et al.* 2001.

179 Ibid. Trenholm *et al.* 2007.

CONCLUSION

In 2006, the Society for Adolescent Medicine issued a position paper claiming that "there are no scientific data suggesting that consensual sex between adolescents is [psychologically] harmful."[180] This review of the medical and social scientific literature on abstinence and sexual behavior among adolescents and young adults clearly comes to a different conclusion. Not only does this review point out that a number of studies find an association between consensual adolescent sex and psychological harm, it also finds that abstinence is strongly associated with the medical, psychological, social, and familial welfare of children, adolescents, adults, and families. In addition, this scientific review suggests that increasing the number of teenagers and young adults who abstain from sex before marriage would pay significant environmental dividends to society at large—particularly in family life and health care; by contrast, the four-decade legacy of the sexual revolution in America has exacted a heavy toll on the medical, familial, and, in all probability, the psychological fortunes of the nation. This review also offers a summary of recent research on the effectiveness of private and public efforts to promote abstinence among American adolescents and young adults.

More specifically, this review comes to the following eight conclusions about abstinence and abstinence education in the United States:

1. Sexual abstinence before marriage is typically associated with better physical and psychological health among American adolescents and adults.
2. Abstinence fosters a healthy and happy family life for children, adolescents, adults, and society as a whole.
3. Adolescents who abstain from sex before marriage are significantly less likely to become enmeshed in a "problem behavior syndrome" characterized by a range of antisocial behaviors—from drinking to academic failure.
4. The physical and psychological effects of abstinence are gendered, with females benefiting the most from premarital abstinence.
5. Abstinence seems to be particularly important for younger adolescents.
6. On a number of outcomes, premarital sex appears to harm only a minority of the population of sexually active adolescents and adults. Nevertheless, given the range of harms associated with premarital sex, it seems likely that a majority of adolescents and adults (particularly females) who engage in premarital sex will experience at least one type of physical, psychological, social, or marital harm as a consequence of engaging in premarital sex.
7. Private efforts to promote abstinence have succeeded in changing adolescent sexual behavior.
8. Based on the research to date, the effects of public efforts to promote abstinence through abstinence education are unclear.

Given the mixed evidence regarding the effectiveness of abstinence initiatives, *and* given the apparent social, psychological, and family value of abstinence for the social environment of the United States, it is clear that public and private initiatives on behalf of abstinence must do three things.

First, they must continue to deepen and extend scientific research on abstinence's connection to a range of social, psychological, and family outcomes. In particular, more high-quality empirical research needs to be funded to determine how much of the association between abstinence and these outcomes is genuinely causal.

Second, they should continue to pursue well-designed evaluations of abstinence initiatives and educational programs, particularly to determine if new or retooled abstinence programs are making headway in their efforts to promote abstinence. They should also make every effort to get these evaluations published in peer-reviewed scientific journals.

Finally, abstinence initiatives and programs ought to take advantage of the lessons learned so far about what works in changing adolescent and young adult sexual behavior to make any necessary adjustments to their programs. Programs need to be particularly attentive to the value of incorporating service activities, clear and compelling messages about the normative importance of abstinence, and community-wide media campaigns into their work on behalf of abstinence.

[180] Society for Adolescent Medicine 2006: 84.

Judging by the science to date, should public and private initiatives on behalf of abstinence succeed in further reducing sex before marriage among adolescents and young adults, they will be doing a great service to the medical, psychological, social, and especially familial welfare of countless adolescents, young adults, and communities in the United States.

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