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Sexual Risk & Protective Factors

Factors Affecting Teen Sexual Behavior, Pregnancy, Childbearing and Sexually Transmitted Disease: Which Are Important? Which Can You Change?

ETR Associates

The National Campaign to Prevent Teen and Unplanned Pregnancy

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Introduction

Nearly half of U.S. high school students (9^{th}-12^{th} graders) have had sexual intercourse and over 60 percent report having had sex by the time they graduate.[1] This demonstrates that many adolescents are confronted at some point during their teen years with choices about whether or not to have sex and, if they do, whether or not to use condoms and/or other contraceptives. Many factors affect those choices. Parents, educators, and other adults working with youth have learned that they cannot directly control the sexual behavior of teens. While at times, parents might wish to monitor their sons or daughters 24 hours a day to prevent them from having sex, or at the very least, unprotected sex, they can't do this. Instead, parents and others concerned about youth can only try to affect those factors that in turn affect the sexual decision-making of young people. For example, they might try to affect factors such as the teens' values about sexual behavior, their perceptions of family values and peer norms about sex, their attitudes about condoms and other forms of contraception, their educational and career plans, or their connection to their parents, their schools, and their faith communities, all of which are likely to affect whether or not teens have sex and whether or not they use protection against pregnancy and STD.

Understanding important factors related to sexual behavior is important not only to change that behavior; it is important to identify those teens who are most at risk of having sex and unprotected sex. First people can use these factors to identify those teens at greater risk; then they can address the important factors affecting their behavior.

This report identifies many of these factors and explains their implications for those working to help youth avoid risky sexual behaviors and potential consequences.

In this report, the relevant factors are divided into two categories: risk factors and protective factors. "Risk factors" are those that encourage one or more behaviors that might lead to pregnancy or sexually transmitted disease (e.g., initiating sex at a young age or having sex frequently and with many sexual partners) or discourage behaviors that might prevent pregnancy or sexually transmitted disease (e.g., using contraception, or condoms in particular). Similarly, "protective factors" are those that do just the opposite – they discourage one or more behaviors that might lead to pregnancy or STD or encourage behaviors that might prevent them.

The words "encourage" and "discourage" are used because they imply causality, and causality is important, because the goal of most interventions is to change behavior. That is, if a factor is only correlated with a behavior but does not actually affect that behavior, then changing the factor will not change the behavior. (Note that causality is not important when using risk and protective factors to simply identify teens at greater risk of pregnancy and STD.)

All factors included in this report were found to be associated with certain behaviors and must have been present *before* that behavior occurred. Consequently,

[1] Centers for Disease Control and Prevention. (2006). Youth risk behavior surveillance—United States 2005, Surveillance summaries, Morbidity and Mortality Weekly Report, 55.

often, but not always, they *causally* affect that behavior. In addition, either research or common sense sometimes tells us that particular factors are, in fact, *causally* related to certain teen sexual behaviors. For example, hormonal changes and puberty are factors causally affecting sexual initiation, because common sense tells us these phenomena increase young people's sexual desire, increase their sexual attractiveness to others, and increase their chances of having sex. Similarly, having less permissive attitudes toward premarital sex may directly affect decisions about having sex at an early age. However, sometimes causality (as opposed to mere association) is not well-established by research or assumed through common sense. For example, smoking cigarettes is *associated* with having first sex at a younger age, but it is unlikely to *cause* early intercourse. Instead, youth who engage in a variety of risk-taking behaviors may be more likely to smoke cigarettes and to have first sex earlier.

Unfortunately, it is difficult for research to demonstrate causality. Thus, for some of the factors discussed in this report, it is not certain whether the factor causally affects a behavior or is simply correlated with it. Where causality is especially uncertain, it will be noted.

If parents and other adults concerned with youth cannot directly change behavior and can only address risk and protective factors, an important question arises: Which risk and protective factors should they target in order to affect sexual behaviors and reduce teen pregnancy and/or STD rates?

In terms of preventing pregnancy or sexually transmitted disease, neither risk factors nor protective factors are inherently more important to address than the other. Instead, if people wish to reduce teen pregnancy or sexually transmitted disease, then they should address those risk and protective factors that meet two criteria:

1. They have a significant causal impact on one or more sexual behaviors affecting the incidence of teen pregnancy or STDs.
2. The factors, in turn, can be markedly changed by parents or other people or organizations concerned with this issue.

Logically, if a risk or protective factor satisfies only one of these two criteria, it is not worth targeting. For example, if a factor can be changed but does not affect sexual behavior, then changing that factor will not reduce pregnancy or STD rates. Similarly, if a factor does affect sexual behavior but cannot be changed markedly, then it is not useful to pursue either. Thus, both criteria for selecting a factor must be met, before people should target that factor to prevent pregnancy or STD.

This conclusion raises two very important questions:

1. Which factors have the greatest causal impact on adolescent sexual behaviors?
2. Which factors can be changed the most?

This report attempts to answer both questions, especially the first.

Methodology

For many years, researchers have attempted to determine which behaviors affect teen pregnancy and STD transmission and to identify the risk and protective factors related to both. Not surprisingly, pregnancy is primarily affected by the initiation of sex, the frequency of sex, and the use of contraception (See Figure 1). Similarly, the transmission of sexually transmitted disease is primarily affected by the initiation of sex, the frequency of sex, the number of sexual partners, and the use of condoms.[2] Because of the importance of risk and protective factors, researchers have published hundreds of studies evaluating the impact of risk and protective factors on these five behaviors and on teen pregnancy, childbearing and STD transmission.

This report summarizes the results of those studies that meet the following criteria. Studies included here had to:

- Be conducted in the United States
- Examine the impact of factors on the following behaviors: initiation of sex, frequency of sex, number of partners, condom or other contraceptive use, pregnancy, childbearing, or sexually transmitted disease
- Be based on a sample of teenagers, roughly 18 or younger
- Have a sample size of at least 100 for significant results and a sample of at least 200 for non-significant results
- Meet scientific criteria required for publication in professional peer reviewed research journals or other publications
- Be published in 1990 or thereafter
- Include multivariate analyses

In fact, the large majority of these studies had much larger sample sizes; many also conducted multivariate statistical analyses statistically controlling for numerous other relevant factors. These analyses helped identify those factors that were the most important.

To identify studies meeting these criteria, computerized databases of references were exhaustively reviewed[3], all issues of many important journals were searched, the references in previous reviews of risk and protective factors were examined, and the authors' own files were searched. Ultimately, more than 400 studies of risk and protective factors meeting the above criteria were found.[4] All of them were reviewed for this study and are listed as references in Matrix 1 in the appendix of this report.

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[2]The transmission of sexually transmitted diseases is, of course, also determined by whether a sexual partner has an STD, which is affected by testing and treatment. However, because this review focuses on prevention, testing and treatment of STDs are beyond its scope.

[3] These databases included Medline, Sociological Abstracts, Psychological Abstracts, Popline, Bireme, PsychInfo, Dissertation Abstracts, ERIC, CHID, Biologic Abstracts, PERRY (CDC) and the Alan Guttmacher Institute database.

[4] A substantial number of these studies were secondary analyses of well-known samples, such as the National Longitudinal Study of Adolescent Health, the Youth Risk Behavior Surveys, the National Survey of Family Growth or the National Longitudinal Survey of Youth. These studies benefit from being based

Which Factors Affect Teen Sexual Behavior?

This review provides an overview of the factors affecting adolescent sexual and contraceptive behavior and the potential outcomes, such as pregnancy, childbearing and sexually transmitted disease. It is not designed to be a thorough analysis of any particular factor.

The matrix of risk and protective factors in the Appendix identifies all the potential factors that were analyzed in the studies[5]. Thus, it includes those that one or more studies have found to be related to sexual behavior, as well as those that proved unrelated to sexual behavior.

That matrix reveals that there are more than 500 different factors that affect one or more of the five important teen sexual behaviors (initiation of sex, frequency of sex, use of condoms, use of other contraception, and number of partners), and/or outcomes (pregnancy, childbearing or STDs).

It is important to keep in mind that some of the factors included in the matrix might have been significant for only particular groups of youth, might have been significant only at particular points in time, might have been significant only when the factor was measured in a particular way, and/or might have been significant only when other factors were (or were not) controlled in a study. It is also possible that some of the factors were found to be significant only because of chance. On the other hand, many of the factors included in the matrix were significant in multiple studies, with many groups of adolescents and at different times.

It should also be emphasized that although these factors increase or decrease the chances of individuals engaging in sexual risk-taking, nearly all youth experience pressures of some kind to have sexual intercourse and are at risk for pregnancy and sexually transmitted disease. It is not the case that only one group of teens, only one ethnic group, only low-income youth, only youth in a particular neighborhood, or only youth in "other" schools engage in sex and become pregnant or contract an STD. Sexual activity, pregnancy and sexually transmitted disease cut across all of these perceived boundaries. Nevertheless, as the number of risk factors in a teen's life increases and as the number of protective factors decreases, that teen's chances of having sex and becoming pregnant (or causing a pregnancy) or contracting an STD increase.

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on large, nationally representative samples. However, this also means that results from different studies of the same samples are not completely independent. For example, different secondary analyses of the National Longitudinal Study of Adolescent Health may be based on the same sample or on overlapping sub-samples and, thus, do not provide independent confirmation of particular findings. Some of the studies were based on much smaller, less representative samples, but they sometimes examined the impact of a wider range of risk and protective factors.

[5] Because Matrix 1 provides references for each entry in the table, references are not provided for all the statements in the report's text that are based on Matrix 1.

Some of the 400 plus factors are characteristics of the teens themselves; others are characteristics of their families, romantic partners, peers, schools, faith communities, their communities more generally, and even their states. Still others describe the teens' relationships with these individuals, groups, or institutions in their environment. Some factors involve sexuality directly (e.g., values about sexual behavior); while others do not (e.g., connection to parents). Some are risk factors (e.g., community disorganization or permissive attitudes towards sex); others are protective factors (e.g., doing well in school). Together, they paint a detailed picture of the factors that affect sexual behavior among teens and its potential consequences.

Because so many factors affect teen sexual behavior, focusing on only one factor is unlikely to have much impact on teens' sexual behavior unless that factor is an *extremely* important one. Targeting several important factors is a more promising approach.

To that end, the large number of factors in the matrix can be better understood when: 1) the most important factors are identified, 2) the dominant themes among the factors are recognized, and 3) their causal structure is better understood. Understanding the causal structure will also help program designers who create logic models to design their programs. These three topics are discussed in order below.

Most Important Factors Affecting Sexual Risk Behavior

Table 1 includes factors from the larger matrix that have the strongest and most consistent evidence of significantly affecting teen sexual behavior. To be included in Table 1:

1. The overall pattern of results across studies indicating that a particular factor is a significant risk or protective factor for any particular behavior could not have occurred by chance.
2. Of the studies measuring impact of a factor on any behavior, at least two-thirds of the studies had to consistently show that a particular factor was a risk factor (or a protective factor) as opposed to being not significant or having significant results in the opposite direction. This "2 to 1" rule excluded many factors, but increased the chances that a factor would be important in each community.
3. There had to be at least 3 multivariate studies consistently supporting the conclusion that a particular factor was a risk (or protective) factor for the same behavior. At least one of these studies had to have a large sample size.
4. There had to be a reasonable chance that the factor had a causal impact on behavior that was not questioned by the results of multiple studies.

Although these criteria are relatively objective, the authors' judgment occasionally had to be used for a small number of factors.

Consistent with Matrix 1, Table 1 includes factors related to the teens themselves, their communities, families, peers, partners, and, of course, themselves. These factors support a wide variety of theories about risky adolescent sexual behavior — theories involving social disorganization in their communities, theories involving parenting practices and parent values about adolescent sexuality, biological theories, theories suggesting that sexual risk taking is part of a larger syndrome of risk-taking or deviant behavior, and social psychological theories of rational behavior. Overall, the factors summarized in these tables clearly demonstrate that no single theoretical perspective is sufficient; the total picture is much more complex.

Environmental Factors

Four groups of factors found to be most influential on teens' sexual behavior are environmental. Those factors characterize the community in which a teen lives, his or her family, peers and best friends, and the teen's romantic partners.

Community

The community a teen lives in influences his or her sexual behavior. In particular, teens who live in disorganized communities—those with higher rates of substance abuse, violence, and hunger—are more likely to begin having sex early and to have a child. Teens who live in communities with a higher proportion of foreign-born residents are more likely to delay having sex. According to at least one study, this finding may reflect the less permissive sexual values of foreign-born parents.

Family

Family characteristics are very important in determining risk. Teens who live with both parents and enjoy close relationships with them are less likely to have unprotected sex and become pregnant. Specifically, if teens live with both biological parents (instead of only one parent or step-parents), they are less likely to have sex, but if they do, they are likely to have sex less frequently. A majority of studies finds that teens living with both parents are less likely to become pregnant (or cause a pregnancy) or to give birth (or father a child). If biological parents divorce or separate, their children are more likely to initiate sex at an early age than if the parents do not divorce or separate.

Teens whose parents are more educated are less likely to become pregnant than teens whose parents have less education. Family income is also a factor: the majority of studies found that teens in families with higher incomes were less likely to become pregnant or to bear children. These findings regarding parents' education and income may reflect the emphasis that many such parents place on obtaining an education, pursuing a career, and avoiding early childbearing, as well as, to some extent, the greater resources available to support teens in these pursuits.

If teens experience considerable parental support and feel connected to their parents, they are less likely to initiate sex at an early age, and they have sex less frequently. If parents monitor and supervise their teens appropriately, the teens are likely to have fewer sexual partners than if parents do not monitor them (or, according to at

least one study, if parents monitor them excessively). At the extreme, if teens have been maltreated and physically abused by their families, then they are much more likely to have sex at an early age and to become pregnant.

Family abuse of alcohol or drugs increases the chances that teens will have sex more frequently and with more partners. There are two possible reasons for this effect: family substance abuse may encourage young people to drink and use drugs themselves, which can lead to more frequent sex with more partners, or family substance abuse may simply be a marker for more general family dysfunction, which can lead to sexual risk-taking by teens.

If family members, especially parents, express values or model behavior consistent with sexual risk-taking or early childbearing, teens are more likely to have unprotected sex and become pregnant (or cause their partners to become pregnant). Parents may do this in a variety of ways, including conveying permissive attitudes about premarital sex or teen sex, voicing negative attitudes about contraception, or having been teen parents themselves. Similarly, teens whose older siblings model early sex or childbearing are more likely to have early sex themselves. In contrast, parental disapproval of teen sex reduces the chances that teens will have sex, and parental support of contraceptive use increases the chances that teens will use contraception if they do have sex.

When parents have conversations with their children about sex and contraception well before the children become sexually active, the initiation of sex may be delayed and the use of condoms or other contraceptives increased. This effect is most likely to occur when the teen is a daughter (as opposed to a son), when the parent is the mother (as opposed to the father), when the teens and their parents feel connected to one another, when the parents disapprove of teens having sex or support contraceptive use, and when parents can discuss sexuality in an open and comfortable manner.

Peers and best friends

Sexual behavior is one of the many areas in which teens are influenced by their best friends and peers. Teens are more likely to have sex if their best friends and peers are older, use alcohol or drugs, or engage in other negative behavior. Similarly, they are more likely to have sex if they believe their friends have more positive attitudes toward childbearing, have permissive values about sex, or are actually having sex. If teens believe their friends support condom use or actually use condoms, chances are greater that they will use condoms themselves.

Romantic partners

While simply having a romantic partner increases the chances of sexual activity, having an older romantic partner increases them even further. Having an older partner also lowers the chances that contraception will be used and increases the chances of pregnancy and contracting an STD. If teens' partners support condom or contraceptive use, then teens are more likely to use them if they have sex.

Individual Factors

Fifteen groups of factors found to be particularly influential on teens' sexual behavior are classed as individual. They include biological factors, race and ethnicity, connection to family, connection to school and to doing well in school, connection to religion, connection to other organizations or adults in the community, involvement in gangs, alcohol and drug use, aggressiveness, involvement in problem or sensation-seeking behavior, paid work, involvement in sports, cognitive and personality traits, sexual beliefs, attitudes, skills, motivations, and intentions, and relationships with romantic partners and previous sexual behavior

Biological factors

Studies have found that age, physical development, and gender have a dramatic effect on teens' sexual behavior. As they become older, teens are much more likely to have sex. Moreover, if they mature physically at an early age, begin menarche early, and appear older than their age, they are also more likely to initiate sex early.

Some effects of getting older are strictly physical, including increased sexual maturity and higher testosterone levels, which may lead to a greater desire for intimacy and sex, greater sexual attractiveness, or both. Other effects are social, such as increased pressure from peers to have sex, changes in perceived norms about sexual and contraceptive behavior, and increased opportunities to have sex, which come with greater freedom and independence.

In addition, teens are likely to have sex more frequently and with more partners as they get older. When teens first have sex, they most often use condoms, in part because they have sex sporadically; older teens are more likely to use long-lasting methods of contraception, such as oral contraceptives or Depo Provera. At the same time, teens are increasingly likely to become pregnant (or to impregnate someone) and to parent a child as they grow older. In other words, because more teens have sex more often as they grow older, they are increasingly likely to become pregnant, even though they may also be more likely to use contraception.

A teen's sex is another very important biological factor. Overall, boys claim that they have more sexual partners and use condoms more often, although these findings may reflect response biases. Girls are more likely to contract an STD.

Age and sex interact with other factors. For instance, having an older romantic partner increases the likelihood of sexual intercourse for all teens; however, the likelihood is greater for younger teens, especially those in middle school, than for older teens. This factor is also more important for girls than for boys.

Some of these biological factors simply cannot be changed. However, organizations can use them to identify young people who may be more susceptible to sexual risk-taking. Furthermore, organizations can change some attitudes associated with biological factors, such as perceptions of gender roles or expectations of sexual activity for different age groups.

Race and ethnicity

Compared to non-Hispanic white teens, African–American teens are more likely to have sex at an earlier age, to have more sexual partners, to become pregnant, to give birth, and to contract an STD. Findings are mixed regarding condom use, with a few studies indicating that African-American teens are more likely to use condoms than non-Hispanic white teens.

Hispanic teens are more likely to become pregnant than non-Hispanic white teens. Most studies indicate they are not more likely to have sex at an early age, but some studies indicate they are less likely to use contraception.

Some of the effects of race and ethnicity diminish when studies take into account family or community education, employment, and income. That is, it is not simply minority status per se that affects teen sexual behavior, pregnancy, and STD risk, but rather the poverty and lack of opportunity often associated with being in a minority group that affects those outcomes. Yet studies have found that controlling for socioeconomic status does not erase the effects of minority status on teen sexual behavior or pregnancy. This finding suggests that cultural values—such as greater emphasis on the family, greater acceptance of early childbearing, or expectations of submissiveness to men—may also contribute to the effects of race and ethnicity. Still other factors, such as experiencing discrimination or racism, may also play a role.

Connection to family

Connection to family is both an individual characteristic and a family characteristic. It is discussed above under family characteristics.

Connection to school and success in school

When teens stay in school, feel connected to their schools, earn good grades, do not fall behind in school, have plans for higher education beyond high school, avoid problems in school, or do all of these, they initiate sex later and are less likely to have children.

Several studies have found that involvement in school organizations is related to less sexual risk-taking. A methodologically strong study found that simply belonging to school organizations had no impact on teen childbearing; however, the study did find that substantial involvement in school organizations, particularly in school-based religious organizations among non-Hispanic white teens and in school clubs among African–American teens, was related to lower rates of teen childbearing.

Connection to religion

Teens who have a strong religious affiliation are less likely to initiate sex, and some studies indicate that teens who attend religious services frequently are less likely to have sex. The direction of causality is not entirely clear, however. Just as attachment to faith communities may affect sexual behavior, sexual behavior may also affect

attachment to faith communities. For example, teens who have had sex may feel less comfortable in places of worship and may be less likely to attend services.

Connection to other community organizations or adults

When teens are more involved in their communities and have mentors, they are less likely to engage in sexual behavior.

Involvement in gangs

Several studies suggest that teens who belong to gangs are more likely to have sex, to have more sexual partners, and to become pregnant. It is not clear whether gang membership per se produces this elevated risk or simply the fact that teens in gangs have other risk factors as well.

Alcohol and drug use

Numerous studies have found relationships between teens' use of alcohol and illegal drugs and an increased likelihood of having sex, having sex more often, having sex with more partners, and pregnancy.

It is plausible that drinking alcohol and using drugs may lower inhibitions, diminish the ability to assess risks, or increase sexual aggression, thus accounting for the measured relationship between alcohol and drugs and teen sexual activity. However, it is also possible that part or all of the effect is caused by other factors, such as poor performance in school, general risk-taking or sensation-seeking, lack of parental monitoring, and so on.

One study that controlled for some of these factors found that use of alcohol and other drugs was not related to sexual activity for either gender, nor was it related to use of female methods of contraception. However, drinking alcohol was negatively related to boys' use of condoms. Another study found that, while both alcohol and drug use in the past were negatively related to condom use, drug and alcohol use during the most recent sex was *not* negatively related to use of condoms. This finding suggests that something other than lowered inhibitions at the time of sex may explain the relationship. Still other studies have found either no relationship between substance use and sexual risk-taking or no significant relationship once other factors were controlled. Although alcohol and other drug use are included in Table 1, their causality is questionable.

Aggression

Physical fighting and carrying weapons are also related to having sex, more sexual partners, and pregnancy, but the relationship may not be causal.

Involvement in problem or sensation-seeking behavior

Engaging in problem or sensation-seeking behavior is related to poorer use of contraception, pregnancy, and childbearing. Problem or sensation-seeking behavior may expose teens to norms that favor sexual risk-taking or to more opportunity or desire to

have unprotected sex. Alternatively, the relationship between problem behavior and sexual risk-taking may simply reflect family or community characteristics such as poverty, single-parent homes, lack of supervision, or a general propensity to take risks. Again, causality is not clear.

Paid work

Several studies have indicated that teens with paying jobs, especially those who work more than 20 hours per week, are more likely to have sex, to have sex more often and to have more sexual partners. Paid work may increase teens' sense of independence, their mobility, and their opportunities to have sex.

Involvement in sports

A few studies have found that, for teen girls but not teen boys, participation in sports is related to delayed initiation of sex, less frequent sex, greater use of contraception, and lower pregnancy rates. These studies suggest that girls' participation in sports motivates them to avoid pregnancy, which, in turn, delays initiation of sex. However, the relationship between participation in sports and lower rates of pregnancy is less clear. Perhaps it is because girls who are athletes are more likely than non-athletes to be young, better educated, and non-Hispanic white, characteristics that reduce their risk of becoming pregnant.

Cognitive and personality traits

Teens with higher cognitive development are less likely to have sex and more likely to use contraception if they do have sex. Teens with a greater internal locus of control—that is, who believe that they rather than external events control their lives—have sex less frequently, use condoms more frequently, and are less likely to become pregnant. Both of these factors may be causal.

Although high self-esteem and positive self-concept are commonly believed to be protective factors for sexual risk-taking, the picture is actually quite mixed. A few studies, including some with large samples that are representative of teens across the United States, have found that self-esteem and positive self-concept are protective factors against initiation of sex, use of contraception, and pregnancy. However, the large majority of studies has found that self-esteem and self-concept are not significantly related to sexual behavior. A few studies have found self-esteem to be protective only for girls or only for middle school (as opposed to high school) students. At least one study actually found that having sex can increase self-esteem. Thus, the relationships between these factors and sexual behavior are unclear and probably quite complex.

Teens who suffer from depression, thoughts of suicide, or fear of untimely death are more likely to have sex. Such emotional distress may affect their motivation to avoid pregnancy or STDs, diminish their ability to assess risk, or lead them to want to escape through sexual involvement. Alternatively, emotional distress may result from a negative environment, and that environment may actually cause the sexual risk-taking.

Sexual beliefs, attitudes, skills, motivations, and intentions

The strongest risk and protective factors are teens' own sexual beliefs, values, attitudes, skills, and intentions. Teens are more likely to have sex, to have sex more frequently and to have more partners, if they have permissive attitudes toward premarital sex. They are less likely to have sex if they have taken a virginity pledge.

Sexually active teens are more likely to use condoms or other forms of contraception if they believe that teen boys share responsibility for pregnancy prevention, that condoms do not reduce sexual pleasure, and that their partner will appreciate their using a condom. They are also more likely to use condoms or other forms of contraception if they have positive attitudes toward condoms and other forms of contraception, perceive more benefits and fewer costs and barriers to using condoms, have greater confidence in their ability to demand and use condoms or other forms of contraception, have greater motivation to use condoms or other forms of contraception to avoid pregnancy and STD/HIV, intend to use condoms, and actually carry condoms.

All of these beliefs, attitudes, skills, motivations, and intentions can be considered "sexual" factors and also "proximal" factors because they are closely linked conceptually and logically to a related sexual behavior and they influence that behavior directly. For example, values regarding sex are more closely related conceptually to actually having sex than is the proportion of the community that is foreign-born. The latter is considered "distal" and "nonsexual" because it influences sexual behavior indirectly.

While both common sense and research indicate that these proximal sexual factors have an impact on sexual behavior, it is also true that sexual behavior may very well affect these factors. For example, having sex and using condoms may affect attitudes about having sex, perceptions of peer norms about sex, and perceived ability to use condoms. Thus, causality may operate in both directions.

Sexual risk and protective factors are particularly important for several reasons. First, they are well supported by a variety of social psychological theories, for example, social cognitive theory [2], theory of planned behavior [3], the information-motivation-behavioral skills model [4], and the health belief model [5]. Second, they are more closely related conceptually to a particular sexual and contraceptive behavior than are other factors. Third, they are more strongly related statistically to some types of sexual and contraceptive behavior than are most of the other factors. Finally, some of these factors form the theoretical basis for many sex and STD/HIV education programs that have reduced sexual risk-taking [6].

Relationships with romantic partners and previous sexual behavior

Not surprisingly, when teens begin dating frequently, go steady, and kiss and neck, they are more likely to have sex. These early romantic relationships may increase the desire, opportunity, and pressure to have sex. Furthermore, sex within a romantic relationship may be more consistent with teens' values and perceived norms than sex in casual relationships.

When the romantic partner of a teen is three or more years older, the teen is especially likely to have sex. The impact of this age gap is quite large, especially among middle school girls.

Teens who begin having sex at an earlier age are less likely to use contraception and more likely to become pregnant and to become a parent. They are also likely to accumulate a greater number of lifetime sexual partners and are less likely to use condoms. These behavioral factors contribute to a higher rate of STD. In addition, young girls are not fully physically mature and are more susceptible to STD.

The relationship between number of sexual partners and STD is especially well established. Many studies have demonstrated that having a large number of sexual partners greatly increases the chances of contracting an STD.

Several studies have shown that teens often use condoms initially in sexual relationships, but as their relationships continue and they have sex more frequently, they use long-term hormonal contraceptives such as oral contraceptives or Depo Provera instead.

Teens who discuss HIV and other STDs, methods of preventing infection, and their past sexual histories or risk are more likely to use condoms. Similarly, teens who discuss methods of preventing pregnancy are more likely to use contraception.

Not surprisingly, teens who previously used condoms or other contraceptives are more likely to use them on subsequent occasions. However, this finding may reflect other factors and may not be causal in itself.

Being married reduces the number of sexual partners and increases the chances of pregnancy. Because pregnancy can also lead to marriage, the direction of causality is not entirely clear.

Having been pregnant (or having gotten someone pregnant) increases both the risk that a young person will not use condoms during sex and, according to a few studies, the risk of another pregnancy. Causality regarding these factors is unclear, however, because a history of pregnancy undoubtedly entails some of the risk and protective factors discussed above, and these factors continue to increase the risk of pregnancy.

Prior sexual abuse is highly related to early initiation of sex, greater number of sexual partners, poor condom use, poor contraceptive use, pregnancy, and STD. However, there is some question about whether sexual abuse causes teens to subsequently engage voluntarily in risky sexual behavior. Young people who have been sexually abused have undoubtedly also been exposed to a variety of other risk factors. In addition, the sexual abuse may distort their understanding of appropriate sexual and contraceptive behavior and may diminish their ability to reject sex or to use contraception. Thus, it is not entirely clear whether it is exposure to other risk factors or sexual abuse itself that leads to greater voluntary sexual risk.

Sexual activity with persons of the same sex is another risk factor. Young people who engage in same-sex activity are more likely to have heterosexual sex and to have more sexual partners.

Generalizability across Different Subgroups of Teens

When developing programs for teens, communities and organizations are faced with the question of whether the risk and protective factors in Table 1 will apply to the group they are targeting. The best way of assessing the impact of these factors on any particular group of teens is to design and conduct research specifically for those teens. Typically, however, organizations do not have sufficient time or resources to undertake such research.

Fortunately, the factors presented in Table 1 are widely applicable. Virtually all of them were found to be statistically significant in at least two-thirds of the studies that measured their impact. (Statistical significance is a measure of how confident one can be in the results of a study.) The studies often sampled varied groups of young people, thereby increasing the chances that the factors will be significant in a range of communities. In addition, the studies demonstrated that most of the factors do have an impact on various subgroups of teens, especially teens in the three largest ethnic groups, and they often have an effect on teens of both sexes.

On the other hand, this is not always the case. For example, the following factors appear to be effective only for certain subgroups. Participating in sports appears to be a protective factor only for girls, having an older romantic partner is a stronger risk factor for girls than for boys, and communicating with parents about sex is a greater protective factor for girls than for boys. This short list does not imply that all other factors affect different racial/ethnic groups or genders equally. It simply means that multiple studies show that these three factors consistently have differential effects.

Dominant Themes

The preceding summary of important risk and protective factors and those specified in Table 1 still involve a large number of factors and may appear overwhelming. To simplify things, a majority of the most important factors identified in Table 1 (and other factors in Matrix 1) can be grouped by four broad themes: 1) individual biological factors; 2) disadvantage, disorganization and dysfunction in multiple domains; 3) sexual values, attitudes, and modeled behavior in multiple domains; and 4) connection to adults and organizations that discourage sex, unprotected sex or early childbearing.

These themes became evident during reviews of the studies and the factors in Matrix 1; they are not based on any factor analysis or other statistical technique. Thus, other researchers may review those factors and identify additional themes.

Individual Biological Factors

First, as discussed previously, biological factors such as age, physical maturity, and gender dramatically affect teen sexual behavior. In fact, they significantly affect nearly all the behaviors noted in this report.

Disadvantage, Disorganization and Dysfunction

Second, many risk factors involve some form of disadvantage, disorganization, or dysfunction among the teens' communities, families or friends or within themselves. At the community level, disorganization can be manifested in higher rates of hunger (and poverty it represents), violence and substance use. Among the teens' families disadvantage, disorganization and dysfunction is evident in low levels of education and income, single-parent homes, divorce, lack of family support, and substance use, for example. Among the teens' peers, dysfunction is revealed in their poor grades, alcohol and substance use, and participation in deviant activities. Finally, among the teens themselves, disadvantage and dysfunction are reflected in prior physical or sexual abuse; gang membership; physical fights; tobacco, alcohol and drug use; lower levels of cognitive development; few plans for the future; and suicidal thoughts.

Conversely, a substantial proportion of the protective factors include the reverse of these risk factors, e.g., more functional communities; well educated two-parent families with higher incomes; parents who provide monitoring and encouragement; teens who are emotionally healthy, doing well in school, and have plans for the future; and teens with friends performing well in school and avoiding a wide range of risky behaviors.

Many of the forms of disadvantage, disorganization and dysfunction are interrelated, and some are simply more extreme forms of others (e.g., homelessness can be an extreme form of poverty). One implication of these interrelated factors is that changing just one of them is not likely to have a large impact. Rather more intensive and comprehensive programs that address several of them may be necessary to significantly change behavior.

Sexual Values, Attitudes and Norms, and Modeling of Sexual Behavior

Third, many factors involve the teens' own values and attitudes about sexual behavior, pregnancy, childbearing and sexually transmitted disease, as well as the sexual values and behaviors of their families, peers, and communities. For example, teens' own values, attitudes and concerns about sex, condoms, contraception, pregnancy, childbearing and STD affect their sexual behaviors. Their values and behavior, in turn, are affected by the values and norms either expressed verbally or modeled by the behavior of others. For example, parents' values about premarital sex and contraception affect teens' behavior, as does their mothers' and siblings' modeling of sex outside of marriage and early childbearing. The sexual attitudes and behaviors of peers and romantic partners also affect teens' behavior, as do the values expressed by their faith communities.

Connection to Adults and Organizations That Discourage Sex, Unprotected Sex, or Early Childbearing

Fourth, attachment to people or institutions that discourage sex, unprotected sex and early childbearing and that encourage responsibility, either sexual responsibility or responsibility more generally also reduce sexual risk taking. Multiple studies show that

when youth are more strongly attached to their parents, their schools, or their faith communities, or when they are more involved in their communities, they are less likely to have sex and unprotected sex.

Connection with parents appears to be a stronger factor than connection with other groups. For example, as noted previously, when youth feel they have high quality interactions with their families, when they feel the support of their families, and when they feel connected to their families, they are less likely to have sex and to become pregnant. Conversely, at the other extreme, when youth are homeless or physically abused, they are more likely to become pregnant or contract an STD.

However, it is not attachment to parents alone that is important. Studies also demonstrate that connection to other groups or organizations that discourage sex, unprotected sex, and early childbearing or that emphasize responsibility is also important. As cited previously, they can include schools, places of worship, and community organizations. For example, enrollment in school, a more positive attitude about school, better school performance, greater participation in school activities, and greater overall connection to school are all associated with less sexual risk-taking or reduced childbearing. When girls, but not boys, are involved in sports they are less likely to initiate sex. Similarly, having a religious affiliation, attending services more frequently, and having greater religiosity are all protective factors. Finally, a few studies indicate that having a mentor, participating more in community activities, and being involved in more community organizations also protect against sexual risk-taking.

When youth are attached to such entities, they may spend less time unsupervised and, consequently, have less opportunity to take sexual risks.

However, even more important than the supervision provided by these groups may be the norms about sexual behavior and childbearing that these groups express. Indeed, it is not attachment, per se, that is protective, but rather attachment to individuals or groups that express responsible values. For example, connectedness to peers and being very popular with peers (who often have more permissive attitudes about sex than parents, schools, or faith communities) and having close friends who are high risk are both associated with earlier initiation of sex, not later initiation of sex. Similarly, when teens are connected to their parents, if their parents have more permissive values about teens having sex, then teens are more likely to initiate sex early than if their parents have less permissive values. In sum, it is not attachment itself that appears to be important, but rather attachment to parents and organizations with responsible values about sexual behavior and childbearing.

It is interesting to note that these four dominant themes, which are based on U.S. studies, are remarkably consistent with the dominant themes noted in a major study comparing teen sexual behavior and pregnancy rates in the United States with those in Canada, England and Wales, France, and Sweden, all of which have much lower teen pregnancy rates[6]. That study found that among the important factors that may have

[6] The Alan Guttmacher Institute. (2001) Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made? New York, NY: The Alan Guttmacher Institute.

contributed to higher U.S. teen pregnancy rates were socioeconomic disadvantage; values, attitudes and norms about teen sexual behavior; and support and programs for families and youth (which may have increased the connection between youth and their families and communities). That study also identified sexual and reproductive health services as another important theme. Although that theme did not surface in this review, it may be because there has been relatively little recent research on it in the United States. However, state funding for family planning services has been shown to be related to lower teen childbearing rates in two different studies published after 1990 (and two more published before 1990 and not included in this review).

The implications of the four dominant themes identified in this report are that pregnancy and STD prevention initiatives need to address 1) socioeconomic disadvantage and dysfunction, 2) values and norms about sexual behavior, childbearing and sexually transmitted disease, and perceptions of those norms by youth, and/or 3) attachment to parents, groups or institutions that emphasize responsible sexual behavior. For all practical purposes biological factors cannot be changed and, therefore, cannot be addressed in the same manner as the other factors.

Causal Structure

The discussion above, in combination with Matrix 1, 1) identified a large number of risk and protective factors from the research literature, 2) identified those factors that have the strongest evidence for a significant causal impact on one or more sexual behaviors among teens (Table 1), and 3) discussed the four important themes that summarize those factors. This section now describes a possible causal structure involving these factors.

Many people who have developed programs that effectively changed teen sexual behavior either explicitly or implicitly developed logic models to do so. These models typically identified 1) the health-related goals to be achieved, 2) the behaviors that needed to be changed, 3) the risk and protective factors that affect those behaviors, and 4) the interventions designed to change those risk and protective factors. Increasingly, people are using logic models to design effective teen pregnancy prevention and/or STD prevention programs or to pursue other health goals.[7]

Understanding the causal structure of all these factors can help program designers when they develop their own logic models. Understanding the causal structure can also be helpful in its own right.

Before discussing a possible causal structure among these factors, it must be recognized that the real world is complex and not simple, that many factors affect each

[7] At www.etr.org/recapp: "BDI LOGIC MODELS: A Useful Tool for Designing, Strengthening and Evaluating Programs to Reduce Adolescent Sexual Risk-Taking, Pregnancy, HIV and Other STDs" is available to download free of charge. This website also offers a free on-line interactive course on developing BDI logic models.

other as well as affecting behavior and that factors affect behavior but in turn that behavior may subsequently affect the original factor, etc. Thus, the following discussion must necessarily simplify reality.

Figure 1 depicts some of the causal relationships among key risk and protective factors and pregnancy and contraction of STDs. The arrangement of factors in this figure is consistent with many contemporary theories (e.g., cognitive behavior theory, theory of reasoned action and PRECEDE/PROCEED). However, just as contemporary theorists do not entirely agree amongst themselves about the causal structure of different factors, so people knowledgeable about these risk and protective factors will not agree with every part of this depiction. Nevertheless, this figure can help portray possible relationships among these factors.

Consistent with the approach used by most causal diagrams, the factors on the left tend to affect the factors on the right, more than vice versa. However, there may be some reciprocal causality, meaning that some factors on the right may also affect factors to their left. For example, attachment to family affects initiation of sex, but initiation of sex may also affect attachment to family.

Overall, this figure suggests that teen pregnancy and sexually transmitted disease are affected by both individual factors, environmental factors, and factors linking individual teens with their environments (e.g., families, faith communities and schools).

The factors in Figure 1 closely match the important factors in Table 1, but they are not identical. Figure 1 includes a few factors that either common sense or other kinds of research not meeting the requirements for quantitative research studies have demonstrated are important. For instance, large quantitative studies have not pointed to the availability of condoms or other contraceptives as an important factor tied to teen condom or contraceptive use, but common sense and interviews with youth and practitioners make clear that if condoms and other forms of contraception are not available, youth will not use them.

Using Figure 1, the discussion will now describe what is known about the causal links. The factors are explored from right to left[8].

What Behavioral Factors Determine Whether Youth Become Pregnant (Or Cause A Pregnancy) Or Contract An STD?

Consistent with both common sense and research, behavioral factors affecting pregnancy include whether youth are abstinent, and, if not, their frequency of sex and use of contraception. Similarly, behavioral factors affecting STD transmission include whether youth remain abstinent, frequency of sex, number of sexual partners, and use of condoms. While teen pregnancy and STD appear in column 1, these behavioral factors appear in column 2.

[8] People familiar with BDI logic models should note that column 1 represents the health goals in BDI logic models, column 2 specifies the behaviors (B), and columns 3-8 specify the determinants (D) in logic models. Possible interventions (I) are not included in this figure, but are included in the next section of this paper.

Teens' risk of contracting an STD also depends on whether or not their partners are infected with one. Because that is determined, in part, by whether or not they have been tested and treated for STDs, that factor is also included in column 2. However, because it is an environmental factor, it is among the environmental factors below the dotted line.

While these are the most commonly discussed behaviors affecting STD transmission, other behaviors also affect STD transmission (e.g., having sequential as opposed to concurrent sexual partners, increasing the time gap between successive sexual partners, and getting vaccinations for specific STDs). Although these are important behaviors, they are not included, because they did not surface during this review of risk and protective factor studies for teens.

The practical implication of these factors thus far is that according to Figure 1, to prevent teen pregnancy or STD transmission, programs must increase abstinence, reduce the frequency of sex and/or the number of sexual partners, or increase the use of condoms, other contraception, and testing/treatment for STDs. (All of this is true, even if the program is a youth development approach that does not focus directly on any sexual behavior.)

What Factors Affect Whether Youth Have Sex, Their Frequency Of Sex, Their Number of Sexual Partners, Or Their Use Of Condoms Or Other Contraceptives?

One key factor is intention. When youth intend to have sex (or to avoid sex), they are much more likely to do so. When they intend to use condoms or contraception, they are also much more likely to do so. (Column 3.)

Youth are also more likely to avoid sex or to use condoms or other contraceptives if they have the skills to resist unwanted sex or to insist on and use contraception when they intend to do so. However, intentions and skills do not always translate into behavior. Intentions are affected by factors in the environment that may not be under their control. For example, teens may intend to avoid sex but may be coerced or forced into doing so. Even if teens intend to have sex, to use condoms or other contraceptives, or to obtain STD testing and treatment, those behaviors depend on whether they have the opportunity to have sex, to obtain condoms or other contraceptives, or to secure STD testing and treatment. While this is common sense, much of it is also supported by research. These factors are included in column 3 because they directly affect sexual behaviors. However, they characterize the teens' environment and are below the dotted line.

The practical implication of these factors is that efforts to reduce teen pregnancy or STD rates must also affect intentions to have sex or use condoms or contraception, skills to avoid sex or use condoms or contraception, opportunity to have sex, coerced or forced sex, or availability of condoms, contraception and STD testing.

What Factors Directly Affect Intent To Have Or Not Have Sex Or To Use Or Not Use Condoms Or Other Contraceptives?

Many individual factors directly affect teens' intention to have or to avoid sex. These include their personal values about premarital sex or about youth their age having sex; their perceptions of the benefits of having sex; their expectations of feeling guilt if they do have sex; their perceived susceptibility of becoming pregnant or contracting an STD; their perception of family and peer norms about having sex, pregnancy and STDs; their perceived ability to resist sex if pressured; and taking a virginity pledge. (Column 4.)

The factors that affect intent to use condoms or other contraceptives include greater perceived consequences of pregnancy; perceived male responsibility for pregnancy prevention (if male); greater motivation to avoid STD/HIV; belief that condoms do not reduce pleasure; expectation that partner will appreciate condom use; more positive attitudes towards condoms and contraception; their perception of family and peer norms about condoms, other contraceptives, pregnancy, and STDs; and their perceived ability to insist upon and actually use condoms or other contraceptives. (Column 4.)

These factors are sometimes considered "individual proximal sexual factors" because they are closely linked conceptually to actual sexual behaviors and they may directly affect those sexual behaviors. Many more distal factors may operate through these factors. For example, family education and income may affect individual teens' perceptions of their values and the teens' motivations to avoid pregnancy. A practical implication of these factors is that they have a marked impact on sexual behavior and can be influenced by programs. Thus, these factors are often targeted by many sex and HIV/AIDS education programs.

What Factors Affect "Individual Proximal Sexual Factors?"

Numerous factors affect individual proximal sexual factors, including the biological factors in column 6, various behaviors and psychological states in column 5 and most of the environmental factors in columns 5-7. For instance, when teens have steady partners, their motivation to have sex increases. If the romantic partner is older, the couple is more likely to have sex and if the romantic partner supports condom or other contraceptive use, they are more likely to use them. (Column 5.)

As noted previously, emotional distress can affect teens' behavior regarding sex and contraceptive use. If they are depressed or if they have consumed alcohol or used drugs, their intention and/or ability to avoid sex may diminish. (Column 5.)

Biological factors directly and indirectly affect proximal sexual factors. For example, as youth become older, their knowledge, values, perceived norms, personal skills, and ability to access condoms and other forms of contraception change. In addition, they become more likely to begin dating and to form longer-lasting romantic relationships. And, as noted, teens who have dated for a long time, are going together

and are in love, are more likely to want to have sex and to intend to have sex. They also are more likely to have the opportunity to be alone and to actually have sex.

As noted above, the norms and behaviors of their peers strongly affect their own values and attitudes. If their friends are using drugs or alcohol, going steady, having sex, parenting, then they are more likely to use drugs or alcohol, go steady, have sex and parent. The behaviors and norms of their peers influence their own values. (Column 5.)

In addition, community, family and peer characteristics affect individual proximal sexual factors. For example, social disorganization – high crime rates, high substance use rates and high rates of non-marital childbearing in the community – may lessen motivation to avoid childbearing or perceived ability to do so. Family structure may affect the parents' ability to monitor teens' behavior, and family education and income levels may affect expectations about long term education and career goals as well as motivation to avoid childbearing. Finally, teens' values about sexual behavior are affected by values communicated by parents, religious institutions to which the teens belong, as well as peers and romantic partners.

How Are The Factors Involving Attachment And Involvement Unique?

The factors related to attachment, connection and involvement are different from other factors in two key ways. First, they describe the relationships *between* the individuals and their environments, not precisely the individuals or their environments themselves. Second, factors involving attachment not only have an impact directly on the individuals' proximal sexual factors; they also affect the extent to which environmental factors affect individuals' proximal sexual factors. For example, the sexual values of a faith community may not affect teens if the teens have no attachment to, connection with, or involvement in that faith community. Similarly, the sexual values of parents, peers and others have a greater impact if the teens are more connected to those people in their lives.

Because these factors describe the connections between the individual teens and their environment, they are depicted in the Figure 1 as crossing the boundary between individuals' factors and the factors describing groups in their environments.

What Are The Relationships Among The Environmental Factors?

Although a thorough discussion of the interrelationships among the environmental factors is beyond the scope of this paper, a few are noteworthy here. For example, community characteristics affect family characteristics (e.g., community norms affect family norms). By the same token, family characteristics partially determine community characteristics (e.g., family incomes affect the communities in which they can live). All of these, in turn, have some impact on teens' friends and whom they choose as friends.

What Are Effective Programmatic Strategies?

Clearly, Figure 1 cannot depict all the causal relationships among all the factors included in it; attempting to do so would make it unreadable. However, several important points are worth mentioning:

- Because many factors affect other factors which, in turn, affect behavior, it is not necessary for interventions to address every individual factor in order to change behavior. Instead, it is important to address the particularly important factors.

- In general, the factors that are farthest to the right in Figure 1 (the most proximal psychosocial sexual factors) have the greatest impact on behavior and outcomes, such as pregnancy and STD. Thus, interventions that target these factors directly and successfully improve them may have the greatest chance of actually changing behavior. Many studies have demonstrated the efficacy of this approach.

- On the other hand, some of the more distal factors on the left in Figure 1 (e.g., community disorganization or family values) also affect outcomes like pregnancy and sexually transmitted disease, in part, because they affect the more proximal factors. Therefore, addressing distal factors can also be an effective strategy that has been demonstrated to reduce risky sexual behavior and pregnancy. Although distal factors may be more difficult to address, they have the potential to affect a greater variety of factors and behaviors (e.g., substance use, depression, and violent behavior).

Given that teen pregnancy and STD rates can be affected by addressing proximal and distal factors, each organization concerned about teen pregnancy or STD must decide which to focus upon. This decision should be determined in part by considering the resources of each organization and the factors it can actually change.

Which Factors Can Be Changed?

As noted at the beginning of this report, pregnancy and STD prevention initiatives should focus on those factors that 1) have an impact on sexual behavior and 2) can be markedly changed. Column 1 in Table 1 identifies factors that have the strongest evidence of an impact on behavior. Columns 2 and 3 in Table 1 identifies those factors that can be changed and how.

Which factors can be changed depends somewhat upon the resources and goals of the organizations involved. For the purposes of this review, a broad definition is used when describing organizations concerned with preventing teen pregnancy and/or STD. These organizations are involved in activities ranging from STD/HIV education and family planning to youth development and/or parental education. Table 1 divides the important factors into three groups based on how feasible it would be for most of these organizations to change these factors. The groups comprise: 1) those factors that are impossible or extremely difficult for most organizations to change themselves, although

they may be able to do so by working with other community agencies; 2) those factors that are difficult for most organizations concerned about pregnancy and STD prevention to change unless they have special programs or capabilities (e.g., youth development activities or mental health services); and 3) those factors that are more directly related to sexuality and reproductive health and, thus, most amenable to change by these organizations.

The only factors that, for all practical purposes, cannot be changed are the biological ones. These are included in the first group. In addition, factors describing community disorganization cannot easily be changed by organizations that focus primarily on reproductive health. However, sometimes collaborative efforts with multiple community or state agencies may be able to produce improvement in these areas. Other factors that are difficult to address are those relating to family structure (e.g., number of parents in the home, family education, and income), past events (e.g., the teen mother's age at first birth or prior sexual abuse), and parents' sexual behavior. (However, some agencies may be able to address the consequences of some of these factors.)

In the second group are those factors that cannot be easily changed by most pregnancy and STD prevention organizations, but can be changed with intensive youth development programs or other special services. Examples include:

- ***Educational and counseling programs for parents*** that help them monitor their teen children more appropriately, teach them to discourage their teens from having romantic involvements with much older partners, or urge parents to emphasize the importance of doing well in school.
- ***Intensive counseling programs for families*** to improve the quality of family interactions, to increase communication, and in general, to enhance connectedness.
- ***Intensive counseling programs for youth with emotional distress*** that reduce their stress, depression or suicide risk.
- ***Effective alcohol and drug abuse prevention programs*** for teens and/or their parents.
- ***Programs for parents about teen sexuality*** that help them communicate to their children their values about sexual behaviors and decision-making.
- ***Career education programs*** for youth that help them set educational and career goals, and pursue them.
- ***Tutoring programs for teens*** that increase attachment toschool, improve school performance and encourage pursuit of higher education.
- ***Intensive entrepreneurship programs*** that improve school performance for youth.
- ***Intensive arts and creative expression programs*** that increase school performance and connectedness to school.
- ***Intensive service learning programs*** that bolster connectedness to school, improve school performance, and have other positive effects.

- ***Mentoring programs*** that increase attachment to parents, other adults and school, and decrease alcohol and drug use.
- ***Sports programs for girls*** that increase their participation in athletics.
- ***Other school-sponsored programs*** that encourage youth to become actively involved in school activities.
- ***Faith-based programs*** that encourage youth to be more involved in their faith communities and to learn the values of those communities, especially about sexuality.
- ***Comprehensive community-based programs*** that address multiple risk and protective factors.

Most of these examples do have research-based evidence that they can actually affect the risk and protective factors mentioned. However, such initiatives are not always effective. Each of them has various characteristics that may be important to implement[9]. Furthermore, for some of the examples above, it should be remembered that it may not be the exact activities that are critical; what may be critical is that youth are actively and intensely involved over a lengthy period of time and form close connections with adults.

The third group of factors includes those that can be most easily changed by teen pregnancy and STD prevention organizations. They include the proximal sexual factors (e.g., knowledge, values, perception of peer norms, motivation and self-efficacy) of the teens themselves, their partners, or their peers.

Studies have demonstrated that some sex and HIV education programs can change these proximal sexual factors and delay the initiation of sex, reduce the frequency of sex, reduce the number of sexual partners, and/or increase condom or contraceptive use[10]. Logically then, some of these programs also reduce pregnancy and sexually transmitted disease. Positive behavioral effects have been observed in a variety of program settings, including schools during regular school hours and on the weekends, community health centers, community detention centers, shelters for runaway youth, and residential drug treatment programs.

Details of Important Proximal Sexual Factors

When organizations develop programs intended to target proximal sexual factors, they can benefit from greater levels of detail about these factors than is provided in Tables 1. Accordingly, Table 2 provides specific content areas or items that have been

[9] Kirby D et al. Preventing Teen Pregnancy: Youth Development and After-School Programs. Scotts Valley, CA: ETR Associates, 2003.
[10] Kirby D. Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Disese. Washington DC: The National Campaign to Prevent Teen and Unplanned Pregnancy, 2007.

included in questionnaires measuring these factors or have been targeted by effective programs.

Summary and Conclusion

The following conclusions regarding risk and protective factors should be considered when designing and targeting pregnancy and STD/HIV prevention programs:

- On the one hand, most youth are at risk of unprotected sex and pregnancy. Given that about four-fifths of young people in the United States have sex while still in their teens, and given that many of them do not always use condoms and other forms of contraception consistently or effectively, pregnancy and STD are real risks in the lives of most teens. Thus, *all* teens need appropriate education about the value and benefits of delaying sex as well as accurate information about condoms and other forms of contraception. And all teens who become sexually active need access to reproductive health services.

- On the other hand, *some* teens are at much greater risk than others, and understanding the factors outlined here can help programs target high-risk teens with more intensive—and effective—interventions.

- Risk and protective factors should provide the basis for developing programs to prevent teen pregnancy and STD/HIV. Programs should focus on factors that are strongly and causally related to sexual risk-taking *and* that are amenable to change by the program. Table 1 lists factors meeting those conditions. Table 2 provides the greater detail that may be needed to implement activities that most directly and efficiently address very specific proximal sexual factors.

- Risk and protective factors should also provide the basis for identifying teens at greatest risk of unprotected sex. Some of the most important factors are readily measurable (gender, age, ethnicity, family income, school performance, and engagement in other risk-taking behavior) and can be used to identify teens most in need of help.

- The factors that influence teens' sexual behavior and decision-making are rooted in communities, families, schools, faith communities, friends and peers, romantic partners, as well as in teens themselves. Some of the factors also involve teens' relationships with these important individuals or organizations in their environment. Factors that increase the likelihood of teen pregnancy and STD/HIV are risk factors, whereas those that lower the likelihood are protective factors. Some factors influence sexual behavior directly, while others affect it indirectly.

- The majority of factors fall into one of four themes: biological factors such as age, physical maturity, and sex; disadvantage, disorganization, and dysfunction in the lives of teens and their families, peers, and communities; sexual values and norms expressed or modeled by teens themselves or by their families, romantic partners, peers, faith communities, schools, and communities; and teens' connection to groups or institutions that discourage risky sexual behavior, encourage responsible behavior, or both.

- Because so many factors affect teen sexual behavior, few individual factors have a large impact. Consequently, there is no simple, easy-to-implement prevention program—no magic bullet—that will substantially change adolescent sexual behavior and lower pregnancy and STD/HIV rates. Few programs, after all, can modify more than a few risk or protective factors at a time.

- Because teens' sexual beliefs, attitudes, perceived norms, confidence in their abilities, intentions, and actual skills are more strongly related to their sexual and contraceptive behavior than most other, nonsexual factors, and because these sexual factors can be modified, prevention efforts should include sex and STD/HIV education programs as well as other interventions that address these factors. Given that teens' sexual beliefs, attitudes, and behavior are affected by their parents, siblings, and peers, prevention efforts should also encourage these groups to model appropriate sexual behavior, as well as encourage the media to present more responsible models of sexual behavior.

- Some nonsexual risk and protective factors are modestly related to pregnancy and STD, and some of them can also be modified. Interventions should address such factors.

- Because of the substantial variety among important risk and protective factors, organizations with diverse missions can help reduce the rates of teen pregnancy and STD. Organizations that traditionally focus on teen sex and reproductive health can most effectively address sexual factors, while those with broader missions can emphasize nonsexual factors.

- To reduce pregnancy and STD markedly, communities may have to address many risk and protective factors among different groups (e.g., teens, their families, schools, and communities), and they may have to address both sexual and nonsexual factors. In practice, this may mean that a patchwork of programs can be effective at the community level, if each addresses a specific set of factors that in the aggregate improve most of the important risk and protective factors.

In sum, when programs and policies target those risk and protective factors that ultimately have the greatest impact on behavior and that can be changed markedly, they will maximize their chances for success in reducing teen pregnancy, childbearing and sexually transmitted disease.

Figure 1:
A Possible Causal Structure among Risk and Protective Factors Affecting Teen Pregnancy and Sexually Transmitted Disease

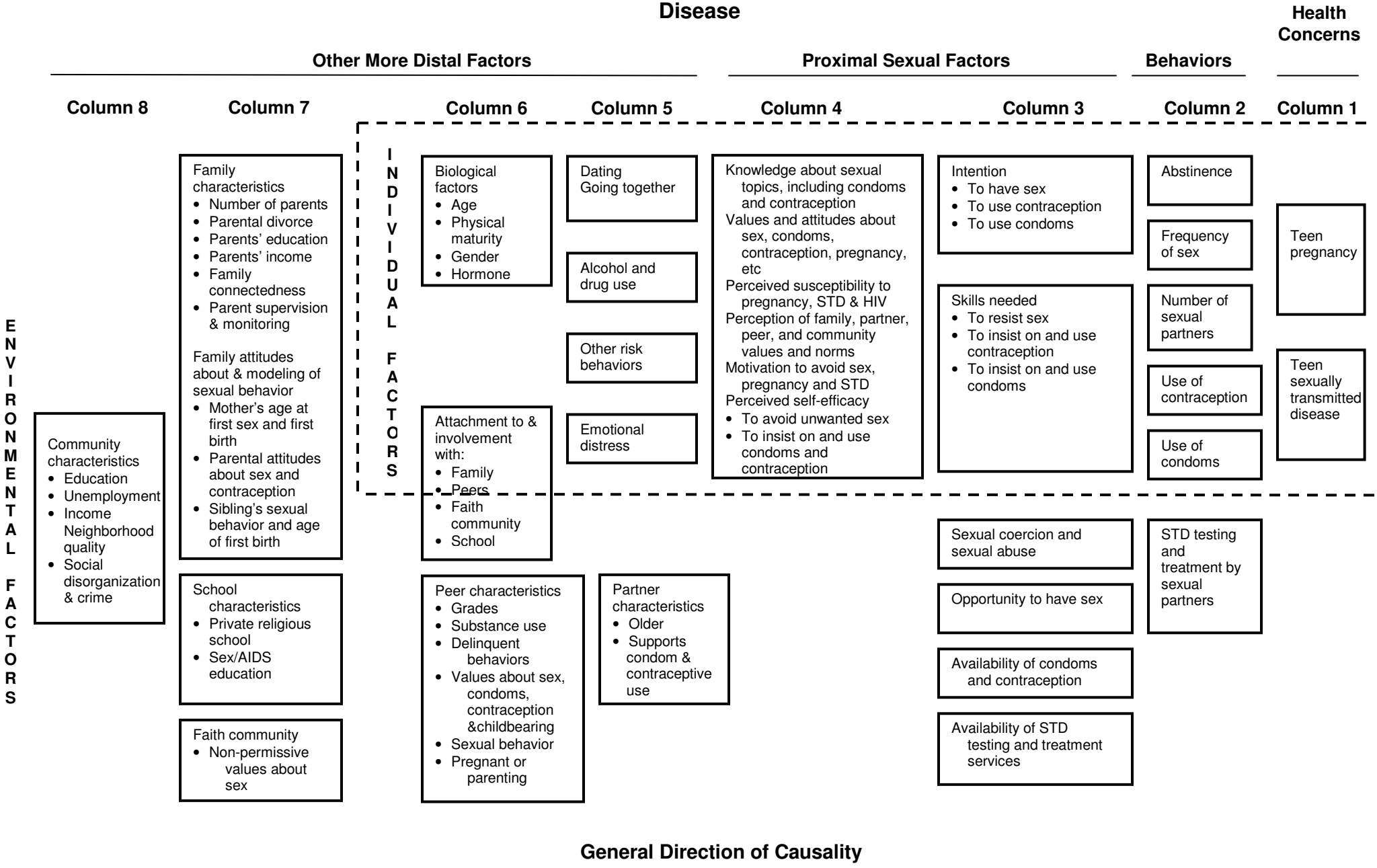

Table 1
Important Risk and Protective Factors and the Feasibility of Changing Them

Risk (-) and Protective (+) Factors	Feasibility of Changing[11]	Possible Interventions To Change Factors
Environmental Factors		
Community		
Percentage foreign-born		
+ High proportion of foreign-born residents	*	In general, pregnancy and STD prevention programs cannot affect the percentage of foreign-born residents in a community.
Community disorganization		
- Greater community social disorganization (e.g., violence, hunger, substance use)	*	In general, pregnancy and STD prevention programs do not have the resources or capability of markedly changing community-wide social disorganization. In some communities, these and other programs can collaborate to address larger social issues.
Family		
Family structure		
+ Live with two parents (vs. one parent or step-parents)	*	In general, pregnancy and STD prevention programs cannot affect marital status, divorce risk, or living arrangements of families. If their agencies offer marriage or family counseling, they may be able to help parents stay together.
- Family disruption (divorce, change to single-parent household)	*	
Educational level		
+ High level of parental education	*	In general, pregnancy and STD prevention programs cannot affect parents' educational level. In some communities, programs with a holistic approach may be able to provide guidance and counseling to parents and encourage and facilitate their obtaining a higher education.

[11] * = Extremely difficult for most pregnancy and STD prevention programs to change directly themselves, although they can work with other agencies to change policies.
** = Difficult for most pregnancy and STD prevention programs to change unless they have special programs or capabilities.
*** = Most amenable to change directly by pregnancy and STD prevention programs. These factors are italicized.

Risk (-) and Protective (+) Factors	Feasibility of Changing[1]	Possible Interventions To Change Factors
Substance abuse		
- Household substance abuse (alcohol or drugs)	**	In general, pregnancy and STD prevention programs can have little effect on whether parents or siblings of teens abuse alcohol or drugs. Some programs may be able to provide alcohol and drug abuse prevention programs and thereby reduce parental abuse.
Positive family dynamics and attachment		
+ High-quality family interactions, connectedness, satisfaction with relationships	**	In general, pregnancy and STD prevention programs can have little effect on family interactions and connectedness. Some agencies may be able to provide intensive family guidance and counseling and thus affect family interactions.
+ Greater parental supervision and monitoring	**	In general, pregnancy and STD prevention programs can have little effect on parental supervision and monitoring. Some more holistic programs may be able to implement programs for parents that encourage them to supervise and monitor their teen children appropriately.
- Physical abuse and general maltreatment	**	In general, pregnancy and STD prevention programs can have little effect on physical abuse and maltreatment within the family. Some agencies may be able to provide intensive family guidance and counseling and thus affect abusive behavior.

[1] * = Extremely difficult for most pregnancy and STD prevention programs to change directly themselves, although they can work with other agencies to change policies.
** = Difficult for most pregnancy and STD prevention programs to change unless they have special programs or capabilities.
*** = Most amenable to change directly by pregnancy and STD prevention programs. These factors are italicized.

Risk (-) and Protective (+) Factors	Feasibility of Changing[1]	Possible Interventions To Change Factors
Family attitudes about and modeling of sexual risk-taking and early childbearing		
- Mother's early age at first sex and first birth	*	Programs cannot affect a teen's mother's prior behavior. Programs can prevent teens from becoming mothers and thereby help the next generation.
- Older sibling's early sexual behavior and early age at first birth	**	In general, pregnancy and STD prevention programs cannot affect the previous behavior of older siblings. They can affect the behavior of teens, who may have younger siblings.
+ Parental disapproval of premarital sex or teen sex	**	Pregnancy and STD prevention programs can provide parents with accurate information about teen sexual behavior and its consequences. Some programs, especially faith-based ones, may emphasize conservative religious values about premarital sex and teen sex. Many programs may encourage parents to encourage their teens to abstain from having sex.
+ Parental acceptance and support of contraceptive use for sexually active teens	**	Pregnancy and STD prevention programs can provide parents with accurate information about teen sexual behavior, its consequences, and the effectiveness of condoms and contraception. Some programs may be willing to encourage parents to encourage their teens to use contraception if they do have sex.
Communication about sex and contraception		
+ *Greater parent-child communication about sex and condoms or contraception, especially before teen initiates sex*	***	Pregnancy and STD prevention programs can increase parent-child communication about sex, condoms, and other contraception through school homework assignments, special programs for parents, college courses for parents, and other approaches.

[1] * = Extremely difficult for most pregnancy and STD prevention programs to change directly themselves, although they can work with other agencies to change policies.
** = Difficult for most pregnancy and STD prevention programs to change unless they have special programs or capabilities.
*** = Most amenable to change directly by pregnancy and STD prevention programs. These factors are italicized.

Risk (-) and Protective (+) Factors	Feasibility of Changing	Possible Interventions To Change Factors
Peer		
Age		
- Older age of peer group and close friends	**	In general, pregnancy and STD prevention programs cannot easily affect the age of teens' peers. Some programs may be able to provide activities that encourage teens to interact with people their own age or encourage same-age friends in other ways.
Peer attitudes and behavior		
- Peers' alcohol use, drug use, deviant behavior	**	If friends can be reached, some pregnancy and STD prevention programs with a youth development emphasis may be able to reduce alcohol and drug abuse and other non-normative behavior.
- *Peers' pro-childbearing attitudes or behavior*	***	If peers can be reached, sex education programs can reduce pro-childbearing attitudes and behavior. If peers cannot be reached, programs can implement activities in small or large group settings that demonstrate peer support for avoiding pregnancy.
- *Permissive values about sex*	***	If friends can be reached, agencies can implement effective abstinence or sex and STD/HIV education programs that change permissive values and delay the initiation of sex. If peers cannot be reached, programs can implement activities in small or large group settings that demonstrate peer support for delaying sex.
- *Sexually active peers*	***	If friends can be reached, abstinence or sex and STD/HIV education programs can change permissive values about sex and delay the initiation of sex. If friends cannot be reached, programs can implement activities demonstrating that perceptions of peer sexual activity are typically exaggerated.
+ *Positive peer norms or support for condom or contraceptive use*	***	If friends can be reached, sex and STD/HIV education programs or clinic protocols can increase both support for condom and contraceptive use and actual use of condoms and contraceptives. If peers cannot be reached, programs can implement activities in small or large group settings that demonstrate peer support for condom and contraceptive use for sexually active teens.
+ *Peer use of condoms*	***	If peers can be reached, sex and STD/HIV education programs can increase condom use. If peers cannot be reached, programs can implement activities in small or large group settings that demonstrate peer support for condom use.

Risk (-) and Protective (+) Factors	Feasibility of Changing	Possible Interventions To Change Factors
Romantic Partner		
Partner characteristics		
- Having a romantic partner who is older	**	Pregnancy and STD prevention programs can encourage teens to date people their own age. Such efforts have not yet been evaluated.
+ Partner support for condom and contraceptive use	**	If partners can be reached, sex and STD/HIV education programs can improve attitudes toward condom and contraceptive use. If partners cannot be reached, programs can implement activities in small or large group settings that demonstrate peer support for condom use.
Individual Factors		
Biological factors		
+/- Being male	*	Within reason, it is not possible to change these factors.
+/- Being older	*	
+ Being physically more mature	*	
Race/Ethnicity		
- Being African-American (vs. white)	*	Pregnancy and STD prevention programs cannot affect race or ethnicity, but sometimes, in collaboration with other programs, they can help reduce minority poverty or minority cultural values that may contribute to sexual risk.
- Being Hispanic (vs. non-Hispanic white)	*	
Attachment to and success in school		
+ Greater connectedness to school	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to implement tutoring, mentoring, job shadowing, arts, sports, service learning, or other initiatives to help keep teens in school, keep them involved, improve their grades, and improve their aspirations.
+ Higher academic performance	**	
- Being behind in school or having problems in school	**	
+ High educational aspirations and plans for the future	**	
Attachment to community		
+ Being involved in the community	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to implement arts, sports, service learning, or other community programs to help teens be involved in their communities.

Risk (-) and Protective (+) Factors	Feasibility of Changing	Possible Interventions To Change Factors
Attachment to faith communities		
+ Having a religious affiliation	**	Most pregnancy and STD prevention programs cannot strive to increase involvement in religious organizations. However, faith communities can implement youth programs or initiatives that may increase young people's involvement and improve their understanding of their religion's values about sexuality.
Problem or risk-taking behavior		
- Alcohol use	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to offer initiatives that reduce alcohol or drug use.
- Drug use	**	
- Being part of a gang	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to implement initiatives that reduce gang membership.
- Physical fighting and carrying weapons	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to implement initiatives that reduce fighting, violence, and other problem behavior.
- Other problem behavior or delinquency	**	
Other behavior		
- Working for pay more than 20 hours per week	**	Most pregnancy and STD prevention programs will not wish to discourage teens from working and having the greater autonomy that accompanies work. However, some may be willing to discourage teens from working more than 20 hours per week.
+ Involvement in sports (girls only)	**	Some pregnancy and STD prevention programs with a youth development emphasis may be able to implement sports programs for girls.
Cognitive and personality traits		
+ Higher level of cognitive development	**	Most pregnancy and STD prevention programs are not designed to increase cognitive development. Some with a youth development emphasis may be able to implement initiatives that increase cognitive development slightly.
+ Greater internal locus of control	**	A teen's locus of control is difficult to change. Some programs with an intensive youth development focus may be able to improve teens' internal locus of control.

Risk (-) and Protective (+) Factors	Feasibility of Changing	Possible Interventions To Change Factors
Emotional well-being and distress		
- Depression and thoughts of suicide	**	Most pregnancy and STD prevention programs are not equipped to address depression or thoughts of suicide. Some programs may be able to refer teens to agencies that provide needed help or may provide such services themselves.
Sexual beliefs, attitudes, and skills		
- *More permissive attitudes toward premarital sex*	***	Pregnancy and STD prevention programs can implement abstinence education, sex and STD/HIV education, and clinic protocols that target these factors. Such initiatives have been demonstrated to delay the initiation of sex, reduce the frequency of sex and the number of partners, and increase condom or contraceptive use.
+ *Taking a virginity pledge*	***	
+ *Greater perceived male responsibility for pregnancy prevention*	***	
+ *Stronger beliefs that condoms do not reduce sexual pleasure*	***	
+ *Greater value of partner appreciation of condom use*	***	
+ *More positive attitudes toward condoms and other forms of contraception*	***	
+ *More perceived benefits and/or fewer costs and barriers to using condoms*	***	
+ *Greater confidence in ability to demand condom use*	***	
+ *Greater confidence in using condoms or other forms of contraception*	***	
+ *Greater motivation to use condoms or other forms of contraception*	***	
+ *Greater intention to use condoms*	***	
+ *Greater perceived negative consequences of pregnancy*	***	
+ *Greater motivation to avoid pregnancy and STD*	***	

Risk (-) and Protective (+) Factors	Feasibility of Changing	Possible Interventions To Change Factors
Relationships with romantic partners and previous sexual behavior		
- Dating more frequently	**	Pregnancy and STD prevention programs can encourage parents to appropriately monitor and supervise teen dating and going steady. Programs can also encourage young people to delay dating and going steady and to participate in group activities rather than one-on-one dates. Such efforts have not been evaluated.
- Going steady, having a close relationship	**	
- Ever kissed or necked	**	
+ *Older age at first voluntary sex*	***	Pregnancy and STD prevention programs can implement abstinence education and sex and STD/HIV education that have been demonstrated to delay the initiation of sex.
- *Greater frequency of sex*	***	Some sex and STD/HIV education programs and clinic protocols can reduce the frequency of sex and the number of sexual partners (and hence the number of new sexual relationships). Others can encourage young people in new sexual relationships to begin using contraception earlier in their relationship.
- *Having a new sexual relationship*	***	
- *Greater number of sexual partners*	***	
+ *Discussing sexual risks with partner*	***	Pregnancy and STD prevention programs can implement sex and STD/HIV education and clinic protocols that increase communication about sexual risks and prevention of pregnancy and STDs.
+ *Discussing pregnancy and STD prevention with partner*	***	
+ *Previous effective use of condoms or contraception*	***	Pregnancy and STD prevention programs can implement sex and STD/HIV education programs and clinic protocols that increase condom and contraceptive use, thereby reducing the risk of pregnancy and STDs.
- *Previous pregnancy or impregnation*	***	
- History of prior sexual coercion or abuse	*	Pregnancy and STD prevention programs typically are not equipped to address the consequences of past sexual abuse or to prevent subsequent abuse. They can refer sexually abused young people to intensive, specialized counseling services, if they exist, and some programs may be equipped to implement support groups for victims.
- Same-sex attraction or sexual behavior	**	Pregnancy and STD prevention programs cannot affect sexual orientation, but some programs designed for gay, lesbian, and questioning youth may be able to reduce their sexual risk-taking.
- Being married	**	Most programs do not include delaying marriage in their mission. Some programs, especially those with counseling components, may encourage young people to think seriously about the implications of early marriage.

Table 2:
Examples of Items That Have Been Used to Measure Selected Factors and That Can Be Used to Create Specific Activities or Programs to Address Them[1]

Attitudes favoring abstinence until marriage

+ It is wrong to have sex before marriage.
+ Having sex before marriage is against my religious beliefs.
+ Abstaining from sex until marriage is important to me.
+ Teens would be better off if they said "no" to sex.
- It is okay for people my age to have sex.
- It is okay for people my age to have sex if they are in love.
- It is okay for people my age to have sex with someone they like, but don't know very well.

Perceived costs of having sex and benefits of abstaining from sex

+ I would not have sex now because I'm not ready to have sex.
+ I would not have sex now because it is against my beliefs.
+ I would not have sex now because it is against my parents' values and they would be terribly upset if they believed I was having sex.
+ I would not have sex now because I do not want to get pregnant.
+ I would not have sex now because I don't want to get AIDS or some other STD.
+ I would not have sex now because I don't want to get a bad reputation.
+ If I had sex with a boyfriend or girlfriend, my friends might gossip about me.
+ I would not have sex now because I'm waiting for the right person.
+ I would not have sex now because my friends think it is better to wait to have sex.
- If I want to be popular, I need to go farther than kissing.
- If I had sex with a boyfriend or girlfriend, it would prove that I love him or her.
- I would have sex now if someone I cared about pressured me to have sex.
- I would have sex now to satisfy strong sexual desires.
- I would have sex now because I want to have a baby.

Perceived parental values about having sex

+ My parents think having sex before marriage is wrong.
+ My parents think people my age should wait until they are older to have sex.
+ My parents think I should abstain from sex.
+ My parents would be terribly upset if they believed that I was having sex.

[1] Most of these items are based on actual questions used to measure factors in previous research. These items specify more precisely some of the factors that are related to behavior and can therefore be helpful when designing programs to address the proximal sexual factors. They can also be used to create items for questionnaires in survey research.

Perceived peer norms about having sex

+ Most of my friends have not had sex.
+ Most of my friends think people my age should wait until they are older before they have sex.
+ Most of my best friends think I should wait to have sex.
- Most of my friends believe it's okay for people my age to have sex.
- Most of my friends think it is okay to have sex with a steady boyfriend or girlfriend.
- Most of my friends think it is okay to have sex with a couple of different people each month.

Perceived susceptibility to pregnancy or STD/HIV

- If I have sex without contraception, I would probably get pregnant (or get someone pregnant).
- If I have sex without using a condom every time, I might get an STD.
- If I have sex without using a condom every time, I might get HIV.

Perceived consequences of pregnancy and childbearing

+ I am not emotionally ready to be a parent.
+ I am not financially ready to be a parent.
+ Being a teen parent would make it more difficult to finish school.
+ Being a teen parent would keep me from doing many things I like to do.
+ Being a teen parent would really mess up my life.
+ If I got pregnant (or got someone pregnant), I would be very embarrassed.
+ Getting pregnant at this time in my life is one of the worst things that could happen to me.
- Having a baby to take care of would make me feel loved and needed.
- If I had a baby, for the first time, I would have something that is really mine.
- If I had a baby, I would never be lonely.
- If I had a baby, my boyfriend would be more committed to me.
- If I had a baby, I would feel more like an adult.
- If I had a baby, I would feel I had done something meaningful in life.
- My family would help me raise a baby.

Perceived consequences of sexually transmitted disease and HIV/AIDS

+ If I got an STD, I would be very embarrassed.
+ If I got an STD, I would hate to have to tell my partner.
+ If I got an incurable STD, it would mess up my life.
+ If I got an incurable STD, I might need to deal with it the rest of my life.
+ If I got an incurable STD, I would worry about infecting others.
+ Getting AIDS would really mess up my life.
+ Getting AIDS might mean that I would have to take lots of pills the rest of my life.
+ Getting AIDS would prevent me from doing many things I want to do.

Motivation to avoid contracting an STD

+ I really want to avoid getting an STD.
+ Not getting an STD is important to me.
+ Getting an STD is not a big deal.

Motivation to avoid pregnancy and childbearing

+ Getting pregnant (or getting someone pregnant) would really mess up my life.
+ I really don't want to get pregnant (or get someone pregnant).
+ I am really not ready to be a parent.
+ If I get pregnant (or get someone pregnant), it is not a big deal.
+ Sometimes I think I'd like to be pregnant (or get someone pregnant).
- I'd like to be a mother (or father).

Self-efficacy to abstain from sex

+ I have the ability to abstain from sex until married.
+ I can abstain from sex until I'm finished with high school.
+ My boy/girlfriend cannot pressure me into having sex.
+ My friends will not pressure me into having sex.
+ If someone I liked a lot wanted me to have sex, I am sure I could say "no."
+ If someone I liked a lot wanted me to have sex, I am sure I could say "no" without hurting his/her feelings.
+ If someone I liked a lot wanted me to have sex and threatened to break up with me unless I had sex, I am sure I could say "no."
+ If someone I liked a lot wanted me to have sex and I had been drinking alcohol, I am sure I could say "no."

Intention to have sex

+ I intend to abstain from sex until I am older.
+ I intend to abstain from sex until I am married.

Perceived effectiveness of condoms and contraception

+ If used correctly and consistently, condoms are effective at preventing pregnancy.
+ If used correctly and consistently, contraception is effective at preventing pregnancy.
+ If used correctly and consistently, condoms are quite effective at preventing some STDs.
+ If used correctly and consistently, condoms are effective at preventing AIDS.

Personal values and attitudes about condoms & contraception

+ I believe condoms should always be used if a person my age is sexually active.
+ I believe contraception should always be used if a person my age is sexually active.
+ I believe that condoms should always be used if a person my age has sex, even if the two people know each other very well.
+ I believe that condoms should always be used if a person my age has sex, even if they are going together.
+ I believe that condoms should always be used if a person my age has sex, even if the girl uses contraception.
+ I believe that another form of contraception should always be used, even if the guy uses a condom.

Perceived costs & barriers to using condoms

- Using condoms is a hassle.
- Using condoms disrupts the mood.
- Condoms reduce pleasure of sex.
- Condoms reduce sensation during sex.
- I would be embarrassed to buy birth control in a store.
- When I'm all excited, I don't want to think about using condoms.
- Condoms are messy.
- I would be afraid my partner would be angry if I asked him/her to use a condom.
- I am afraid that my sex partner would think I am infected with and STD if I asked him/her to use a condom.
- Condoms create distrust during relationship.
- Condoms are embarrassing to use.
+ Condoms are comfortable to use.
+ Using condoms can be sexy.
+ Using condoms makes me feel more secure that I will not cause a pregnancy or get an STD.

Perceived embarrassment using condoms

- It would be embarrassing to buy a condom.
- It would be embarrassing to ask my partner to use a condom.
- It would be embarrassing to put on a condom.

Perceived peer norms about condom or contraceptive use

+ Most of my friends believe condoms should always be used if a person my age has sex.
+ Most of my friends believe condoms should always be used if a person my age has sex, even if the girl uses birth control pills.
+ Most of my friends believe condoms should always be used if a person my age has sex, even if the two people know each other very well.
- Women who carry condoms are looking for sex.
- If you tell your partner you want to use a condom, your partner will think you're having sex with other people.
+ Most young people use contraception when they have sex.
- Very few young people are doing anything to protect themselves against sexually transmitted disease.

Perceived self-efficacy in using condoms or contraception

+ It would not be too hard for me to buy condoms.
+ It would not be too hard for me to carry a condom and have it with me if I needed it.
+ If I decided to have sex with someone, I am sure that I could talk to my partner about using condoms.
+ If I decided to have sex with someone, I am sure that I could get my partner to agree to use condoms.
+ If I decided to have sex with someone but did not have a condom, I am sure that I could stop myself from having sex until I got a condom.
+ If my partner refused to use condoms, I could refuse to have sex.
+ If I decided to have sex with someone but did not have any form of contraception, I am sure that I could stop myself from having sex until one of us could get an effective method of contraception.
+ I am sure that I could use a condom correctly.
+ I am sure that I could use a condom correctly even when highly aroused.
+ I am sure that I could use a condom correctly every time I have sex.
+ I am sure that I could use a condom every time even with my girl/boyfriend.
+ I am sure that I could use a condom even if I had drunk alcohol or used drugs.
+ I am sure that I could take contraception consistently and correctly.

Intention to use condoms or contraception

+ If I have sexual intercourse in the next year, I am sure that I will always use a condom.
+ If I have sexual intercourse in the next year, I am sure that I will always use an effective method of contraception.

Matrix 1:
Risk and Protective Factors
Affecting Teen Sexual Behavior, Pregnancy, Childbearing
And Sexually Transmitted Disease

Introduction

This document is designed both as a stand-alone matrix and as the appendix to the following paper: "Sexual Risk and Protective Factors" by the same authors. The full paper summarizes the content of this matrix, discusses causal relationships among these factors, and indicates which factors can most readily be changed[1].

Goals

The overall goal of this matrix is to specify and summarize research studies measuring the relationships between a wide variety of risk and protective factors and their respective sexual behaviors. Accordingly, this matrix:

1. Identifies in the columns of the matrix eight important sexual behaviors and their consequences: initiation of sex, frequency of sex (which includes return to abstinence), number of sexual partners, use of condoms, use of other forms of contraception, pregnancy, childbearing and sexually transmitted disease.
2. Specifies in the rows of the matrix the risk and protective factors found in research studies that may ultimately have a causal impact on one or more of the sexual behaviors in the columns.
3. Specifies in the cells of the matrix the particular studies that have measured the relationship between each risk and protective factor and each behavior.
4. Specifies in the rows of the matrix whether each study found the factor to be a risk factor or a protective factor or to be non-significantly related to each of the sexual behaviors.

Criteria for Inclusion of Studies

As noted in the full article, to be included in this matrix, studies must have:

1. Been conducted in the United States[2]
2. Examined the impact of factors on one or more of the eight sexual behaviors specified above
3. Be based on a sample of teenagers, roughly 18 or younger
4. Have a sample of at least 100 for significant results and a sample of at least 200 for non-significant results[3]
5. Meet scientific criteria required for publication in professional peer-reviewed research journals or other publications
6. Been published in 1990 or thereafter
7. Included multivariate analyses[4]

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[1] This matrix is available in both PDF and Word formats. The PDF format increases the chances that the matrix will print properly, while the Word format allows the reader to use all the standard functions of Word, e.g., to find particular factors or to copy references.

[2] A second matrix by Kristin Mmari and Bob Blum is available on risk and protective factors in the developing world (www.teenpregnancy.org).

[3] A few studies with sample sizes less than 100 were included if they were good studies involving significant results for new and interesting factors not found in other studies.

[4] A few studies without multivariate analyses were included if they involved new and interesting factors not found in other multivariate studies.

Criteria for Inclusion of Results within Studies

Some studies presented multiple results for the same factor. For example, they may have included results for multiple measures of a particular behavior (e.g., condom use at first sex, condom use at last sex, and frequency of condom use) or results for different groups (e.g., both sexes, different racial and ethnic groups, or different age groups). If the results within a study were consistent for a particular factor, then, of course, those results were incorporated once in the matrix. If the results for a particular factor were inconsistent across different measures or groups, then all the different results were included in the matrix. Thus, hypothetically, the results presented in the matrix would show that a specific factor was a protective factor for a particular behavior, a risk factor for that behavior, and not significantly related to that behavior, if these were the findings for three different groups in the study.

Many studies presented results for different statistical models that controlled for different potentially confounding variables. When different models were presented, typically the results from the model with the most variables were included.[1]

How to Use the Matrix

Readers can use this matrix in different ways:

- To gain an understanding of the wide range of risk and protective factors that affect any of the sexual behaviors and their outcomes, readers can visually examine the different domains and sub-domains of risk and protective factors.
- To determine whether a potential factor has been found to be a risk or protective factor for any of the eight sexual behaviors and their outcomes, readers can:
    1. Visually review the risk and protective factors in the appropriate domain.
    2. Use the "find" option ("control f") to search for a particular word describing that factor, e.g., "income," "attachment," "self-esteem," or "attitudes." Be sure to search for all uses of the word, for it may appear multiple times in different domains. For example, "income" may be in a factor describing average community income and also in a factor describing family income.
- To identify findings from a particular study, readers can search for the study in the references and then use the "find" option to find the reference number in the matrix.
- To assess which factors are most likely to be important for their own target populations, readers can identify those factors that 1) have many studies demonstrating they are significant factors and 2) have multiple studies that

[1] Results from models were included if they statistically controlled for those variables that might be confounding (they might co-vary with both the factor and the behavior), but sometimes results from models were excluded if the models included variables that were in the causal pathway to the behavior. For example, when examining the impact of parent-child communication about sex on initiation of sex, presented results did control for family income because family income may be correlated with both parent-child communication and initiation of sex and might therefore add to (or subtract from) the actual causal relationship between parent-child communication and initiation of sex, but results did not control for intention to have sex, because parent-child communication may affect intention to have sex which in turn affects actual initiation of sex.

consistently demonstrate the factors are risk factors (or protective factors). Readers should then read the relevant studies to be certain that the factors were significant in populations similar to their own target populations.

Some Cautions about Drawing Conclusions from the Matrix

While this matrix should be used to reach tentative conclusions about the impact of different risk and protective factors on sexual behaviors and their outcomes, readers should *not* simply count the number of studies with significant findings for particular factors and then conclude that those factors with more significant findings necessarily have a stronger causal impact than factors with fewer significant findings. Similarly, readers should *not* simply calculate the ratio of significant findings to non-significant findings and then conclude that those factors with the largest ratios necessarily have the largest causal impact. Rather, it is important for readers to *actually read* many of the referenced studies about relevant risk and protective factors and then make appropriate assessments. Why is this important? There are several reasons: 1) Some factors are far more commonly measured in studies, even though they do not necessarily have a greater causal impact; 2) some studies were far more rigorous in assessing causal impact than others; 3) some studies may have found that a factor was significant for many groups but not quite significant for one group, yet both the significant and non-significant results were entered in the matrix once; 4) requiring multivariate analyses might have excluded a few potentially important factors; and 5) some statistical problems (such as multi-colinearity and causality) are difficult to resolve in many studies. Thus, factors with multiple studies consistently demonstrating a significant impact do have relatively strong evidence that they have a causal impact on the specified behaviors, but actually reading some of the studies, particularly the more rigorous studies, will enhance understanding of the role of those factors.

Matrix 1:
Risk and Protective Factors That Affect One or More Sexual Behaviors or Outcomes, by Domain

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Environment or Context									
Season:									
Early summertime months	Risk	[229]							
December (holiday season)	Risk	[229]							
Region:									
Northeastern	Protective	[383]							
North Central	Risk							[14]	
South	Protective				[247]				
	Risk	[169]			[56]			[14]	
West	Risk	[56]			[312]			[14, 397]	
Region	Not sig	[56, 169]			[56, 312, 398]	[56, 71, 116]	[170, 317]	[387]	[247]
State:									
Higher education level	Protective						[233]	[286]	
Higher levels of female labor force participation	Risk							[286]	
Higher crime rate	Risk							[286]	
Higher minimum legal drinking age	Protective								[166]
Higher tax on beer	Protective								[166]
Coordinated programs and policies for addressing teen pregnancy	Protective						[286]		
Higher level of state funding for family planning	Protective							[286, 430]	
Greater social capital	Protective					[100]			
Greater per capita income	Protective							[309]	
Greater income inequality	Risk							[309]	
	Not sig					[100]			
Higher incidence or prevalence of HIV/AIDS	Not sig		[216]	[216]	[216, 398]				
Restrictive laws regarding contraceptive licensing, advertising, or selling	Risk						[245, 246]		
	Not sig						[246]		
Parental involvement legislation for abortion	Protective						[8]		
	Risk							[397]	
Restricted public funding for abortion	Risk							[286, 397]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Community:									
Living in an urban area (vs rural)	Protective	[15, 271]	[271]	[271, 379]	[183, 379]		[170]	[14, 193]	
	Risk	[142, 169, 183, 220, 348, 424]			[216]		[142, 170, 379]	[387]	[50, 183]
	Not sig	[22, 56, 108, 132, 169, 175, 257, 293, 348, 383, 424]	[112, 132, 214, 379]	[132, 214, 356, 379]	[56, 312]	[56, 71, 116, 132, 175, 214, 257, 258, 330, 379]	[32, 170, 175, 214, 379]	[14, 22, 175, 193, 214, 253, 397]	[93]
Higher ratio of men to women	Risk		[36]					[214]	
	Not sig	[36]	[214]	[214]		[214]	[214]		
Higher percent of women aged 15-25 never married	Protective						[208]		
Higher percent white	Protective						[208]	[397]	
Higher percent black	Protective	[36, 55]		[379]					
	Risk	[103, 108]				[379]	[233]		
	Not sig	[103, 108]	[214, 379]	[214, 379]	[379]	[55, 214, 379]	[214, 379]	[214]	
Higher percent Hispanic	Protective	[103, 402]		[214]				[110]	
	Risk					[214, 379]			
	Not sig	[103]	[214, 379]	[379]	[379]	[379]	[214, 379]	[214]	
Higher percent foreign born	Protective	[36, 55, 63]							
	Not sig	[63]				[55]			
Stronger ties to countries of origin	Protective							[110]	
Higher residential mobility	Risk	[55]	[36]						[405]
	Not sig	[63, 103, 405]				[55]			[405]
Higher percent of families headed by married couples	Protective	[103]						[397]	
	Not sig	[103]							
Higher proportion female-headed households	Not sig		[214]	[81, 214]		[214]	[214]	[214]	
Higher divorce rates	Risk	[55]				[55]			
	Not sig	[36]							
Higher school dropout rate	Risk		[36]					[91]	
	Not sig	[36]							
Higher education levels	Protective	[55]					[208]	[397]	
	Not sig					[55]			
Higher percent of idle youth	Risk	[103]							
	Not sig	[103]							
More community opportunities	Protective							[35]	
Greater female labor force opportunities	Protective					[55]			
	Not sig	[55]							
Higher percent of females employed	Protective	[103]							
	Risk	[36, 54]					[208]		
	Not sig	[36, 103]							
Higher percent of males employed	Risk						[208]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Higher unemployment rate	Risk	[405]	[271, 379]	[379]			[379]	[35, 214]	[405]
	Not sig	[54]	[214, 379]	[214, 379]	[379]	[214, 379]	[214, 379]	[397]	[405]
Lower average job wage	Risk							[35]	
More high-status workers	Protective							[91]	
Higher population of working class	Not sig								[135]
Higher income level or socio-economic status	Protective	[63, 103]	[214]					[59, 208, 233]	
	Risk					[214, 379]	[214]	[397]	
	Not sig	[36, 103, 288, 378]	[379]	[214, 379]	[379]	[288, 379]	[379]	[35, 214, 395, 397]	[135]
Higher proportion on welfare	Risk	[288]					[289]		
	Not sig	[289]	[214]	[214]		[214]	[214]	[214]	
Greater religiosity	Protective							[397, 430]	
	Not sig	[36, 55]		[226]	[226]	[55, 226, 258]			
Better neighborhood quality	Protective	[63, 224]	[22]			[261]	[102]		
	Risk			[282]					
	Not sig	[22, 282]	[282]	[22]	[282]	[261]		[395]	
Greater neighborhood monitoring by adults in community	Protective	[63, 376]							
	Not sig	[289]			[203]		[289]		
Greater neighborhood cohesion (among adults or youth)	Protective				[203]				
Greater youth participation in a stable community	Protective							[35]	
Greater community social disorganization (violence, hunger, substance abuse)	Protective	[220]							
	Risk	[219, 221, 402	[223]					[36, 110]	
Higher levels of community stress	Risk						[286]		
Higher crime rate or arrest rate	Risk	[36]					[221]		
Grater media exposure to AIDS information	Not sig				[174]				
Greater number of clinics	Protective	[38, 55]							
	Not sig					[55]			
Clinic provides contraceptive guidance information about sex	Protective					[296]			
	Risk	[172]							
Clinic provides advance emergency contraception	Risk					[324]			
Greater clinician-client rapport (time, confidentiality, trust, etc.)	Not sig					[296]			
Higher STD rate	Not sig								[190]
Higher percent of females 15-19 using family planning services	Risk		[36]						
Higher teen non-marital birth rate	Risk	[55]							
	Not sig					[55]			

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
School:									
Urban school community	Risk	[368]		[156]					
	Not sig				[156]				[156]
Private religious school (e.g. Catholic vs public)	Protective	[331]					[253]	[253, 438]	
	Not sig	[213, 405]			[213]	[213]	[331]		[405]
Private non-religious school	Protective	[405]							[405]
	Not sig								[405]
College prep program (vs. vocational or general)	Protective							[438]	
School for students with cognitive disabilities	Protective	[161]							
	Not sig	[161]							
Learning-focused school setting	Protective						[198]		
Conflictual school setting	Not sig						[198]		
Students grouped by ability (at the class level)	Not sig							[253]	
Higher average number of students per public secondary school	Risk							[35]	
Higher student to teacher ratio	Not sig							[35]	
Higher student to school counselor ratio	Not sig							[35]	
Higher percent of students with single mothers	Not sig							[253, 287]	
Higher percent of minority students	Risk	[348]						[253, 438]	
	Not sig	[348]						[253, 287]	
Higher percent of students receiving free lunch	Risk							[253]	
	Not sig							[253, 287]	
Higher per capita funding for schools (federal, state, or local)	Not sig							[35]	
Higher school dropout rates	Risk								
	Not sig	[348]	[214]	[214]		[214]	[214]	[35, 214]	
Higher rates of school crime or lower levels of safety	Risk						[76]	[287]	
	Not sig							[287]	
Sex education in school	Protective	[172]				[258]			
	Risk	[213, 302]					[302]	[253, 287]	
	Not sig	[23, 172, 213, 282, 302]	[282]	[282]	[213, 241, 282, 365]	[213, 241, 330]	[23, 254, 302]	[163, 253, 256, 287]	
HIV/STD education in school	Protective	[213]	[212]	[156]	[156]				
	Not sig	[38, 213, 327]	[216]	[12, 216, 327, 433]	[12, 174, 213, 216, 327, 398, 433]	[213, 255, 327]	[327]		[156]
Contraception instruction in school	Protective	[36, 240]			[156, 263]	[258, 263]	[327]		
	Risk				[213]	[213]			
	Not sig	[55, 213, 327]	[212, 240]	[216, 327]	[216, 327]	[240, 255, 263, 327]			[156]
Condom distribution at school	Protective	[40]	[40, 282]	[282]	[40]				
	Risk					[40]			
	Not sig	[282]		[40]	[94, 282]		[40]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Family:									
Live with two parents	Protective	[5, 23, 24, 45, 54, 56, 63, 77, 85, 103, 107, 161, 169, 175, 220, 224, 238, 239, 242, 257, 275, 277-279, 289, 372]	[36, 212, 214, 223, 389]	[2, 81, 214]	[189]	[90, 254, 255, 258]	[19, 64, 76, 102, 189, 214, 233, 246, 253, 289, 333, 437]	[14, 193, 214, 253, 256, 287, 390, 438]	[375]
	Not sig	[24, 30, 37, 79, 103, 107, 169, 262, 268, 279, 340, 348, 405, 424]		[214, 226]	[56, 226, 241]	[55, 56, 64, 90, 103, 214, 226, 241, 254, 255, 257, 258, 288, 400]	[23, 64, 170, 214, 246, 333, 377, 390]	[22, 214, 253, 387, 395, 437]	[337, 405]
Parents cohabiting (unmarried)	Protective			[107]					
	Risk	[142]	[212]						
	Not sig	[107, 289, 405]		[107]			[289]		[405]
Live with parent and stepparent (vs. both parent)	Risk	[24, 175, 242, 274, 333, 404, 405, 424]				[258]	[316]	[438]	[337, 405]
	Not sig	[24, 37, 242, 432]			[241]	[175, 241]	[175]	[175]	[405]
Live with mother only or female-headed household	Risk	[104, 432]							
	Not sig	[104, 213, 274, 333, 432]	[379]	[379]	[294, 312]	[213, 379]	[316, 379]	[438]	
Live with father only	Risk	[432]						[438]	
	Not sig	[432]							
Live with one parent (vs. no parent)	Protective	[175, 326]			[203]			[438]	
	Not sig	[326]				[175]	[175]	[175]	
Other family structure or living situation	Protective	[326]							[405]
	Risk	[104, 424]						[387]	
	Not sig	[104, 326]				[64]	[64]		[405]
Not living with biological mother	Risk							[253]	
	Not sig							[253]	
Presence of mother in the home	Protective	[192, 405]							
	Not sig		[212]						[93, 405]
Presence of father in the home	Protective	[87, 108, 136, 405, 432]					[136]		
	Not sig	[87, 108, 432]							[93, 405]
Parents not together at time of teen's birth	Risk	[175]							
	Not sig	[432]				[175]	[175]	[175]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Family disruption (divorce, change to single-parent household or re-marriage)	Risk	[22, 68, 142, 279, 288, 432]		[22]			[142]	[431]	
	Not sig	[278, 279]	[22]				[102]	[256, 307, 395]	
Presence of a grandparent in the home	Protective							[14]	
Larger family size or greater number of siblings	Protective	[132, 213]				[139]			
	Risk	[30, 348]					[246]	[14, 253]	
	Not sig	[23, 63, 132, 213, 275, 293, 348]	[132]	[132]	[213]	[132, 213]	[23, 102, 246, 317]	[253, 387]	
Higher parental education	Protective	[2, 22, 36, 43, 54-56, 70, 85, 103, 104, 108, 148, 153, 161, 169, 192, 242, 257, 268, 270, 274, 276, 277, 279, 288, 351, 358, 361, 376, 383, 405]		[2, 22, 81]	[56, 183, 263, 294, 358]	[56, 132, 175, 257, 258, 263, 330, 417]	[32, 76, 102, 124, 170, 175, 246, 316, 333, 347, 434, 437]	[59, 175, 193, 256, 395, 438]	[405]
	Risk	[148, 153, 259]							
	Not sig	[22, 36, 37, 42, 43, 79, 87, 104, 108, 132, 161, 168, 169, 213, 242, 262, 268, 270, 274, 275, 279, 288, 289, 293, 320, 348, 357, 404]	[22, 132, 212, 304, 358]	[81, 358, 379]	[203, 213, 241, 358, 379]	[55, 64, 71, 103, 116, 132, 194, 213, 241, 254, 255, 258, 261, 288, 358, 379]	[32, 64, 246, 377, 379]	[22, 287, 289, 387, 437]	[190, 200, 405]
Higher parental job status	Not sig	[79, 405]					[434]		[405]
Higher income level or socio-economic status	Protective	[5, 24, 36, 45, 142, 148, 220, 224, 275, 338]		[22]	[426]	[6, 90]	[6, 19, 31, 102, 142, 214, 253, 333, 354]	[14, 22, 59, 253, 287, 307, 387, 438]	
	Risk	[148, 238]	[214, 216, 379, 389]	[214, 216, 379]	[271]	[226, 379]		[253]	
	Not sig	[22, 24, 54, 63, 68, 79, 103, 242, 257, 274, 278, 280, 282, 288, 289, 293, 333, 358, 404]	[22, 223, 280, 282, 354, 358]	[81, 226, 280, 282, 358, 379]	[216, 226, 241, 282, 312, 358, 365, 379, 398]	[64, 71, 90, 103, 116, 214, 226, 241, 257, 330, 358, 379, 400]	[64, 289, 325, 354, 379, 434]	[214, 253, 287, 390]	[69, 391]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Family owns home	Not sig	[22]	[22]	[22]				[395]	
Mother employed	Protective	[153, 175]					[175, 221, 437]		
	Risk	[36, 153, 175, 213, 293]		[271]	[271]		[175]	[193]	
	Not sig	[169, 213, 278, 293]			[213]	[175, 213, 330]	[246, 317]	[175, 193, 256, 437]	
Parents unemployed	Risk								[375]
Receipt of welfare (AFDC, TANF)	Protective						[96]		
	Risk	[22, 132]				[57]	[4]	[22, 435, 438]	
	Not sig	[132, 240, 257, 278, 289, 378]	[132, 214, 216, 240]	[132, 214, 216]	[216, 294]	[132, 214, 240, 257, 330]	[96, 214, 289, 377, 435]	[214]	[375]
Intergenerational receipt of welfare	Not sig	[288]							
Private health insurance	Protective	[23]					[23]		
	Not sig	[23]							
Public health insurance	Not sig	[23]				[330]			
Foreign language spoken at home	Protective	[357]					[246]		
	Not sig	[191, 213]			[213, 363]	[213]			
Lived outside the US	Not sig	[259]							
First or second generation US resident	Risk	[191]							
	Not sig	[23, 63, 402]					[23]		
Foreign-born	Protective	[405]							
	Not sig								[405]
Residential mobility	Protective							[175]	
	Risk	[175, 383]		[22]			[102, 175]		
	Not sig	[22]	[22]						
Greater family (or parental) religiosity or religious attendance	Protective	[22, 36, 257, 351, 383]		[216]					
	Not sig	[43, 268, 274]				[257]		[22]	
Parental religious denomination	Not sig	[257]							
More conservative family attitudes towards women	Risk	[108]							
	Not sig	[108]							
Greater family social support	Protective				[125]	[78]		[395]	
	Not sig	[78, 293]	[78]		[125]				
Family problem solving	Not sig				[125]		[434]		
Mother abused	Risk	[173]					[9]		
	Not sig			[173]					
Exposure to family conflict	Risk	[264]			[125]				
	Not sig				[125]			[395]	
Parental antisocial behavior	Not sig	[68]							
Incarcerated family member	Risk	[173]		[173]					
Household mental illness or depression	Risk	[173]		[173]					
	Not sig							[395]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Recent family suicide attempts	Risk	[331]							
	Not sig						[331]		
Higher parental educational or college expectations for teen	Protective							[163, 395]	
	Not sig						[434]	[163, 253, 287]	
Parental tobacco use	Risk	[424]							
Household substance abuse (alcohol or drugs)	Protective						[201]		
	Risk	[75, 173]	[250, 299]	[173, 250, 299]			[75]		
	Not sig	[278, 424]							
Parental lack of seatbelt use	Not sig	[424]							
Parental deviant behaviors as adolescents	Not sig	[293]							
Mother's age at first sex was older	Protective	[293]						[193]	
Mother's age at first birth was older	Protective	[2, 87, 148, 213, 257, 288, 423]	[216, 379]	[2, 216, 379]	[271, 379]		[221, 379]	[193, 256, 307, 395]	
	Not sig		[379]	[379]	[213, 379]	[213, 257, 379]	[379, 435]	[435]	
Mother was a teenage mother	Risk						[133]		
Single mothers' dating behaviors	Risk	[422]							
An older sibling who had sex	Risk	[131, 423]							
An older sister who gave birth as an adolescent or greater number of parenting sisters	Risk	[129, 130, 132]	[129]				[133]		
	Not sig	[57]	[132]	[132]		[132]			
Parental disapproval of teen or pre-marital sex or greater restrictive sexual attitudes	Protective	[24, 29, 43, 44, 107, 122, 123, 161, 183, 186, 238, 248, 268, 331, 339, 376, 422, 423]	[29, 122, 123, 185, 186, 281]	[281, 282]			[123]		[93]
	Not sig	[24, 29, 85, 262, 268, 274, 281, 282]	[282]	[107]	[281, 282]	[122, 123, 185, 194]	[185, 331]		[93, 200]
Parents would punish if discovered teens' sexual activity	Protective	[122, 191]							
Parental acceptance and support of contraception	Protective				[195, 426]	[185, 194, 241]			
	Risk	[331]	[185]				[331]		
	Not sig	[191]			[230, 241, 365]		[185]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Parental disapproval of early parenthood	Not sig	[191]							
Pregnancy would not embarrass family	Protective	[161]							
	Not sig	[161]				[122]			
Mother's perception that adolescent is in a steady relationship or is sexually active	Risk	[123]					[123]		
	Not sig					[123]			
Mother uncomfortable discussing sex	Not sig	[43, 268]							
Mother frequently discusses sex with teen	Risk	[107]							
	Not sig	[43]		[107]					
Mother recommends specific birth control	Not sig	[43, 268]							
Peer:									
Older age of peer group and close friends	Risk	[23, 73, 85, 87]							
	Not sig	[73, 262, 279]							
Close friends' closeness to parents	Protective	[23]							
	Not sig	[23]							
Greater number of friends or larger peer group	Risk	[73]							
	Not sig	[73]							
More peers of the opposite sex	Risk	[73]							
	Not sig	[73, 279, 293]							
Peers with poor grades and high non-normative behavior	Risk	[23]							
	Not sig						[23, 198]		
Friends with good grades and little non-normative behavior	Protective	[23, 73]					[23, 198]		
	Not sig	[73, 289]					[289]		
Peers with lower achievement orientation	Risk	[270]							
	Not sig	[270]							
Peers with positive attitudes about preventive health	Protective	[52]			[52]				
Peers who use tobacco	Risk	[252]							
Peers who drink alcohol	Risk	[44, 207, 210]				[210]		[210]	
	Not sig	[79]			[125]				
Peers who use drugs	Risk	[55, 78, 79, 424]	[78]						
	Not sig	[78]	[78]		[125]				[66]
Peers who sell drugs	Risk								[66]
Peers who engage in deviant behaviors	Risk	[23, 63, 282]		[282]			[360]		
	Not sig	[54, 68, 79, 89, 207]	[282]		[125, 282]		[272, 377]		[69]
Peers with permissive attitudes about sex	Risk	[33, 70, 238, 248, 259, 262, 331, 339, 383, 394]							
	Not sig	[33, 248, 372]							
Peers who believe it is better to initiate sex when older	Protective	[394]							

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Peers who believe it is okay to have sex with multiple partners	Risk			[21]					
Peers with pro-childbearing attitudes or behavior	Risk	[22, 240, 394]	[22]	[22]					
	Not sig	[384]	[240]		[384]	[240]			
Boys gain respect if sexually active	Protective	[207]							
	Risk	[207]							
Peers with later sexual debut	Protective	[419]		[419]					
Sexually active peers	Risk	[33, 39, 130, 207, 238-240, 248, 259, 279, 323, 339, 342, 345, 372, 383-385, 419]	[29, 240, 282]	[411, 419]	[78, 282, 411]	[78]			
	Not sig	[33, 78, 248, 282]	[78]	[282]	[384, 385]	[240]			
Peer norms opposing acquisition of an STD	Protective								[350]
Positive peer norms and support for condom use	Protective				[21, 99, 113, 115, 195, 336, 345, 363, 419]				
	Not sig				[134]				
Greater peer use of condoms	Protective	[384]			[94, 323, 384, 419]				
	Not sig	[384]			[62]				[425]
Positive peer norms and support for contraceptive use	Not sig					[194]			
Good friend(s) who have been pregnant or gotten someone pregnant	Risk						[154]		
	Not sig				[384]				
Good friend(s) who are teen mothers	Risk						[177]		
Partner:									
Having a partner the same age (vs. no partner)	Risk	[259]							
Partner has a higher level of education at first intercourse	Protective						[437]		
	Not sig							[437]	
Partner different race or ethnicity	Protective				[146]				
	Risk							[437]	
	Not sig				[215]	[145, 258]	[437]		[144,247]
Partner is African-American	Risk								[50]
	Not sig				[247]				[247]
Partner is Hispanic or Latino	Not sig								[50]
Partner is Asian-American	Not sig								[50]
Partner same religion	Protective						[437]		
	Not sig							[437]	
Partner is very religious	Not sig						[437]	[437]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Partner lives in different neighborhood	Protective				[146]				
	Not sig					[145]			[144]
Greater percentage of year living with partner	Protective				[271]				
	Risk		[271]						
Partner goes to different school	Risk				[146]	[145]			[144]
Having an older romantic or sexual partner	Protective				[213]	[213]			
	Risk	[192, 259]		[415]	[119, 145, 215, 258]	[35, 105, 254, 258, 417]	[2, 96, 105, 227, 437]	[2, 213]	[2, 26, 51, 92, 144, 391]
	Not sig				[209, 247, 315, 391, 418]	[254, 255, 258]	[347, 437]	[256, 437]	[66, 247]
Partner use or abuse of alcohol or illegal substances	Not sig				[205]				[190]
Higher risk status of partner	Risk			[138]	[215]				
	Not sig				[215, 249]				
Partner has STD	Risk								[292]
	Not sig				[391]				
Greater partner support for condom use	Protective				[195, 222, 249, 294, 308, 312, 349, 418]				[349]
	Not sig				[349]				
Greater partner support for contraceptive use	Protective					[294, 418, 423]			
	Not sig					[194, 417]			
Partner used contraception at first intercourse	Protective				[215]				
	Risk				[215]				
	Not sig				[215]				
Greater partner sexual experience	Risk				[213, 215]				
	Not sig				[215]				
Partner has multiple sex partners	Risk								[292]
	Not sig				[391]	[165]			[391]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Individual									
Biological:									
Being male (vs female)	Protective	[33, 257, 328, 368, 372]	[185, 321]		[12, 62, 115, 203, 206, 241, 336, 365, 369]	[123, 257]			[144, 200, 337, 350, 392, 405]
	Risk	[6, 30, 38, 45, 123, 207, 224, 231, 326, 340, 345, 357, 394, 405, 423]	[78, 112]	[2, 12, 22, 180, 280]	[145, 369]	[145, 185, 241]			[2]
	Not sig	[22, 24, 45, 85, 262, 410]	[22]	[328]	[335]	[254, 410]			
Higher testosterone levels in both genders	Risk	[162]							
Older age or higher grade level	Protective	[37, 142]		[182, 359]	[11, 215, 228, 426]	[6, 78, 103, 123, 185, 194, 261, 330, 358]			[232, 247]
	Risk	[2, 6, 23, 24, 33, 36-38, 54-56, 77, 78, 85, 103, 104, 123, 132, 148, 153, 161, 231, 239, 240, 242, 248, 274-276, 279, 280, 288, 289, 320, 326, 328, 333, 340, 345, 348, 358, 368, 383, 384, 394, 423]	[78, 112, 132, 185, 212, 214, 216, 223, 240, 280, 304, 305, 321, 354, 358]	[2, 12, 156, 180, 188, 214, 216, 280, 281, 321, 328, 334, 356, 407]	[12, 115, 156, 174, 216, 290, 294, 308, 312, 321, 329, 334, 358, 359, 369, 382, 398]	[90]	[4, 6, 23, 102, 105, 133, 158, 170, 214, 354, 381, 437]	[105, 214, 408]	[49, 350, 391, 403, 405]
	Not sig	[24, 54, 55, 104, 153, 196, 242, 259, 262, 268, 274, 279]	[36, 132, 304, 358]	[132, 188, 196, 226, 321, 328, 358, 359, 407]	[114, 145, 203, 215, 216, 226, 228, 241, 247, 261, 334, 335, 358, 370, 406]	[55, 57, 64, 90, 103, 132, 145, 214, 226, 240, 241]	[64, 123, 185, 325, 354]	[22, 188]	[49, 93, 109, 156, 200, 337, 405]
Older pubertal development and timing	Protective	[30, 63, 68, 77, 123, 143]							
	Not sig					[123]			

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Older age of menarche	Protective	[36, 37, 56, 142, 279, 288, 333, 348, 351]	[36]				[142]	[193]	
	Risk						[4]		
	Not sig	[259, 289, 293, 348]			[56]	[56]	[246, 289, 347]	[256]	
Greater physical maturity (appears older than most)	Risk	[46, 68, 123, 143, 161, 270, 331]	[185]				[123]		
	Not sig					[123, 185]	[46, 185, 331]		
Physically attractive	Risk	[161, 279]							
	Not sig	[161, 279]							
Physically disabled (minimally)	Risk	[77]							
Physically disabled (severely)	Not sig	[77]							
Race/Ethnicity:									
Non-Hispanic white	Protective	[240, 322, 358]	[216]	[216]	[12, 174]				[144]
	Risk			[12]	[290, 365]				
	Not sig	[33, 410]	[358]	[81, 358]	[216, 358, 370]	[64, 240, 358, 410]	[64]		
Ethnic minority (vs. white)	Protective	[77]							
	Risk	[77]							[93]
	Not sig	[23, 77, 85, 168]	[112]	[180, 226]	[114, 226, 228]	[226]	[23]		[109]
Black (vs. White)	Protective				[10, 156, 226, 241, 261, 294, 312, 359]	[226, 257, 261, 263]			
	Risk	[2, 38, 45, 103, 107, 153, 175, 192, 207, 224, 231, 257, 268, 275, 280, 293, 348, 357, 358, 368, 383, 394, 404, 405, 423]	[214, 216, 223, 280]	[12, 81, 107, 156, 180, 182, 214, 216, 226, 280, 356, 359, 369]	[113, 213]	[175, 213, 258]	[6, 23, 102, 175, 214, 325, 347, 354, 437]	[22, 59, 175, 214, 256, 287, 395, 438]	[49, 135, 144, 200, 232, 292, 337, 392, 403, 405]
	Not sig	[22, 153, 242, 262, 268, 274, 288, 293, 320, 410]	[22, 212, 223, 354]	[22, 81, 356]	[10, 145, 215, 216, 247, 263, 335, 359, 398]	[57, 103, 145, 214, 241, 254, 255, 330, 410]	[64, 333, 354]		[156, 247]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Black vs. Hispanic	Risk	[2]							
	Not sig				[352]				
Hispanic (vs. white)	Protective	[107, 161, 378, 405]						[14]	[405]
	Risk	[107]		[12, 156, 356, 359]	[12, 145, 215, 294, 335, 341]	[6, 90, 103, 146, 175, 254, 255, 258, 263]	[6, 64, 102, 175, 333, 347, 437]	[175, 287, 395]	[144, 292]
	Not sig	[24, 45, 103, 132, 175, 242, 257, 259, 262, 268, 274, 293, 368, 404]	[132, 214, 216]	[81, 132, 180, 182, 214, 216, 356, 359]	[156, 215, 216, 241, 261, 263, 312, 359, 398]	[57, 132, 214, 241, 254, 255, 257, 261]	[214, 325]	[214, 256, 438]	[156, 200, 403, 405]
Asian or Pacific Islander (vs. white)	Protective	[24, 181, 274, 405]							[405]
	Risk			[181]					[403]
	Not sig	[161, 328, 404]		[156, 181, 328]	[156, 181]	[57, 255]	[325]	[438]	[156, 232, 405]
Mixed or other ethnicity (vs. white)	Protective				[359]	[255]			
	Risk	[262]		[156, 359]		[254]	[214]	[214]	
	Not sig	[242, 274, 368, 405]	[214]	[214, 359]	[156, 263, 312, 359]	[214, 255, 263]	[325]		[156, 200, 405]
Greater acculturation by Hispanics	Protective	[259]							
	Risk	[145, 196]		[145, 196]			[196]		
	Not sig	[145, 259]			[145]				
Relationship with Family:									
Being a younger (rather than older) sibling	Protective							[253]	
	Risk	[169, 342, 423]							
	Not sig	[213, 288]			[213]	[213]		[253]	
Being a middle sibling	Risk	[213]				[213]			
	Not sig	[213]			[213]				
Higher quality of relationship with siblings	Not sig	[129]							
Having higher quality of family interactions, support of parents, connectedness	Protective	[23, 43, 63, 107, 186, 197, 248, 260, 279, 280, 331, 351, 376, 378]	[29, 112, 186, 223, 280, 354]	[280]	[203, 260]	[186]	[19, 23, 260, 360]	[395]	
	Not sig	[24, 107, 248, 260, 279, 402]	[29, 223, 389]	[107]	[94, 260, 363]		[260, 331, 354, 377]	[273, 390, 395]	[200, 337]
Greater amount of time spent with one or both parents	Not sig	[89]	[29]						
Greater parental-adolescent activities	Protective	[107]					[331]		
	Not sig	[107, 331]		[107]	[125]				

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Greater parent involvement in adolescent's education	Protective							[253]	
	Not sig	[277]						[253, 287, 438]	[337]
Greater general parental expectations	Not sig	[220]							
Greater parent influence	Risk	[148]							
Greater quality and level of mother-child interaction or relationship satisfaction	Protective	[107, 122, 123, 268, 289]	[122, 185]	[81, 107]		[122, 123, 185]	[123, 185]		
	Risk			[183]					
	Not sig	[43, 268]		[107]		[64]	[64, 289]		
Greater parental influence on personal decisions	Protective	[89]				[417]			
	Not sig	[79, 89]							
Greater compatibility between parent and peer expectations of adolescent	Protective	[89]							
	Not sig	[89]							
Greater companionship with an older sister (for females only)	Risk						[133]		
Greater parental monitoring or strictness (curfew in place)	Protective	[83, 85, 213, 288, 323, 346, 351, 376, 378, 421, 424]	[29, 78, 189, 281]	[126, 189, 281, 282]	[48, 281, 385]	[271]	[133]		[34, 83, 98, 425]
	Risk	[148]			[125]				
	Not sig	[22, 48, 63, 68, 78, 129, 213, 262, 270, 281, 282, 288, 340, 378, 385, 424]	[22, 29, 48, 78, 282]	[22]	[48, 125, 203, 213, 282, 346]	[213]	[96]	[193, 307]	[48, 69, 83, 337]
Greater parental contact with teen's friends or their parents	Protective	[43, 268]							
	Not sig	[268]	[22]		[22]			[287]	
Positive perception of parent monitoring	Protective			[118]	[118]	[18, 118]			[118]
Negotiated unsupervised time	Protective				[48]				
	Risk	[48]	[48]						
	Not sig				[48]				[48]
Perceived parental trust	Protective	[48]	[48]						
	Not sig	[48]	[48]		[48]				[48]
Greater conflict with parents	Risk	[39]							
General maltreatment by family	Risk	[378]					[221]		
	Not sig	[60, 378]					[60, 377]		
Verbal abuse	Risk	[173]		[173]					
Physical abuse	Risk	[142, 173, 374, 376]	[389]	[173, 374]	[374]		[9, 76, 142, 201, 374]		
	Not sig	[60]		[374]	[374]		[60, 347]	[395]	
Witnessed family violence	Risk			[411]	[411]				
Living away from parents	Risk								[171]
	Not sig				[11]				

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Homelessness	Risk				[10, 16]		[157]		[7]
	Not sig				[10]				
Running away from home	Risk	[172, 210]						[210]	
	Not sig	[172]				[57]		[390]	
Residing in shelter	Risk						[157]		
Greater general communication (between teen and parent/s)	Protective	[183, 197, 338, 385]	[281, 282]	[281]	[183, 385]	[410]			
	Not sig	[281, 282, 410]		[282]	[281, 282]			[287]	
Greater parent/child communication about sex and birth control (and/or pregnancy)	Protective	[129, 419]	[184, 282]	[419]	[116, 183, 230, 346, 419]	[71, 116, 240, 288, 330]	[4]	[193, 256]	
	Risk	[33, 78, 80, 186, 281, 423]	[78, 235, 281]	[80]			[80]		
	Not sig	[160, 240, 268, 281, 282, 346]	[29, 186, 240, 281]	[184, 281, 282]	[80, 282, 283, 419, 420]	[186, 240]	[160]	[193, 256]	[183, 425]
Greater parent/child communication about sex prior to sex	Protective	[80, 183]		[80]	[183, 283]	[80]			
	Risk						[80]		
	Not sig	[419]		[419]	[426]				[183]
Greater parent/child communication about STD and AIDS prevention	Protective		[184]	[180]					[101]
	Not sig			[184]	[398, 420]				
Greater belief that children should follow parents' rules about sexual behavior	Not sig		[29]						
Greater congruity of parent/child sexual values	Not sig		[235]						
Relationship with Community and Community Adults:									
Having a mentor	Protective	[410]		[27]					
	Not sig					[410]			
Involvement in community	Protective	[97, 172, 265, 343]				[97]			
	Not sig	[172, 410]			[97, 125]	[97, 410]			
Teen perceives that adults care about him/her	Protective								[93]
Witnessed community violence	Risk			[411]	[411]				
	Not sig				[94]				
Involvement in sports (non-school-related)	Risk	[172]							
	Not sig	[172]							
Received condom from outreach worker last month	Protective				[10]				
	Not sig				[10]				
People important to youth (parents, other adults, or peers) approve of contraception or condoms	Protective				[195, 222]				
Discussed HIV/AIDS with health service provider	Risk			[433]					
	Not sig			[433]					

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Attachment to and Success in School:									
Enrolled in school (vs dropped out of school)	Protective	[56, 333]				[105]	[253]	[253, 256]	
	Not sig				[11, 56, 203]		[333]	[253]	[391]
Expelled	Not sig					[258]			
Changed schools multiple times	Risk							[287]	
Greater school attendance	Protective	[172, 331]							
	Risk	[196]		[196]					
	Not sig	[30, 172]					[196, 331]		
Greater participation or involvement in school	Protective	[167]	[223]					[287, 438]	
	Not sig	[89]	[29, 223, 304]					[287]	
Greater participation in extracurricular activities (i.e., music, drama, clubs) or school sports	Protective	[161, 280]	[280, 354]	[280]				[287, 438]	
	Not sig	[24, 161, 280, 410]	[280, 354]	[280]	[125]	[410]	[354]	[287]	
Greater popularity in school	Protective	[24]							
	Not sig	[24]							
Greater educational investment	Not sig							[253]	
Greater connectedness to school	Protective	[22, 24, 33, 172, 265, 331, 376]							
	Not sig	[24, 172, 267]	[22]	[22]			[331]	[395]	
Greater perception that teachers are supportive or greater connection to teachers	Protective	[172, 267]							
	Not sig	[172]							
Positive attitude toward school	Protective		[223]				[316]	[317]	
	Not sig	[277, 293]	[223]						
Better educational performance	Protective	[2, 24, 30, 36, 46, 54, 73, 78, 85, 89, 107, 148, 161, 220, 224, 259, 277, 289, 326, 331, 357]	[112, 212, 304, 389]	[2, 107]	[125, 261, 382]	[258, 261]	[177, 253, 360, 377]	[14, 253, 287, 307, 387, 390, 395, 438]	
	Not sig	[63, 68, 73, 89, 259, 326, 378]	[235, 304]		[125]		[23, 46, 198, 289, 331]	[163, 287, 390]	
Behind in school or problems in school	Protective	[148]							
	Risk	[36, 55, 213, 262, 319]	[271]			[55, 214, 240]	[214, 390, 435]	[253, 287]	
	Not sig	[240]	[214, 216, 240, 379]	[214, 216, 379]	[213, 216, 379]	[57, 213, 240, 379]	[379]	[214, 253, 435]	
Either very high or very low intelligence scores	Protective	[161]							
Greater importance of academic achievement	Protective	[22, 78]	[78]						
	Not sig	[78, 89]	[78]					[22]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Higher educational aspirations	Protective	[208, 221,320, 348, 361, 378]	[223, 235]				[221, 253, 316, 377]	[163, 287, 387]	
	Not sig	[37, 168, 259, 282, 348, 378]	[22, 223, 282, 389]	[22, 282]	[282, 312]		[198, 434]	[287, 317, 395]	
Plans for higher education	Protective	[44, 161]						[253, 287]	
	Not sig	[172, 277]	[29, 304]					[253]	
Attachment to Faith Communities:									
Spiritual interconnectedness	Protective	[178]							
Greater importance of religion or frequency of prayer	Protective	[301, 424]				[301]			
	Not sig					[301]	[301]		
Having a religious affiliation	Protective	[2, 23, 46, 85, 107, 213, 331]		[107]	[216]			[193, 256]	
	Not sig	[54]	[216]	[216]	[241]	[64, 241]	[46, 64, 170, 331]	[163, 193, 253, 395]	[93]
More frequent attendance or greater religiosity	Protective	[22, 24, 36, 108, 161, 164, 169, 175, 212, 220, 240, 265, 266, 269, 274, 275, 279, 301, 331, 333, 348, 410]	[22, 112, 216, 235, 240, 386, 389]	[2, 284, 379]	[271, 379]	[175, 255, 284]	[301, 316]	[256, 287]	
	Risk		[212]						
	Not sig	[24, 30, 33, 37, 108, 148, 169, 172, 213, 262, 279, 282, 284, 293, 348]	[282, 379, 386]	[282, 379]	[213, 261, 266, 282, 312, 329]	[194, 213, 240, 255, 261, 301, 330, 379, 410]	[175, 246, 317, 379, 437]	[175, 256, 437]	
Attend same church as peers	Protective	[293]							
Having a conservative religious affiliation	Protective	[276, 416]		[216]					
	Not sig	[284]		[284]	[312]	[284]			
Protestant	Protective					[71, 116]			
	Risk						[23, 437]		
	Not sig	[30, 55, 424]				[55]			
Catholic	Protective	[424]							
	Risk	[37]			[56]				
	Not sig	[30, 55, 348, 424]	[216]	[216]	[216]	[55, 56, 71, 116, 288, 330]	[437]	[437]	
Baptist	Risk	[348]					[246]		
	Not sig	[55, 348]				[55]	[317, 437]	[437]	
Catholic, Protestant or Jewish (vs. other or none)	Protective	[56]			[263]	[263]	[246, 316]	[193]	
	Not sig	[169, 213, 275, 276, 333]			[56, 213, 263]	[56, 213, 263, 400]	[23]	[193]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Evangelical	Protective			[216]					
	Not sig		[216]		[216]				
Non-Christian	Not sig		[216]	[216]	[216]				
Relationships with Peers:									
Greater importance of friends or more peer influence on decisions	Risk	[79]							
	Not sig	[148, 376, 384]			[384]				
Having peer role models	Protective	[410]				[410]			
Greater peer support, bonding with peers or social activities with peers	Protective		[223, 265]						
	Risk	[52]	[223]						
	Not sig	[63, 73, 79, 372]			[52]				
Not being part of a peer group	Protective	[23]							
	Not sig				[363]	[64]	[64]		
Being popular with peers	Protective						[23]		
	Risk	[23, 88]						[287]	
	Not sig	[161]					[88]	[287]	
Greater importance of popularity	Risk	[270]							
	Not sig	[270]							
Difficulty talking with others	Not sig					[57]			
Membership in a gang or problems with gangs	Protective					[327]			
	Risk	[221, 412]		[237, 327, 412]	[237]		[237, 332, 412]	[395]	[237]
	Not sig	[327]		[327]	[94, 327, 412]	[57, 327]	[327, 412]		
Pressure from peers to engage in high-risk or deviant behaviors	Not sig		[389]						
Perceive more peer pressure to engage in sexual activity	Risk		[29]						
	Not sig	[384]	[29]		[384]				
Discuss sexuality with friends	Protective				[352]				
	Not sig	[160]					[160]		
Discuss contraception with friends	Not sig				[426]				
Discussed HIV/AIDS with friends	Protective			[180]	[174]				
Relationships with Romantic Partners:									
Dating alone	Risk	[270]							
Currently dating	Risk	[242, 274]				[241]			
	Not sig				[241]				
Greater frequency of dating	Risk	[279, 383]							
	Not sig	[279]							
Older age of onset of dating or having romantic relationships	Protective	[257]							
	Not sig			[439]		[330]			

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Having a romantic relationship, going steady with a boy/girlfriend, closeness of relationship with partner, long term relationship (>1 year)	Protective	[269]	[389]		[146]	[146, 194, 255, 258, 261]			
	Risk	[24, 43, 44, 73, 87, 161, 238, 239, 268, 320, 339, 361, 372, 376]	[185]		[249, 291, 391]				
	Not sig	[24, 73, 87, 238, 268, 339]			[149, 205, 209, 236, 261, 312, 315, 352, 418]	[28, 185, 194, 255, 258]	[185]	[256]	[391]
Having a greater number of romantic or sexual partners	Protective	[23]			[335, 382, 426]				
	Risk	[24]			[114, 147, 247, 312, 426]	[64, 255]	[23, 158, 310, 381]		[49, 66, 92, 144, 150, 200, 211, 232, 247, 292, 303, 337, 350, 391, 403]
	Not sig				[20, 21, 209, 215, 249, 335, 352, 418, 433]	[165, 255, 400]	[347, 435]	[307, 435]	[66, 190, 363, 391, 392, 413]
Importance of present relationship	Risk				[159]				
Social embeddedness of romantic relationship	Risk					[254]			
	Not sig	[24]				[254]			
Met partner as a stranger	Risk					[255]			
	Not sig					[255]			
Just friends with partner or liked partner	Risk					[254, 258]			
	Not sig					[254, 255]		[256]	
New sexual partner (within past few months)	Protective				[247]				
	Risk			[138]					[66]
	Not sig								[247, 425]
Newer relationship (<6 months)	Protective				[215, 236, 315, 391]	[254]			
	Risk				[146, 213]	[146, 213, 254, 258]			[292, 425]
	Not sig				[149, 215, 236, 315]	[254]	[325]		[66, 92]
Time between start of relationship and first sex	Protective					[254]			
	Not sig					[254]			

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Monogamous relationship	Protective				[147]	[417]			[200]
	Risk								
	Not sig				[315]				
Sex partner concurrency (self or partner)	Risk								[50]
	Not sig								[190]
Ever engaged	Risk		[271]	[271]	[271]	[271]			
	Not sig				[213]	[213, 258]			
Being married (or living with partner)	Protective			[196, 356]					
	Risk				[215, 398]		[6, 19, 32]	[6, 307]	
	Not sig	[196]					[196]		[413]
Greater emotional intimacy power in the relationship	Protective				[399]				
	Not sig				[399]				
Greater decision-making power in the relationship	Not sig				[399]				
Discuss sex with partner	Not sig	[160]			[94]	[400]	[160]		
Discuss sexual risk or history with partner	Protective				[16, 20, 99, 335, 352, 420]				
	Not sig								[66, 425]
Discuss STD/AIDS with partner	Protective				[113, 420]	[240]			
	Not sig				[236]				
Perceives partner to be HIV infected	Risk								[391]
Perceives (male) partner desires pregnancy	Risk						[96]		
	Not sig					[436]	[436]	[436]	
Discuss contraception or STD prevention with partner	Protective				[236, 418, 426]	[318, 400]			
	Not sig				[94, 315]				
Discuss contraception with partner before sex	Protective					[254]			
	Not sig					[254]			
Agree with partner about contraceptive method	Protective				[294]	[57]			
Experienced physical abuse by partner	Risk	[373]		[373, 433]	[373]	[255]	[373]		
	Not sig			[433]	[433]	[254, 255]			
Sexual Abuse and Violence:									
Experienced violence	Protective	[172]							
	Risk	[31]		[31]					[31]
	Not sig	[172]					[31]		
Experienced dating violence	Risk	[172]		[407]	[429]		[429]		[109, 429]
	Not sig	[172]							
Experienced sexual coercion	Risk	[259]		[300]					

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Experienced sexual abuse or forced sex	Risk	[53, 67, 75, 107, 142, 172, 173, 259, 278, 288, 327, 371, 374, 376, 388, 403]	[371]	[67, 107, 156, 173, 300, 327, 355, 371, 374, 388, 403, 407, 411, 433]	[156, 355, 371, 403, 411, 433]	[53, 74, 355, 388]	[9, 53, 75, 142, 310, 327, 355, 371, 388]		[67, 156, 337, 355, 403, 409]
	Not sig	[60, 67, 172, 371]	[389]	[67, 274, 371, 374, 433]	[67, 327, 374]	[57, 327]	[60, 67]	[256]	[274]
Experienced incest									
Greater severity of sexual abuse	Not sig						[347]		
Relationship to perpetrator	Risk						[347]		
	Not sig						[347]		
Healthful Behaviors:									
Greater participation in sports or exercise	Protective	[124, 217, 280, 353]	[280, 353, 354]	[217, 280]	[334, 353]	[151, 353]	[217, 353]	[353, 438]	[353]
	Risk							[353]	
	Not sig	[217, 280, 410]	[280]	[217, 280]	[334]	[410]	[124, 217] [354]		
Seat belt use	Protective					[151]			
Healthier diet	Protective					[151]			
Well-groomed	Not sig	[161]							
Good dental hygiene	Protective					[151]			
Greater involvement in other healthy behaviors	Protective	[140, 168]				[90, 139]			
	Not sig				[306]				
Problem or Risk-taking Behaviors:									
Belief that it is okay to break the law	Risk	[79]							
Greater impulsivity	Protective	[161]						[210]	
	Risk				[115]				
	Not sig				[94]				
Greater sensation seeking, reckless behavior or risk-taking	Risk	[85, 210]		[334, 406]	[334]	[13, 90]	[332, 381]	[210, 362]	
	Not sig	[37, 73, 262]		[334, 406]	[236, 334, 365]				
Greater general psychosocial conventionality	Protective	[79, 221]				[90]			
Greater involvement in general unconventional behavior	Risk	[89, 148, 348]	[282]	[282]		[151]			
	Not sig	[89, 288] [348]						[390]	[69]
Greater perception of parental disapproval of substance use	Not sig	[89]							

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Substance use (combined alcohol, tobacco, marijuana)	Protective						[196]		
	Risk	[52, 196, 348, 357, 368, 378, 393]	[29]	[196, 393]	[393]		[158, 360, 381]	[395]	[282, 393]
	Not sig	[348]	[29]		[52]			[307]	[391]
Tobacco use	Protective						[141, 142]		
	Risk	[168, 220, 231, 293, 326, 328, 338, 339, 424]	[321]	[182, 321, 328, 334, 369, 406]	[125, 321, 334, 433]	[194]	[32, 310, 381]		[232]
	Not sig	[37, 79, 168, 293, 327, 339]		[327, 328]	[125, 231, 243, 321, 327, 334, 433]	[194, 258, 327]	[327, 347]		
Alcohol use or abuse	Protective						[327]		
	Risk	[17, 33, 42, 89, 168, 207, 210, 220, 231, 282, 293, 297, 326, 328, 333, 376, 424]	[16, 251, 282, 321]	[17, 182, 282, 297, 328, 251, 327, 334, 356, 359, 369, 406, 433, 439]	[16, 20, 174, 251, 306, 334]	[151, 210]	[96, 201, 272, 381]	[210]	[86, 364]
	Not sig	[79, 89, 293, 327]		[128, 327] [433]	[114, 125, 205, 231, 243, 249, 321, 327, 335, 359, 363, 370, 433]	[327]	[32, 272]		[49, 51, 66, 337, 370]
Older age at first tobacco, alcohol, or substance use	Protective						[377]		
	Not sig	[108, 328]		[328, 369]	[369]				
Drinking while driving	Risk						[381]		
Substance use or abuse	Protective				[16, 327]				
	Risk	[68, 210, 220, 231, 238, 282, 297, 327, 328, 333, 368]	[16, 112, 282, 321]	[282, 297, 299, 321, 327, 328, 356, 359, 369, 407, 433]	[16, 20, 174, 205] [206, 234, 306, 321, 334, 369] [243, 359, 433]	[151]	[4, 96, 141, 327, 360, 381]		[25, 49, 51, 92, 171, 202, 234]
	Not sig	[89]		[128, 356, 359, 433]	[16, 114, 125, 231, 249, 282, 321, 334, 335, 363, 370, 433]	[165, 327]	[327]	[390]	[66, 190] [171, 370]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Problems because of substance use or received treatment for substance use	Risk	[172, 210]							
	Not sig	[172]							
Sharing needles	Not sig				[20]				
Greater involvement in delinquent or problem behaviors	Risk	[68, 85, 111, 129, 168, 204, 221, 322, 348, 424]	[112, 282, 389]	[282, 334]	[62, 306]		[96, 198, 310, 360]	[163, 390]	[92]
	Not sig	[168, 172, 262, 279, 282, 293, 348]			[282]		[204]	[307, 390]	
Prior involvement in problem behaviors	Risk	[63]							
Physical fighting	Risk	[84, 168, 279, 327, 368]		[182, 327, 407]			[96, 327, 332, 381]		
	Not sig	[168, 207, 279, 327]							
Carrying weapons	Risk	[84, 327, 368]		[327, 407]			[310]		
	Not sig	[327]			[327]	[327]	[327]		
Hostility or aggression	Risk	[88]		[334, 406]			[362]	[273]	[362]
	Not sig			[406]	[334]		[88, 272]	[390]	
Previous aggression (as a child)	Risk						[272]		
Greater risk of unintentional injury	Risk						[332]		
Ever arrested or placed in juvenile detention	Not sig			[396]	[396]				
Multiple admissions to a detention facility	Not sig				[205]				
Other Behaviors									
Paid work or employed more than 20 hours/week	Risk	[46, 331, 333]	[214, 379]	[214, 379]	[271, 379]		[214]	[214]	
	Not sig	[383]	[379]	[379]	[379]	[57, 194, 214, 379]	[46, 331, 379]	[438]	[413]
Higher work or occupational aspirations	Protective	[108, 333, 434]						[387]	
	Not sig	[22, 191]					[317]	[22]	
Volunteer (unpaid work)	Protective	[210]						[210]	
Greater average wage	Risk		[271]	[271]					
Has a driver's license	Not sig								[93]
TV or video game viewing	Not sig			[406]					
Viewing TV shows with sexual content (depicting behaviors, discussion about sex or risks)	Risk	[61, 85]							
	Not sig	[85]							
Viewing x-rated movies	Risk		[427]	[427]		[427]			[427]
Listening to music with degrading sexual lyrics	Risk	[262]							
Listening to music with non-degrading sexual lyrics	Not sig	[262]							
Greater time spent listening to music	Risk	[262]							

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
General Skills and Personality Traits:									
Higher level of cognitive development	Protective	[140, 348]				[64, 179, 254, 255]	[64]	[367]	
	Not sig	[348]			[306, 365]	[255]		[367]	
Makes responsible choices	Not sig	[410]				[410]			
Greater problem-solving skills	Protective	[161]				[139]			
More sociable or outgoing or socially at ease	Risk	[63]							
	Not sig			[411]	[411]				
More future orientation	Protective	[410]							
	Not sig	[129, 293]				[410]			
Greater egocentrism	Protective					[179]			
Opinions more influenced by others	Not sig	[37]							
Emotional Well-Being and Distress									
Higher self-esteem, self-image, self-concept	Protective	[108, 357, 380, 414]			[138, 282]	[139, 179, 379]	[32, 317]	[210]	
	Risk	[172, 380]		[271, 379]					
	Not sig	[24, 30, 108, 153, 172, 191, 242, 282, 376]	[235, 282, 379, 389]	[282]	[65, 306, 312, 370]	[64, 194, 379]	[23, 32, 64, 379]	[317, 387, 395]	[171, 370, 425]
Greater general emotional well-being	Protective	[172]							
	Not sig	[85, 220, 262, 278, 293]			[306]				
Greater life satisfaction or optimism about the future	Risk	[172]							
	Not sig	[168, 172]			[65]				
Greater dissatisfaction with body image or perceives self as being overweight	Protective	[172]							
	Risk				[428]				
	Not sig	[172, 428]			[428]				
Bulimic or engaged in extreme dieting methods	Risk	[172]		[298]					
	Not sig	[172]							
Greater feeling of failure	Risk					[210]		[210]	
Greater internal locus of control	Protective		[271, 379]		[271, 379, 382]		[316, 434]	[163, 210]	
	Risk	[108]							
	Not sig	[108]	[379]	[379]	[312]	[379]	[379]	[317, 387]	
Greater impulse control and self-control	Protective				[115, 382]				
	Not sig				[205]				
Higher decision-making autonomy	Risk	[161]							
Hyperactivity or ADHD	Not sig							[390]	
Greater perceived risk of untimely death	Risk	[46, 161, 331]							
	Not sig	[161]					[46, 331]		
Greater level of stress or anxiety	Protective	[68, 88]							
	Risk	[168, 172]		[138]					
	Not sig	[161, 172]					[88]		[171]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Concern about job prospects	Risk	[376]							
Greater feelings of sadness or hopelessness	Risk								[344]
	Not sig			[182, 344]	[344]		[344]		[344]
Depression or depressive symptoms	Protective	[210]					[299]		
	Risk	[88, 210, 242, 378]		[226, 244]	[226, 344, 370]	[210, 226, 244]		[210, 273]	[344, 370]
	Not sig	[168, 270, 378]		[226, 344]	[370]	[57]	[88, 344, 377]	[390, 395]	[171, 370]
Suicide thoughts	Protective			[344]		[327]			
	Risk	[30, 220, 327]							
	Not sig	[327]		[327, 344]	[327, 344]		[327, 344]		[344]
Suicide attempts	Risk	[172]					[310]		
	Not sig	[172]							
Receipt of help for emotional or mental problems	Protective	[172]							
	Risk	[210]						[210]	
	Not sig	[172]							
More social support	Protective								
	Not sig	[52]			[52]				[171]
Conduct disorder	Risk			[47]					
	Not sig							[390]	
Personality disorder	Risk			[225]					
Beliefs and Attitudes about Gender Roles:									
More stereotypical gender roles	Protective	[196]	[271]	[271]	[271]		[316]		
	Risk	[148, 153]		[313]	[261, 313]	[210, 261]		[387]	
	Not sig			[196]	[312]		[196]	[317]	
Greater perceived male responsibility for pregnancy prevention	Protective				[236, 294, 312-314]	[271, 379]			
	Not sig		[379]	[379]	[311]	[379]	[379]		
Knowledge, Beliefs, Attitudes and Skills Regarding Sex									
Greater sexual knowledge	Protective								
	Not sig	[30]	[188]	[188]				[188]	
Greater knowledge about fertility cycle	Protective					[330]			
Older ideal age to initiate intercourse	Protective	[240, 394]	[240]						
	Not sig					[240]			
Believe is mature enough for sexual relationship	Risk	[122]	[122]						
	Not sig					[122]			
Believe ought to be in love to have sex	Protective	[122]	[122]						
	Not sig					[122]			
More permissive attitudes toward premarital sex	Risk	[42, 70, 148, 219, 239, 240, 276, 394, 422]	[29, 188, 212, 240]	[188, 271]	[271]		[4]		
	Not sig	[191]				[240]		[188]	

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Believe premarital sex is okay if plan to marry	Protective		[212]						
Teen sex or premarital sex is against personal beliefs (waiting until married to have sex)	Protective	[42, 191]							
	Not sig	[122]	[122]			[122]			
Greater use of rationalizations for sexual behavior	Not sig		[29]						
More perceived personal benefits of abstaining from sex	Protective	[121, 357]							
More perceived personal and social benefits (than costs) of having sex	Risk	[104, 121, 274, 339]	[29]						
	Not sig	[33, 104, 121]	[122]			[122]			
More positive perceived norms about sex	Risk	[121]							
Belief that boys gain respect if they have sex	Risk	[207]							
Belief that boys lose respect if they have sex	Protective	[207]							
Belief that boy/girlfriend would lose respect if have sex	Not sig		[122]			[122]			
Belief that one will gain respect from peers for having sex	Risk	[372]							
Desire to have friends believe respondent is a virgin	Protective	[384]							
	Risk				[384]				
Greater feelings of guilt if sexually active	Protective	[104, 122, 339, 384]							
	Not sig	[33, 104, 191, 262]			[384]	[122]			
Regrets over previous sexual behavior	Not sig					[122]			[93]
Greater self-efficacy to refrain from sex	Protective	[78, 199, 338, 339]		[21]	[121]				
	Not sig	[70, 78, 121, 262, 384]	[78]		[384]				
Greater resistance skills	Protective	[213, 295]	[216]	[216]					
	Not sig				[216]				
Greater erotophilia	Risk		[95]						
Greater enjoyment of sex (“sex feels good”)	Not sig		[95]						
Greater cognitive susceptibility to initiate sexual intercourse	Risk	[218]							
Belief that alcohol or substance use enhances social or sexual situations	Not sig								[337]
Greater intention to have sex	Protective				[291]				
	Risk	[207]		[21]					
	Not sig	[262]							
Pledge of virginity	Protective	[24, 46, 331]							
	Risk					[24, 254]			
	Not sig	[24]				[254]	[46, 331]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Beliefs and Attitudes about Number of Sexual Partners									
More conservative attitudes and norms toward number of sexual partners	Protective			[21, 72]					
Perception that monogamy will not reduce STD risk	Risk								[49]
Beliefs and Attitudes about Condoms and Contraception									
Stronger belief that condoms are effective in reducing STD/HIV or pregnancy	Protective				[114, 174]				[66]
	Not sig				[134, 249, 294, 312, 384]				
Stronger belief that condoms do not reduce pleasure	Protective		[95]		[174, 294, 308, 311-313, 349, 382]				
	Not sig				[384]				
Greater value of or perception of partner appreciation of condom use	Protective				[228, 294, 311-313]				
	Not sig				[65, 312]				
More positive attitudes toward condoms and other forms of contraception	Protective				[21, 205, 206] [249, 261, 329] [65, 174, 228, 336]	[64, 179, 261, 417, 436]	[436]		
	Not sig		[188]	[188]	[134, 222, 228, 306]			[188, 436]	[49, 92]
Greater embarrassment to use condom	Risk				[174, 294, 312]				
	Not sig	[42]			[311-313]				
Greater embarrassment to buy birth control	Protective	[240]	[240]						
	Not sig	[42]				[240]			
Lower perceived barriers or costs of using condoms	Protective	[357]			[99, 114, 121]	[240]			
	Not sig								[120, 425]
Greater perceived accessibility of condoms	Protective	[357]			[249]				
	Not sig				[349]				

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Greater perceived self-efficacy in using condoms or contraception	Protective				[52, 78, 115, 121, 134, 159, 195, 199, 241, 308, 329, 336, 365, 384]	[241]		[436]	
	Risk								[200]
	Not sig	[52, 78]	[78]		[329]	[436]	[436]		[413, 425]
Greater perceived skills for using condoms	Not sig				[195]				[49]
Greater self-efficacy to demand condom use	Protective				[21, 115, 249]				
	Not sig								[425]
Greater intention to use condoms	Protective				[21, 62, 65, 94, 176]	[3]			
	Not sig								[49]
Greater knowledge about condoms or contraception	Protective				[329, 426]	[179]			
	Risk	[240]							
	Not sig		[240]		[195, 329]	[240]			[413]
Greater perceived than actual condom use knowledge	Risk				[341]				
Perception of positive side effects of oral contraceptives	Protective					[417]			
Perception of negative side effects of oral contraceptives	Not sig					[417]			
Greater perceived effectiveness of oral contraception	Protective					[240]			
	Not sig	[240]	[240]			[240]			
Greater comfort and satisfaction with contraceptive method	Protective					[57]			
Greater motivation to use condoms or contraception	Protective				[16, 294, 365]				
Greater intention to use contraception	Protective	[339]				[3]			
Knowledge, Beliefs, and Attitudes about Pregnancy, Abortion and Childbearing:									
Older ideal age for marriage	Protective								
	Risk	[37]							
	Not sig	[129]							
Greater desire for marriage	Not sig		[223]						
Belief that marriage is not an easy solution to pregnancy	Protective					[271, 379]			
	Risk		[271, 379]				[379]		
	Not sig		[379]	[379]	[379]	[379]	[379]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Belief that causing a pregnancy was a sign of manhood	Protective				[261, 294]				
	Risk						[332]		
	Not sig				[261, 311, 313]				
Greater embarrassment if pregnant	Protective	[161]							
	Not sig	[104]							
Greater knowledge about pregnancy avoidance	Not sig					[64]	[64]		
Greater perceived negative consequences of pregnancy	Protective	[45] [124]	[122, 271]	[271]	[271, 312, 365]	[122, 271]	[46, 187, 331]		
	Not sig	[46, 122, 331, 338, 384]	[122]		[222, 384]	[64, 122]	[64]		
Greater ambivalence about pregnancy	Risk					[64]	[64]		
Greater perceived pregnancy risk if contraception not used	Not sig	[33]			[365]				
Greater desire to get pregnant	Risk					[106, 436]		[436]	
	Not sig		[95]		[106]	[106]	[96, 436]		
Greater importance of avoiding pregnancy	Protective				[222, 306]	[417, 436]			
	Not sig	[191]			[311, 426]	[194]			
Greater worry about pregnancy	Protective								
	Not sig	[42]							
Older ideal age for first birth	Protective	[37, 240, 394]				[240]			
	Risk	[37]							
	Not sig	[129]	[240]			[240, 330]			
Greater desire to have a child or ambivalent about having one	Risk	[240]	[240]					[435, 436]	
	Not sig		[223]			[240]	[435]		
Support premarital childbearing (for self)	Not sig	[22, 129]	[22]	[22]					
Belief that adolescents are not good parents	Not sig	[240]	[240]			[240]			
Expect to have at least one child	Protective					[261]			
	Not sig					[261]			
Greater perceived ease of childbearing and parenting	Risk	[401]				[401]	[177]		
More positive attitudes towards (teen) childbearing	Risk	[338]							
	Not sig	[338, 384]			[384]	[64]	[64]		
More responsible paternity attitudes	Not sig				[261]	[261]			
Intention to have and support baby if became pregnant	Protective			[271]	[271]	[271]			
	Risk		[212]						
Intention to keep baby if became pregnant	Protective	[240]	[240]			[330]			
	Not sig					[240]			
Would consider adoption as a resolution for unplanned pregnancy	Not sig		[212]						
More positive attitudes towards abortion	Protective							[436]	
More permissive attitudes about abortion	Risk		[212]						
	Not sig					[436]	[436]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Beliefs and Attitudes about STD and HIV/AIDS:									
Greater knowledge about HIV/AIDS/STD	Protective			[12, 180]	[12, 216, 363]				[120]
	Risk				[205, 206, 290]				
	Not sig	[52, 282, 345]	[216, 282]	[128, 216, 282]	[114, 282, 306, 336, 345]				[49, 171]
Knowing someone with HIV/AIDS	Protective				[174, 335]				
	Risk				[10]				
	Not sig				[10]				
Greater perceived risk or concern about STD/HIV	Protective	[33, 384]	[282]	[282]	[134, 159, 174, 294] [329]	[13]			
	Risk	[52, 357]		[216]	[10]				[171, 350, 413]
	Not sig	[42, 122, 191, 282, 384]	[122, 216]	[137]	[10, 11, 20, 52, 134, 137, 216, 282, 294, 311, 312, 329, 336, 363, 365, 384]	[122]			[49, 200, 425]
Greater perceived STD risk due to partner's sexual history	Not sig				[228]				
Greater denial about HIV/AIDS or discounting of risk of HIV/AIDS	Risk				[311, 312]				
	Not sig				[312]				
Greater perception that mother would be upset if respondent contracted an STD	Protective	[384]							
	Not sig				[384]				
Greater general worry about AIDS	Protective				[216, 294, 312]		[299]		
	Risk	[168]	[216]	[216]					
	Not sig	[52, 168]			[20, 52, 236, 311, 363, 365]				[425]
Greater worry about friends contracting STD/AIDS	Protective				[20]				
	Not sig								
Greater motivation to avoid STD/AIDS	Protective				[216, 290, 306, 384]				[350]
	Not sig		[216]	[216]	[222, 306]				

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Greater self-efficacy for STD/AIDS prevention	Protective				[52, 249]				
	Not sig	[52]		[128]	[114, 363]				[49]
Discussed AIDS with their physician	Protective				[174]				
Discussed AIDS with others	Protective				[174]				
More negative attitudes toward people with AIDS	Risk				[52]				
	Not sig	[52]							
Belief that contracting HIV is one's own fault	Not sig				[20]				
Greater perception that peers do not support STD/AIDS prevention	Not sig								[49]
Sex-Related Behaviors:									
Identifies as homosexual or bi-sexual (vs. hetero)	Not sig				[11]				
Same-sex attraction or behavior (GLB)	Protective	[331]			[249]				
	Risk	[41, 46, 285, 331]	[285]	[41, 82, 107, 156, 226, 327]	[156]		[41, 327]		[25, 156]
	Not sig	[327]		[107, 226]	[226, 327]	[226, 327]	[46, 331]		[391, 413]
Ever kissed or necked	Risk	[45, 148, 268]							
Engagement in noncoital sexual behaviors	Risk	[262]							
Sexually active (currently or ever)	Risk		[304]		[241]			[324]	
	Not sig					[241]			
Older age at first sex	Protective			[128, 299, 356, 369, 415, 433]	[159, 263, 294, 311, 312] [215, 369, 433]	[139, 258, 263, 288, 322]	[23, 201, 299, 347, 377, 381, 437]	[193, 256] [378, 387, 395]	[183, 211] [403, 405, 413]
	Risk				[335]	[255]			
	Not sig		[95]	[369]	[114, 215, 365, 370, 433]	[254, 257]	[96, 435]	[435]	[66, 92, 190] [370, 405, 413]
Greater number of years being sexually active	Protective						[170]		
	Risk			[369]	[16, 369]	[330]	[46, 331]		[50, 391]
	Not sig	[331]			[365]	[64, 330, 400]	[64, 170]		
Greater frequency of sex	Protective					[194]			
	Risk				[115, 149, 215, 418]		[154, 354, 435]	[435]	[211]
	Not sig				[215, 352]	[194, 330, 417]			[51, 307]
Greater wantedness of first sex	Protective					[1]			
Unprotected intercourse	Risk								[120, 425]
	Not sig								[120]
Unprotected intercourse with multiple partners	Risk								[120]
Greater sexual risk-taking in general	Not sig				[236]		[347]		

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Greater acceptance of own sexual behavior	Protective								
	Not sig					[400]			
Intention to avoid sex with strangers	Protective								
Use of alcohol or drugs before sex	Risk			[321, 359]	[181, 321, 365]				[120, 337]
	Not sig			[433]	[359, 433]	[57]			[66, 200, 363, 403]
Greater number of visits to a family planning clinic	Protective					[58]			
Carry condoms	Protective				[10, 174, 382]				
	Not sig				[10, 117]				[117]
Previous use of condoms	Protective				[134, 149, 215, 349, 366, 382]		[158, 170]		[183, 292, 303, 364, 366, 413]
	Not sig			[366]	[215]				
Regular use of condoms	Protective							[307]	[69, 120, 150, 303, 363]
	Not sig			[128]					[51, 66, 152, 337, 413]
Previous use of contraception	Protective					[255, 261, 417]	[19, 23, 177, 331]		
	Not sig					[255]			
Regular use of contraception	Protective						[64, 141, 325]		[50, 211, 391]
	Not sig		[95]		[306]				[66]
Effective contraception or condom use at first or last sex	Protective				[283, 365, 382]		[46, 154, 170, 175, 310, 331, 347]	[193]	
	Risk								[200]
	Not sig	[331]		[182]	[365]			[256]	[200, 247, 392, 403, 413]
Use of contraception other than condom	Risk				[291]				
Use of hormonal contraceptive	Protective						[170, 325]		[292]
	Risk				[312, 352]				[232]
	Not sig				[94, 315, 418]				[93]
Use of implant method of contraception	Protective					[165]			
Oral intercourse (ever had or age at first experience)	Risk								
	Not sig								[49, 391]

Risk and Protective Factors	Protective factor, risk factor or not significant	Initiation of sex	Frequency of sex or sex during specified time	# of Partners	Use of condoms	Use of contraception	Pregnancy or Impregnation	Child-bearing	STD
Anal intercourse (ever had or age at first experience)	Risk								[171]
	Not sig								[49, 391]
Unprotected anal intercourse	Risk			[127]					
Exchanged sex for money, drugs, needs or survival sex (prostitution)	Protective				[11, 335]				
	Risk				[10]				[413]
	Not sig				[10, 11, 335]		[347]		
Sex with intravenous drug user	Not sig				[335, 391]				[49, 391]
Sex with HIV-positive partner	Risk								[391]
	Not sig				[391]				[49]
Pregnancy and STD Status:									
Previous pregnancy scare	Protective					[305]			
Previous pregnancy or impregnation	Protective					[155, 305]			
	Risk		[95]	[158]	[11, 94, 158, 261, 426]	[57, 90, 139, 261]	[64] [325]		[49, 158, 292]
	Not sig				[352]	[64, 90, 165, 330, 400]			[66, 92, 171]
Prior miscarriage	Risk								
Previous abortion	Protective					[417]			
	Not sig					[330]			[171]
Greater number of children	Risk								[413]
Older age at birth of first child (for respondent who already has a child)	Protective						[154]		
Been tested for HIV	Protective				[11]				
	Not sig				[11]	[57]			
Any STD history	Protective				[352]				
	Risk								[34, 120]
	Not sig				[94, 365, 426]	[165]	[325]		[66, 92, 120, 392]
History of recent STD	Protective								
	Risk				[247]		[158]		[93, 150, 303, 413, 425]
	Not sig				[149]	[57]			[66, 152, 247, 337]
HIV positive	Protective				[28]				
	Not sig				[11]				

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