Although not coming from a particularly Christian world view, this is an excellent article and one well worth reading on both the severity and significance of teenage sexual behavior as well as how to work with teenagers who are acting our sexually. Combining some of the insights in this article with a Biblical basis for behavior and change could possibly prove most helpful.

Helping Hearts Heal

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Risky Adolescent Sexual Behavior: A Psychological Perspective for Primary Care Clinicians

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Topics in Advanced Practice Nursing eJournal 4(1), 2004.

Posted 01/30/2004

Abstract and Introduction

Abstract

The majority of older adolescents in North America are sexually active, yet many do not take appropriate precautions to prevent pregnancy or the spread of sexually transmitted infections. This article discusses several ways to conceptualize, assess, and manage risky sexual behavior in adolescents from a psychological perspective. Adolescents, like adults, may be prone to engaging in risky sexual behavior due to perceptions of personal invulnerability and their tendency to focus on the immediate, rather than long-term, consequences of their behavior. Mentally ill adolescents may be particularly at risk and warrant special consideration. Specific clinical recommendations for assessing and managing risky sexual behavior are discussed. These include maintaining an empathic stance toward the adolescent, supporting the autonomy of the adolescent, identifying and owning one's own values, familiarizing oneself with available resources, and referring to mental health practitioners when appropriate.

Introduction

Adolescents routinely engage in behaviors that put their health at risk. Risky sexual behaviors are of particular concern to advanced practice nurses (APNs) and other primary care clinicians in that they can lead to serious consequences both for the adolescent involved and for any number of unseen partners. Clinicians are faced with 3 challenges: (1) how to understand this behavior, (2) how to identify risky sexual behavior in the adolescent patient, and (3) what to do about it. This article will review some ways of conceptualizing adolescent risk behavior and some tips for assessment and change.

Scope of Problem

The majority of adolescents aged 15 to19 years in Canada and the United States report having had sexual intercourse at least once. In addition, 23.9% and 45.5% of adolescent females from Canada and the United States, respectively, report having had 2 or more sexual partners in the past year. Likewise, 32.1% of Canadian males in this age group report having had 2 or more partners, while 50.8% of American males report the same.[1]

Why should clinicians care about risky sexual behaviors in adolescents? Issues of morality and religion aside (which are important but beyond the scope of this paper), one good medical reason why this issue is important is that risky sexual behaviors increase the likelihood of contracting a sexually transmitted infection (STI). In the United States, for example, approximately 15 million new STIs occur annually,[2] and many of these new infections are among adolescents. Even nonfatal STIs, such as chlamydia, are associated with adverse outcomes including ectopic pregnancies and infertility.[3] Human papilloma virus, the virus that causes genital warts, has been associated with the development of cervical cancer.[3] The mere presence of an STI directly increases the likelihood of transmission of HIV infection,[4] an infection that adolescents and young adults are at increased risk for contracting.[5]

In Canada and the United States, the rate of syphilis among 15 to 19 year olds is 0.6 and 6.4 per 100,000, respectively.[6] More recent surveillance data suggest that there has been a rise in the rate of syphilis in this age group.[2] In this same age group, gonorrhea rates are 59.4 and 571.8 per 100,000 for Canada and the United States, respectively; chlamydia rates are 563.3 and 1131.6 per 100,000, respectively.[6]

In addition to the risk of STIs, the risk of unplanned pregnancy increases with frequency of unprotected sexual intercourse. Estimates have suggested that approximately 40% of adolescent American women (aged 15 to 19 years) become pregnant before age 20 years,[7] and most of these pregnancies are unintended.[8] Although more recent estimates suggest that rates have dropped to 35%,[9] the rates of teen pregnancy are still substantially higher in Canada and the United States than in other Western industrialized countries like France, Germany, and Sweden.[10]

It is clear that sexual activity (including sexual intercourse) is common among adolescents, and many of the behaviors that they engage in put them at risk for contracting STIs and experiencing unwanted pregnancy.

Defining Risky Sexual Behaviors

Risky sexual behavior can be defined in a number of ways. The most obvious way is according to the behavior itself: unprotected vaginal, oral, or anal intercourse. A second way would be to refer to the nature of the partner: HIV-positive individual, intravenous drug user, or nonexclusive partner.

Risky sexual behavior can take several forms, ranging from a large number of sexual partners, or engaging in risky sexual activities, to sexual intercourse under the influence of substances such as alcohol or cocaine. However, it may be difficult for the clinician to discern that these activities are occurring, especially since the adolescent is unlikely to volunteer this information. Instead, this behavior is often identified through the diagnosis of an STI or pregnancy.

Treating STIs can be frustrating for the clinician. It is not uncommon for adolescents to be treated on multiple occasions for STIs, even after they have been counseled to use protection or to abstain from sexual activity completely. It is easy, at this point, for the clinician to assume that the adolescent is unmotivated to change their behavior. However, there are other ways of understanding their behavior.

Understanding Risky Sexual Behavior in Adolescents

To understand some of the difficulties inherent in promoting safer sexual practices (or even abstinence) among adolescents, it is helpful to become familiar with cognitive and interpersonal factors that figure prominently in adolescents' perceptions of themselves and the world. Although there are developmentally acquired cognitive capacities that have implications for the ability of children to envision the future and to understand consequences for their behavior, these are usually developed prior to adolescence.[7]

Simply put, children arrive at adolescence with the capacity to make "rational" choices. Nonetheless, adolescents frequently make risky choices that do not appear to be in line with appropriately considered consequences or are not in their own long-range interests. There are a number of cognitive biases that are influential for adolescents in much the same way they are for adults. (A cognitive bias can be defined as a way of thinking that distorts incoming information, such as information about personal risk or anticipated consequences).

Contrary to popular belief, there is significant evidence that adults and adolescents do not differ in the degree to which they perceive personal risk for negative events such as unintended pregnancy or contracting STIs.[11-13] Adolescents -- like adults -- perceive themselves as less vulnerable to STIs and unintended pregnancy than others around them.

Perceptions of Personal Vulnerability

Several studies[14-17] have shown that people in general -- adolescents included -- routinely make incorrect judgments that they are at less risk for adverse life events than others around them. For instance, Burger and Burns[18] demonstrated that sexually active young women rated themselves as less vulnerable than others for unintentional pregnancy, and the magnitude of this "illusion of invulnerability" was related to contraception use: those women who reported highest levels of invulnerability were less likely to use effective methods of birth control. Moreover, these tendencies to underestimate personal risk seem remarkably resistant to change.[17]

Formally known as "unrealistic optimism," this cognitive bias has been demonstrated in ages ranging from early adolescence[19] through adulthood.[14,15] The pervasive nature of this bias may partially explain why risky sexual behaviors are distressingly prevalent among adolescents in North America, even in the presence of knowledge about the potentially devastating consequences of these behaviors.

It is not true that adolescents are not aware that certain sexual behaviors are dangerous -- indeed one might speculate that knowledge levels are higher today than in the past, in part due to the individual- and population-level educational campaigns that have been launched by healthcare and public health professionals. High rates of risky sexual behavior may instead be indicative of deficits in perceptions of personal vulnerability. In short, adolescents may consider unprotected sexual intercourse as dangerous in general, but not for *them* in particular. Why? Because they, like adults, underestimate their own risk for adverse consequences.[16,17]

Temporal Influences on Risky Behavior

In addition to skewed perceptions of personal vulnerability, adolescents may also have a limited capacity to understand the connection between present actions and later outcomes, or they simply may not place great value on these longer-range outcomes.[20] Young adults and adolescents who are more oriented to the here-and-now are less likely to engage in health protective behaviors and are more likely to engage in risky health behaviors.[20,21]

Applying this logic to condom usage, it may be that adolescents are not fully mindful of the negative long-range consequences of unprotected sexual intercourse at the time that they make decisions about sexual behavior (eg, whether or not to use a condom). Instead, they may be strongly influenced by the more immediate, anticipated positive consequences of engaging in unprotected intercourse, such as enhanced physical sensation and feelings of spontaneity. In short, immediate consequences of engaging in risky sexual behavior may momentarily outweigh negative long-term consequences of doing so, and this may lead adolescents to choose risky behaviors based on anticipated immediate consequences, even in the presence of negative long-term consequences. Thus, the tendency to focus on immediate consequences of actions may be a recipe for risky sexual behavior.

In addition, it may be the case that adolescents simply value the more immediate consequences of unprotected sexual intercourse more than the long-term consequences. Thus, adolescents may fully appreciate the fact that their continued engagement in unprotected sexual intercourse may result in eventual contraction of an STI, but they place so much value in the aesthetic experience of engaging in the act (eg, pleasurable sensations, feelings of self-worth) that its positive valence far outweighs the negative valence of the future consequence (eg, risk of STI contraction or unwanted pregnancy).

This set of values, biased toward the appreciation of the here-and-now to the exclusion of all else, is likely to enable risky sexual behavior. Moreover, such behaviors are only

"risky" with respect to the long-term negative consequences (eg, death, in the case of HIV); they are a virtual "sure thing" with respect to the positive immediate consequences (eg, sexual gratification).

Relationships and Risky Sex in Adolescence

Adolescence is a time when relationships with peers become more influential.[22-24] Not surprisingly, reviews of the literature by Kirby[25] have concluded that normative influences of peers are significant for adolescent sexual behavior, particularly when the adolescent has strong attachments to the group from which the norm is emanating. Parents are also influential: adolescents whose parents adopt a more authoritative style of parenting (characterized by monitoring of behavior and support) have lower rates of risk-taking behavior than those who are neglectful or overcontrolling.[26]

Adolescence has also been described as a time for identity formation.[27] Differentiation, the developmental task of developing one's own unique identity as separate from one's parents, is facilitated if the adolescent is allowed to adopt his/her own opinions while still feeling connected to meaningful others.[28] Both parents and clinicians have the opportunity to influence the progress along this developmental path, and clinicians may want to be mindful of the necessity of allowing adolescent patients the ability to differ in opinion from them, while maintaining a positive connection with them. In order for this to occur, a nonjudgmental approach that facilitates autonomy in the adolescent is likely to be useful.

Understanding Behavior Change

A number of relational factors are also relevant to facilitating behavior change in the adolescent patient. One such set of variables includes: (1) the need for self-determination, and (2) perceptions of autonomy. As will become evident, the communication style of the clinician is directly relevant to this discussion.

Deci and Ryan[29] have identified a number of important dimensions of intrapersonal (within the person) and interpersonal (between people) factors that have the potential to facilitate or inhibit behavior change. To the extent that the job of a health professional can be seen as involving efforts to induce behavior change -- such as reduction in sexually promiscuous behavior and/or encouraging the use of condoms -- the concept of *intrinsic* vs *extrinsic* motivation is relevant.

Self-determination theory[29,30] suggests that individuals are more motivated to make and sustain behavior change when they perceive that they are doing it for internal (eg, personally held values) rather than for external reasons (eg, pressure from family, friends, caregivers). Any clinician can likely recall instances of trying to work with individuals who are intrinsically vs extrinsically motivated. From these recollections, it may become apparent that those who truly value changes internally are more likely to overcome inevitable obstacles to behavior change than those patients who are "doing it because (my wife, my husband, my doctor/nurse) wants me to."

What can the primary care practitioner do to support intrinsic vs extrinsic motivation? The answer is simple: a great deal! Interactions with a clinician that an adolescent perceives as being coercive could potentially lead to the scenario where the adolescent believes that they are changing behaviors for the sake of someone else; conversely, clinicians who try to appeal to an adolescent's *own* reasons for changing (rather than espousing *their* reasons) are more likely to meet with success in facilitating behavior change. This approach of appealing to the adolescent's own reasons could be termed "autonomy supportive" based on the premise that there is recognition of the adolescent's need for self-determination. A key intervention strategy when dealing with adolescents, then, is to maximize autonomy support.

As was aptly pointed out by Nettina,[31] healthcare professionals vary in their communication style, with some being more controlling than others. These individual differences in communication style, according to self-determination theory, will have some implications for how intrinsically or extrinsically motivated an individual may feel to change their behavior. This may be particularly true of adolescents, given that they are sometimes exquisitely sensitive to signs that their freedom is being limited by adults.

Respect for the autonomy of the adolescent is of paramount importance. Although often desired by adults, adolescent behavior often cannot be controlled. When possible, clinicians should be encouraged to respect adolescent decisions and collaborate with adolescents in decision making, rather than forcing adult decisions on adolescents. They, like adults, have the right to make their own choices and will do so regardless of the thoughts of others on the matter. Efforts to forcefully exert control are usually unsuccessful and risk damaging the clinician/patient relationship, thus rendering future efforts even more futile.

Identification of Risky Sexual Behavior

Assessment of risky sexual behavior is somewhat challenging, particularly when adolescents are involved. Measurement of behavior usually relies on verbal reports, which can suffer from a number of biases, both intentional and unintentional.

Sexual behavior is a sensitive topic that many adolescents find difficult to discuss with adults. Clinicians can facilitate such discussions by adopting a nonjudgmental attitude toward the adolescent. Many adolescents are concerned that adults may strongly disapprove of their behavior, even if the same behavior is condoned among their group of peers.[22,23] Furthermore, sexual behavior is a sensitive topic to some clinicians, and they too may be uncomfortable exploring it with adolescents. Either of these barriers can hamper the flow of accurate information about the status of adolescents' sexual behavior.

Not all barriers are incidental. Adolescents may actively construct barriers that make it difficult to accurately identify risky sexual behavior. For example, adolescents may be reluctant to disclose sexual activity to a clinician because of concerns about the implications of the admission for them. They may, for instance, be fearful that their sexual behavior will be reported to their parents or to others they know. It may be helpful

in these cases to make clear to the adolescent the limits of confidentiality and what they can expect with respect to information sharing.

Identification of Mental Illness

Mental illness can figure prominently in the appearance of promiscuous sexual behavior in adolescents and warrants careful consideration. Red flags might include behavior that is out of character (eg, a normally conservative and well-behaved adolescent starts to engage in excessive and dangerous sexual activity), or reports from the adolescent that they feel "out of control" with respect to the behavior (eg, they say that they want to stop, but feel that they cannot despite their most concerted efforts).

A comprehensive review of 66 relevant studies concluded that mentally ill adolescents engage in more risky sexual behaviors than their nonmentally ill counterparts.[32] Compared with adolescents in the general population, those who have been hospitalized in a psychiatric facility report less frequent condom use and more frequent sexual activity, along with a higher lifetime prevalence of pregnancy and STIs.[33] This elevated risk is likely due to the complex interaction of social, family, peer, and environmental influences.

While the causal links are not entirely clear, it appears that for the majority of youths with an STI and a psychiatric illness, the diagnosis of the psychiatric illness precedes the diagnosis of the STI. One study conducted in Washington demonstrated that while 85% of their sample of HIV-positive adolescents had a current psychiatric disorder, 53% had received psychiatric diagnoses *prior* to their treatment at the clinic. Furthermore, 50% had a documented history of sexual abuse and 82% had a history of substance abuse.[34]

There is some evidence to suggest that different psychiatric diagnoses may be differentially related to risk behavior. Adolescents with a history of externalizing behavior, including substance use and conduct disorder, tend to be younger at first intercourse, have a larger number of sexual partners, and use condoms less often when they engage in intercourse.[35] Antisocial, dependent, and paranoid personality disorders are also associated with high-risk sexual behavior in adolescents, especially in females, even after concurrent psychiatric disorders are controlled.[36]

Depression can also be a risk factor for risky sexual behavior. Analyses conducted on the National Longitudinal Survey of Adolescent Health data found that among boys, depressive symptoms were associated with a decreased likelihood of condom use, while among girls, depressive symptoms were associated with a history of STIs.[37] This relationship is often found even at a preclinical level; feelings of depression and stress in the general adolescent population are associated with the nonuse of birth control.[38]

There are a multitude of explanations for the paradoxic finding that dramatically different symptom profiles can result in similar outcomes. Depressed adolescents, for example, often experience feelings of hopelessness and lowered self-esteem, which may make them less likely to engage in self-protective behavior. Youths with conduct disorder have

a "double whammy" in the sense that not only are there individual risk elements, like cognitive deficits (eg, impaired judgment, problem-solving difficulties, problems with risk assessment, impulsivity, self-destructive tendencies, and affective instability),[39] but these adolescents are likely to be involved with peers who condone risky behavior, which is an important mediating factor.[40]

Substance abuse, in particular, can play a significant role in the etiology of both voluntary and involuntary sexual behavior among adolescents; the two are highly likely to occur together.[37] With respect to the latter, some adolescents who abuse substances -- both illegal "hard" drugs like cocaine, heroine, and PCP, as well as legally attainable or "softer" drugs, like alcohol and marijuana -- may frequently find themselves in compromising situations where it is more likely that they will engage in risky sexual behaviors (eg, unprotected sexual intercourse with others) or be the victim of unwanted sexual advances from others (eg, during acute intoxication). With respect to the former, a few adolescents may engage in sexual behavior for the sake of procuring drugs or money to buy them. As uncomfortable and, perhaps, rare this scenario may be, it must be considered.

Changing Risky Sexual Behavior: Advice for the Clinician

The research literature offers a number of direct implications for how clinicians may want to manage their interactions when encountering adolescents who they suspect are engaging in risky sexual behaviors.

- **Be empathic first and foremost**. It is extraordinarily difficult for adolescents to behave in ways that adults deem to be "rational" given the number of cognitive biases at work; indeed, our own behavior as adults could be described as similarly "irrational" at times. Frustration would be a natural emotional response for the clinician when an adolescent fails to follow through on a commitment to stop having unprotected sexual intercourse. However, frustration can also be taken as an internal cue signaling that there has been a failure of empathy. Taking the perspective of the patient (ie, understanding the nature of the cognitive biases at work) will help to reduce the frustration of the clinician and set the stage for a more positive relationship that may be conducive to disclosure about risky sexual behaviors, and ultimately encourage positive behavior change.
- **Support autonomy when possible**. Adolescents, by definition, are not yet adults. For this reason, clinicians (like parents) may feel obliged to make decisions for them and implore them to change behaviors that they find unacceptable. The common experience of those who try this directive approach is that it generally does not work. Adolescents have a difficult enough time making rational decisions without motivations being unduly influenced by their need to assert their budding autonomy by doing exactly the opposite of what is recommended by authority figures. Numerous studies support the contention that perceived autonomy is conducive to healthy behavioral practices.[38,41-43]
- **Identify and own your values**. It is important for all health professionals working with an adolescent to both identify their own values/attitudes toward

sexual behavior, and to take ownership of them. These values should be differentiated from the values owned by the adolescent. Attempts to impose one's values and attitudes are likely to result in frustration for the clinician and no change in behavior on the part of the adolescent (or perhaps even an increase in motivation to perform the very behavior that is disdained by the clinician). Asking adolescents about their values is a good starting point. Some adolescents believe that adults are not interested in what they value in their life; asking them in an in-depth and interested way about their values is an opportunity for clinicians to demonstrate that they are different from other adults who have not done this. It is fine to value abstinence, for example, and to convey this to an adolescent patient; however, one should not do this in a way that makes the adolescent feel coerced.

- **Familiarize yourself with available resources**. Because of their "front line" position, clinicians are in an ideal position to refer patients to existing programs that may be of assistance to adolescents in community, school, or hospital settings. It is helpful, then, for a clinician to become familiar with the available resources in any given community to enable appropriate referrals. Some communities may have resources that specifically address the needs of adolescents who engage in risky sexual behavior. However, there are several structured programs that could be implemented by clinicians themselves in many different settings, from hospitals to community settings. For a concise review of the effective components of programs to prevent pregnancy and STIs, see Kirby.[25] For Internet resources, see Table.
- **Refer to mental health practitioners as appropriate**. Promiscuity is sometimes indicative of something more complex than a simple, isolated behavioral tendency. Sexual behavior characterized by large numbers of partners, increased frequency of sexual behavior, and repeatedly engaging in sexual behaviors in unsafe environments may be a sign of an underlying psychiatric disorder such as attention deficit disorder, conduct disorder, bipolar disorder, or personality disorder. High-risk sexual behavior may also stem from a history of sexual abuse. If, through questioning, a clinician comes across information indicating that any of these issues figure into the clinical presentation, referral to a mental health professional is necessary. By treating the underlying disorder, risky sexual behavior may be reduced or discontinued in some cases.

Summary

One of the most important things to remember regarding adolescent sexual behavior is that it is not inherently negative, but rather a natural reflection of adolescents' physical and social development. Some have argued that construing adolescent sexual behavior in terms of health "risk" is not helpful for truly understanding this important aspect of human development.[44]

Within the health and illness framework, however, much important research has examined the nature of risk and protective factors for STIs and pregnancy. Kirby,[25] for example, has identified many factors associated with the likelihood of adolescent pregnancy on a family and community level. Several of the factors that he identified in

his exhaustive review were clarity of norms espoused by family, friends, communities, and institutions within those communities (eg, schools, churches). When adolescents are provided with clear norms against unprotected sexual intercourse, for instance, typically reduces the likelihood that an adolescent will engage in unprotected sex. The influence of norms is enhanced under conditions when the norms are consistent (eg, parents and schools presented similar messages around normative behavior) and when the adolescent feels connected to the source of the normative information.

In addition to the identification of risk and protective factors, Kirby[25] identified several characteristics of interventions that effectively reduce the risk of unwanted pregnancy among teenagers. Some of the identified factors include interventions that are theoretically empirically grounded and gave a clear and reinforced message about condom use, provided risk information coupled with information regarding how to avoid risk, included activities to address social pressure to engage in risky sexual behavior, and modeled communication, negotiation, and refusal skills, among others. In short, many effective programs to reduce adolescent risk are available at the community level, and APNs should involve themselves in spearheading or participating in existing community-based initiatives of this kind.

In this article, we have taken the approach of focusing on the individual adolescent and on the interaction between the clinician and the patient. On this level of analysis, understanding the perspective of the adolescent patient is imperative. Likewise, attention to the interpersonal context of risk communication is necessary as well. In an effort to declare clear norms around sexual behavior, be respectful of the autonomy of the adolescent to whom the norms are being conveyed.

Final Comment

In the domain of parenting research, it has long been understood that parents who are (1) clear about rules around acceptable behavior but (2) accepting and responsive to the child are likely to raise children who are more psychologically healthy and socially competent.[45] This parenting style characterized by clear structure and high responsiveness is known as the "authoritative" parenting style. This contrasts with parents who are "permissive" in parenting style (low expectations; high responsiveness), parents who are "authoritarian" in parenting style (high expectations; low responsiveness), or parents altogether unengaged (low expectations; low responsiveness).

Although both authoritative and authoritarian parents are likely to be clear about their values and beliefs about acceptable and unacceptable behavior, the authoritarian parent is more likely to engage in efforts to control the behavior of the child through psychological techniques (eg, guilt, shame, coercion). Authoritative parents, on the other hand, are clear about their values and beliefs, but do not attempt to engage in psychological control. It may be increasingly important as children move into their teen years for parents to be respectful (even encouraging) of autonomy, given that an important developmental task for the adolescent is to achieve individuation from the parent.[45]

Like the authoritative parent, it is important for the clinician to simultaneously communicate clear norms for appropriate sexual behavior and to respect the budding autonomy of the adolescent. Likewise, it is helpful for the clinician to be mindful and understanding of the natural biases in thinking that come into play for adolescents when making judgments about personal risk for STIs and unwanted pregnancy. These are difficult tasks, to be sure. Nonetheless, this is the fine line that the clinician must walk to be an influential figure in the lives of adolescents who engage in sexual behaviors that put their health at risk.

Tables

Table. Internet-Based Resources for Parents, Teens, and Primary Care Practitioners

Resources in the United States

- Information for teens, parents, and professionals on teen pregnancy: http://www.teenpregnancy.org/
- Program resources for STI prevention: http://webtecc.etr.org/programservices/programs/
- Adolescent awareness and reproductive education foundation: http://www.awarefoundation.org/
- American Public Health Association youth resources: http://www.youthresource.com/
- American Social Health Association's information on STIs in adolescents: http://www.iwannaknow.org/

Resources in Canada

- STI information and resources: http://www.hc-sc.gc.ca/english/diseases/std.html http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/std-mts/pdf/sti_e.pdf
- Society of Obstetricians and Gynecologists of Canada: http://www.sexualityandu.ca/
- Information regarding use of contraceptives: http://www.hc-sc.gc.ca/english/iyh/products/condoms.html
- Communication and sexuality: http://www.hc-sc.gc.ca/english/feature/magazine/2001_05/sex.htm

References

1. Darroch JE, Susheela S, Frost JJ, the Study Team. Differences in teenage pregnancy rates among five developed countries: the roles of sexual activity and contraceptive use. Fam Plann Perspect. 2001;33:244-250. Abstract
2. Centres for Disease Control and Prevention: Sexually Transmitted Disease Surveillance. Atlanta, Ga: Department of Health and Human Services; 2003.

3. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. MMWR Morb Mortal Wkly Rep. 2002;51(RR-6):1-78.
4. Flemming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. Sex Transm Infect. 1999;75:3-15. Abstract
5. Rosenberg PS, Biggar RJ. Trends in HIV incidence among young adults in the United States. J Am Med Assoc. 1998;279:1894-1899.
6. Panchaud C, Susheela S, Feivelson D, Darroch JE. Sexually transmitted diseases among adolescents in developed countries. Fam Plann Perspect. 2000;32:24-32. Abstract
7. Zelazo PD, Carter A, Reznick S, Frye D. Early development of executive function: a problem solving framework. 1997;1:198-226.
8. Henshaw SK. Unintended pregnancy in the United States. Fam Plann Perspect. 1998;30:24-29. Abstract
9. Hamilton BE, Martin JA, Sutton PD. Births: preliminary data for 2002. Natl Vital Stat Rep. 2003;51:11.
10. Singh S, Darrach J. Adolescent pregnancy and childbearing: levels and trends in developed countries. Fam Plann Perspect. 2000;32:14-23. Abstract
11. Cauffman E, Steinberg L, Woolard J. Age differences in psychosocial capacities underlying competence to stand trial. Program and abstracts of the Biennial Meetings for the Society for Research on Adolescence; April 11-14, 2002; New Orleans, Louisiana.
12. Quadrel MJ, Fischhoff BD, Davis W. Adolescent (in)vulnerability. Am Psychol. 1993;48:102-116. Abstract
13. Byrnes JP. Changing view on the nature and prevention of adolescent risk taking. In: Romer D, ed. Reducing Adolescent Risk: Toward an Integrated Approach. Thousand Oaks, Calif: Sage Publications; 2003:11-17.
14. Weinstein ND. Unrealistic optimism about future life events. J Pers Soc Psychol. 1980;39:806-820.
15. Weinstein ND. Unrealistic optimism about susceptibility to health problems: conclusions from a community-wide sample. J Behav Med. 1987;10:481-500. Abstract
16. Weinstein ND. Accuracy of smokers' risk perceptions. Ann Behav Med. 1998;20:135-140. Abstract
17. Weinstein ND, Klein WM. Resistance of personal risk perceptions to debiasing interventions. Health Psychol. 1995;14:132-140. Abstract
18. Burger JM, Burns L. The illusion of unique invulnerability and the use of effective contraception. Pers Soc Psychol Bull. 1988;14:264-270.
19. Whalen CK, Henker B, O'Neil R, Hollingshead J, Holman A, Moore B. Optimism in children's judgments of health and environmental risks. Health Psychol. 1994;13:319-325. Abstract
20. Hall PA, Fong GT. The effects of a brief time perspective intervention for increasing physical activity among young adults. Psychol Health. 2003;18:685-706.

21. Fong GT, Hall PA. Time perspective: a potentially important construct for decreasing health risk behaviors among adolescents. In: Romer D, ed. Reducing Adolescent Risk: Toward an Integrated Approach. Thousand Oaks, Calif: Sage Publications; 2003:106-112.
22. Rubin KH, Bukowski W, Parker J. Peer interactions, relationships, and groups. In: Damon W, Eisenberg N, eds. Handbook of Child Psychology: Vol. 3. Social, emotional, and personality development. 5th ed. New York: Wiley; 1998:619-700.
23. Harris JR. Where is the child's environment? A group socialization theory of development. Psychol Rev. 1995;102:458-489.
24. Harris JR. The nurture assumption: why children turn out the way they do. New York: Free Press; 1998.
25. Kirby D. Risk and protective factors affecting teen pregnancy and the effectiveness of programs designed to address them. In: Romer D, ed. Reducing Adolescent Risk: Toward an Integrated Approach. Thousand Oaks, Calif: Sage Publications; 2003:265-283.
26. Steinberg L, Fletcher A, Darling N. Parental monitoring and peer influences on adolescent substance use. Pediatrics. 1994;93:1060-1064. Abstract
27. Marcia JE. Identity in adolescence. In: Anderson J, ed. Handbook of Adolescent Psychology. New York: Wiley; 1980:159-187.
28. Holmbeck GN, Paikoff RL, Brooks-Gunn J. Parenting adolescents. In: Bornstein MH ed. Handbook of Parenting, Volume 1, Children & Parenting. Mahwah, NJ: Erlbaum; 1995:91-118.
29. Deci EL, Ryan RM. Intrinsic motivation and self-determination theory in human behavior. New York: Plenum; 1985.
30. Deci EL, Ryan RM, ed. Handbook of Self-Determination Research. St Louis, Mo: University of Rochester Press; 2002.
31. Nettina S. A challenge to improve communication and meet patients' needs. Topics in Advanced Practice Nursing eJournal [serial online]. 2003;3:4. Available at: http://www.medscape.com/viewarticle/462346. Accessed November 27, 2003.
32. Brown LK, Danovsky MB, Lourie KJ, DiClemente RJ, Ponton LE. Adolescents with psychiatric disorders and the risk of HIV. J Am Acad Child Adolesc Psychiatry. 1997;36:1609-1617. Abstract
33. DiClemente RJ, Ponton LE. HIV-related risk behaviors among psychiatrically hospitalized adolescents and school-based adolescents. Am J Psychiatry. 1993;150:324-325. Abstract
34. Pao M, Lyon M, D'Angelo LJ, Schuman WB, Tipnis T, Mrazek DA. Psychiatric diagnoses in adolescents seropositive for the human immunodeficiency virus. Arch Pediatr Adolesc Med. 2000;154:240-244. Abstract
35. Morris RE, Baker CJ, Valentine M, Pennisi AJ. Variations in HIV risk behaviors of incarcerated juveniles during a four-year period: 1989-1992. J Adolesc Health. 1998;23:39-48. Abstract
36. Lavan H, Johnson JG. The association between axis I and II psychiatric symptoms and high-risk sexual behavior during adolescence. J Personal Disord. 2002;16:73-94. Abstract

37. Millstein SG, Moscicki AB, Broering JM. Female adolescents at high, moderate, and low risk of exposure to HIV: differences in knowledge, beliefs, and behavior. J Adolesc Health. 1994;15:133-141. Abstract
38. Williams GC, Gagnýý M, Ryan RM, Deci EL. Facilitating autonomous motivation for smoking cessation. Health Psychol. 2002;21:40-50. Abstract
39. Smith MD. HIV risk in adolescents with severe mental illness: literature review. J Adolesc Health. 2001;29:320-329. Abstract
40. Donenburg GR, Emerson E, Bryant, FB, Wilson H, Weber-Shifrin E. Understanding AIDS-Risk behavior among adolescents in psychiatric care: Links to psychopathology and peer relationships. J Am Acad Child Adolesc Psychiatry. 2001;40:642-653. Abstract
41. Williams GC, Deci EL. Activating patients for smoking cessation through physician autonomy support. Med Care. 2001;39:813-823. Abstract
42. Williams GC, Cox EM, Kouides R, Deci EL. Presenting the facts about smoking to adolescents: The effects of an autonomy supportive style. Arch Pediatr Adolesc Med. 1999;153:959-964. Abstract
43. Williams GC, Rodin GC, Ryan RM, Grolnick WS, Deci EL. Autonomous regulation and adherence to long-term medical regimens in adult outpatients. Health Psychol. 1998;17:269-276. Abstract
44. Fortenberry JD. Adolescent sex and the rhetoric of risk. In: Romer D, ed. Reducing Adolescent Risk: Toward an Integrated Approach. Thousand Oaks, Calif: Sage Publications; 2003:293-300.
45. Baumrind D. The influence of parenting style on adolescent competence and substance use. J Early Adolesc. 1991;11:56-95.

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Disclosure: Dr. Hall has no significant financial interests to disclose and he reports no discussion of any investigational or unlabeled uses of commercial products in this activity.

Disclosure: Ms. Holmqvist has no significant financial interests to disclose she reports no discussion of investigational or unlabeled uses of commercial products in this activity.

Disclosure: Mr. Sherry has no significant financial interests to disclose and he reports no discussion of any investigational or unlabeled uses of commercial products in this activity.
