A RISK ASSESSMENT TOOL FOR SCREENING FEMALE ADOLESCENTS PERCEPTION OF RISK FOR, KNOWLEDGE OF, AND LIKELIHOOD OF ACTION TO PREVENT SEXUALLY TRANSMITTED DISEASES

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ABSTRACT

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Adolescents are at higher risk of acquiring a sexually transmitted disease (STD) than any other age group. Data on the prevalence of STDs among adolescents indicates that the highest rates occur in younger adolescent females. A variety of unique factors contribute to the higher risk of STDs in the female adolescent population. Among these factors are biological vulnerability, cognitive and psychosocial factors, inadequate knowledge about the symptoms of STDs and the asymptomatic nature of some infections. The purpose of this scholarly project was to develop a screening tool that can be used in a primary care setting to assess female adolescents' perception of risk for, knowledge of, and likelihood of taking action to prevent STDs. The Health Belief Model (HBM) was the conceptual framework utilized in this scholarly project. The questions developed for the risk assessment tools were derived from a review of the literature and encompassed the specific health beliefs of the HBM: perceived susceptibility, perceived severity, perceived benefits and perceived barriers. Information obtained from this scholarly project can assist the APN (Advanced Practice Nurse) in determining if the female adolescent has risk factors for acquiring an STD based upon perceptions of her own personal risk for and knowledge of STDs.

This project is lovingly dedicated to my husband, Robert, who has inspired, supported and encouraged me to do my best.

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INTRODUCTION

The purpose of this scholarly project was to develop a screening tool that can be used in a primary care setting to assess female adolescents' perception of risk for, knowledge of and likelihood of taking action to prevent sexually transmitted diseases. Adolescents are at higher risk of acquiring a sexually transmitted disease (STD) than any other age group (Townsend, 1996). A variety of unique factors contribute to the increased risk of STDs in adolescents. Among these factors are biological vulnerability, such as extension of columnar epithelium to the exocervix; behavioral aspects, such as risk taking; cognitive and psychological factors, such as perceived lack of risk; and inadequate knowledge about the symptoms of STDs and the asymptomatic nature of some infections (Biro, Rosenthal & Stanbery, 1994; Cates 1991; MacDonald, Wells & Fisher, 1990)

Background of Problem

To change behaviors that put adolescents at risk for HIV infection or STDs or to maintain safe behavior adolescents must perceive that they could become infected (Janz & Becker, 1984). Furthermore, even though adolescents are developing the cognitive abilities to perceive health risks accurately, some observers believe that adolescents often do not weigh the relevant risks in making decisions. (Office of Technology Assessment [OTA], 1991). Even though many adolescents worry about getting infected with a STD, they like adults, may be more concerned about satisfying needs (e.g., peer acceptance,

having a sexual relationship, being attractive to members of the opposite sex) than about preventing possible HIV or STD infection (OTA, 1991).

Sexually transmitted diseases are hidden epidemics of tremendous health and economic consequences in the United States (Institute of Medicine [IOM], 1996). They are hidden from public view because many Americans are reluctant to address sexual health issues in an open way and because of the biological and social factors associated with these diseases. In addition, the scope, impact, and consequences of STDs are under recognized by the public and health care professionals (IOM, 1996).

Of the top ten most frequently reported diseases in 1995 in the United States, five are STDs (IOM, 1996). Rates of curable STDs in the United States are the highest in the developed world and are higher than in some developing regions (IOM, 1996). Approximately 12 million new cases of STDs occur annually, and 3 million of these occur among adolescents (Centers for Disease Control [CDC], 1993). The estimated annual direct and indirect costs of selected major STDs are approximately $10 billion or, if sexually transmitted HIV infections are included, $17 billion (IOM, 1996). Along with the human suffering associated with STDs, this cost is shared by all Americans through higher health care costs and taxes. STDs represent a growing threat to the nation's health, it affects all people in every aspect of society (IOM, 1996).

Sexually transmitted diseases are a major problem in the adolescent population. Over one half of the adolescents in the United States are sexually active, and the rates of sexual activity have increased among younger age groups (CDC, 1992). Sexually active adolescents have the highest rates of STDs of any sexually active age group. Annually 2.5 to 3 million adolescents will have a STD; this corresponds to one out of six sexually

active teenagers (Braverman & Strasburger, 1994). It has been estimated that 25% of adolescents will develop a STD by the time they graduate from high school (Committee on Adolescence, 1994).

The female adolescent is at higher risk for developing a STD for a number of reasons: 1) biologically the female adolescent cervix is immature, STD pathogens can easily colonize the columnar cells causing pathology to occur and they lack antibodies of adult women which increases their susceptibility; 2) the age of initiation of sexual activity has decreased, and the age of first marriage has increased, resulting in increased premarital sexual experience for the female adolescent (CDC, 1996); 3) psychological vulnerability and lack of assertiveness which can influence their ability to negotiate condom use. The risk of acquiring a STD also increases if the female adolescent is involved in substance use, either drugs or alcohol (OTA, 1991). Analyses of the National Longitudinal Survey of Youth have attempted to further understand the relationship of substance use and sexual activity. Their results tend to indicate that early alcohol use in females is more predictive than use in males of early sexual activity (Mott & Haurin, 1987).

Problem Statement

The health profession considers health care providers responsible for incorporating the promotion of sexual health into adolescent care. The US Preventative Task Force (USPTF) recommends that primary health care providers take a sexual history, discuss risk prevention and provide confidential care (within legal limits) for all adolescent patients (USPTF, 1996). However, it has been noted that primary health care providers do not always follow these recommendations. One study of physician behavior

found that most physicians (84%) say they usually or always ask new adolescent patients about cigarette smoking, but far fewer ask about STDs (56%), condom use (52%), number of sexual partners (34%), and sexual orientation (27%) (CDC, 1992). The few relevant published studies suggest that discussions about STDs and adolescent sexual health are uncommon. One study found that about four-fifths of first year college students reported that physicians had never provided them with counseling on STDs (79%) and contraception (81%) (Igra & Millstein, 1993). Another study suggested that at most 6% of adolescents' general medical and physical examination visits include counseling on transmission of STDs and HIV (Hingson, Stunin, Berlin & Heeren, 1990). No studies were found regarding Advanced Practice Nurses (APN) and their discussions with adolescent patients about sexual health.

In general, American adolescents have a fairly high level of factual knowledge regarding HIV transmission and methods of preventing its transmission (OTA, 1991). Data from the National Adolescent Student Health Survey suggest, however, that many American adolescents lack information or are misinformed about many aspects of transmission, prevention, and treatment of other STDs (OTA, 1991). Approximately 30% of a nationally representative sample of 8th and 10th graders did not know that most STDs are acquired through sexual intercourse, and a substantial minority did not know or were unsure that a sore on the sex organs (33%) and a discharge of pus from a sex organ (44%) were signs of an STD infection (OTA, 1991). It is apparent that in recent years, adolescents generally have been informed about the risk and prevention of HIV/AIDS; in contrast, they have not been well informed about STDs (Boyer, Shafer & Tschann, 1997).

It has been noted by many researchers that more than just knowledge of sexually transmitted diseases is needed by adolescents to promote STD prevention (OTA, 1991). Some researchers (Scales, 1983) maintain that education that provides only facts does not address the fundamental needs of the adolescent. Understanding an adolescent's worldview or perception is crucial for developing effective strategies to promote STD prevention. Adolescents have often been perceived as risk takers. The term, risk taker, has frequently been misused. A risk taker is one who knowingly risks harm by engaging in a particular activity (Cates, 1991). If the adolescent does not view (perceive) the activity as harmful, then engaging in it cannot be labeled as risk taking. For example, if a female adolescent desires to become pregnant and has unprotected intercourse, she is not from her viewpoint (perception) risking any harm. She may be labeled by some as being unwise but she is not a risk taker. Any approach designed to provide information to adolescents about STDs must also address the issue of the adolescent's perception that she/he is invulnerable to harm.

The approach often used to screen for risk factors regarding sexually transmitted diseases is the routine history and physical, which might not include a complete sexual history. A systematic approach to screening all adolescents' perception of risk for, knowledge of, and likelihood of action to prevent a STD is lacking. The APN in a primary care setting provided with the correct tool should be able to assess female adolescents' perceptions of risk, knowledge of and likelihood of taking action to prevent a STD. This tool should be convenient, practical and incorporated into the history and physical portion of the examination. The APN is in an excellent position to provide

accurate, comprehensive and nonjudgmental information about sexually transmitted diseases and prevention's tailored to the female adolescents needs.

Adolescent females were selected as the population of focus for this scholarly project because of the unique factors that place them at risk for acquiring a STD and data on the prevalence of STDs among adolescents indicate that the highest rates occur in younger adolescent females (Townsend, 1996). The adolescent female is biologically at risk because of an immature cervix that can be easily colonized with pathogens. The female adolescent is also cognitively at risk for acquiring a STD because of her unique sense of invulnerability to harm and denial of personal risk. Also the female adolescent's age of initiating sexual intercourse is steadily declining, which in turn increases the number of lifetime partners an enlarging the pool of adolescent females at risk for acquiring a STD.

Definition of Concepts

For this scholarly project adolescence was defined as the time of transition from childhood to adulthood. Specifically, early adolescence is defined as those females between the ages of 10 and 13 years, middle adolescence between the ages of 14-16 years and late adolescence between the ages of 17-19 years. Perception of risk was defined as the ability of the female adolescent to understand the chance of injury/harm to herself. Knowledge was defined as the ability to understand and process information. Likelihood of action was defined as the ability of the female adolescent to perceive a STD as a threat to personal health and believe that the benefits of taking action to protect her health outweigh the barriers that will be encountered.

Purpose

The purpose of this scholarly project was to develop a screening method (tool) that can be easily implemented in the primary care setting to assess female adolescents' perception of risk for, knowledge of and likelihood of action to prevent a sexually transmitted disease. This project focused on the female adolescent population. The primary use of this tool is for screening the female adolescent's perception of risk associated with acquiring an STD, her knowledge of STDs and also the likelihood of action she will take to prevent an STD. This screening tool can be used with all adolescent females who present for primary care such as routine annual exams, those seeking family planning, screening for pregnancy or sports physicals. This screening tool needs to be incorporated with a complete sexual history as well as with a routine medical and family history so all the patient's background information can be incorporated.

This tool was developed to assist the APN in determining more extensively the female adolescent's perception of risk for current knowledge of STDs, and likelihood of taking action to prevent STDs and thus identifying those patients at higher risk for infection.

Conceptual Framework

Adolescence is a period of significant life transition during which children enter into adulthood. Behaviors and beliefs established during this period are often carried into adult life. Health behaviors established prior to adulthood can significantly influence health and longevity, both in the short term and later in life (Adams & Schoenborn, 1995). Adolescents pose unique challenges in terms of measurement of health and health

related behaviors and in terms of strategies needed to promote healthful habits and discourage behaviors demonstrated to have deleterious health consequences.

During adolescence, changes in the social environment allow adolescents greater decision making power in areas such as health. It is important to understand the factors that are related to these decisions. In adults, health beliefs have been shown to be important mediators of health related behaviors (Meyer, Leventhal, & Gutmann, 1985). A better understanding of the specific health beliefs held by adolescents and their direct effects on behavior can also facilitate the communication between patients and providers, a factor that is known to improve patient outcomes (Hulka, 1979).

The following sections provide: (a) an overview of the Health Belief Model (HBM); (b) specific HBM dimensions with conceptual definitions to guide this project; (c) integration / application of the HBM incorporated with a review of the literature; (d) HBM related studies; and (e) review of the literature and critique.

Overview of the Health Belief Model

The Health Belief Model was used in this scholarly project as the conceptual framework for assessing psychological variables. The HBM was developed in the early 1950's by a group of social psychologists, and is derived from the Social Cognitive Theory. The HBM was designed as a framework for exploring why some people who are illness free take actions to avoid illness, while others fail to take protective actions. The model was viewed as potentially useful to predict those individuals who would or would not use preventive measures and suggest interventions that might increase predisposition of resistant individuals to engage in health protecting behaviors (Pender, 1996).

The HBM is most applicable with voluntary, health-related actions that involve an element of uncertainty. Because it is a psychological model, it is applicable only to behavior that can be explained by a person's attitudes and beliefs. The HBM encompasses a "value expectancy" approach which attributes behavior to the value an individual places on the expected outcome of the action and also to the perception by the individual that the specific behavior will result in the expected outcome (Janz & Becker, 1984).

The HBM hypothesizes that health related behavior occurs as a result of the interactive and combined effects of (a) readiness to comply with recommended action/s, and (b) modifying and enabling factors. The factors that influence readiness to act include those dimensions known as the health beliefs, which include susceptibility, seriousness, benefits and barriers. The perception of a threat to health is conceptualized, as a combination of how susceptible the individual perceives him/herself to be to an illness and how severe of an effect he/she believes the illness would have on his/her life. The belief also must exist that the action the individual takes will result in the expected outcome and that there are not insurmountable barriers that preclude goal attainment (see Figure1).

Health Belief Model Dimensions

Specifically, the HBM consists of the following dimensions known as the health beliefs, which provide the basis for the questions of the screening tool: perceived susceptibility, perceived severity, perceived benefits and perceived barriers. To determine the female adolescents' perception of risk for acquiring a STD the concepts of perceived susceptibility and perceived seriousness are used to develop screening

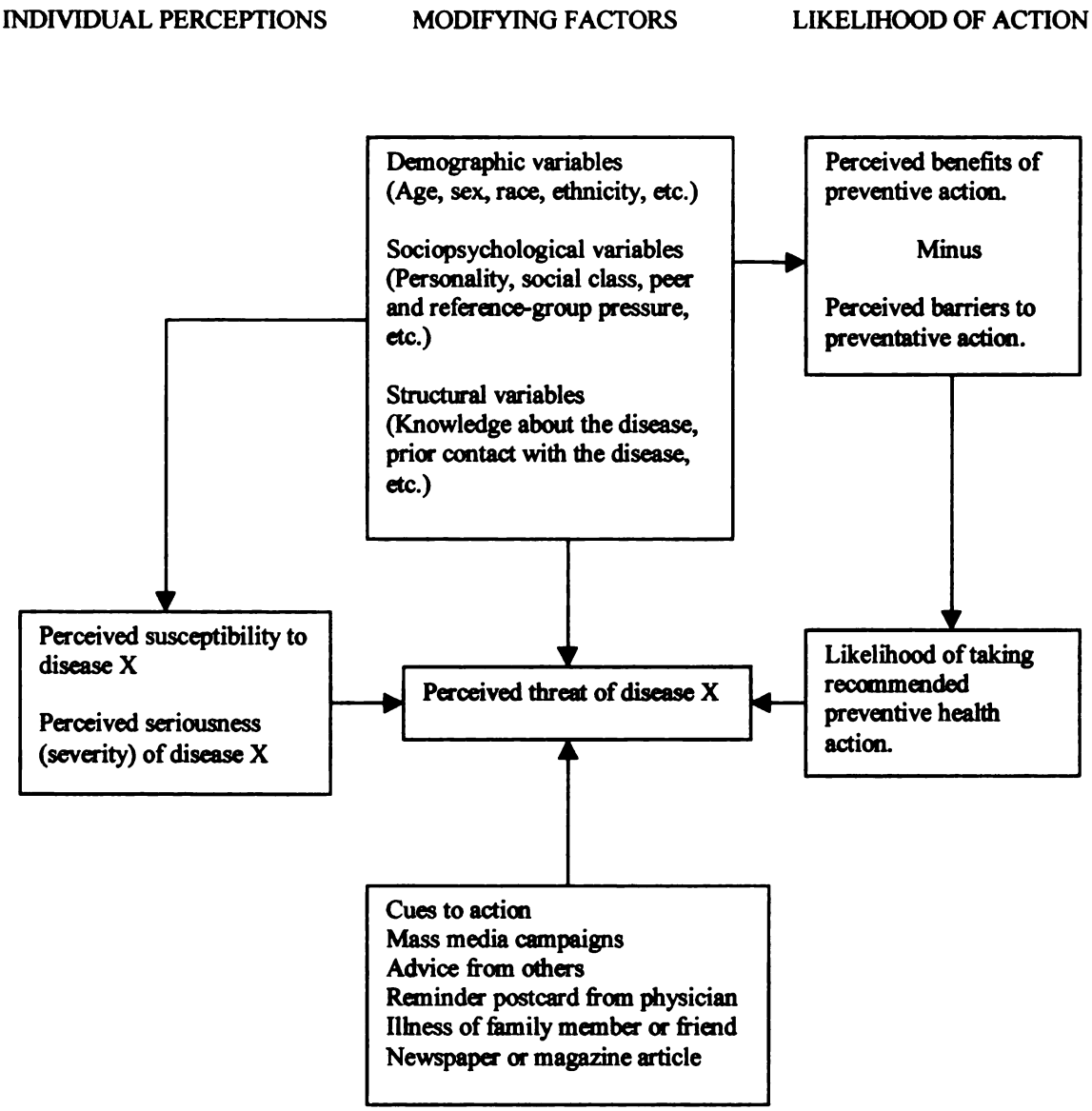

Figure 1. The Health Belief Model. Selected psychosocial models and correlates of individual health-related behaviors. Becker, M.H., Haefner, D.P., Kasl, S.V., et al. (1977). Medical Care 15: 27

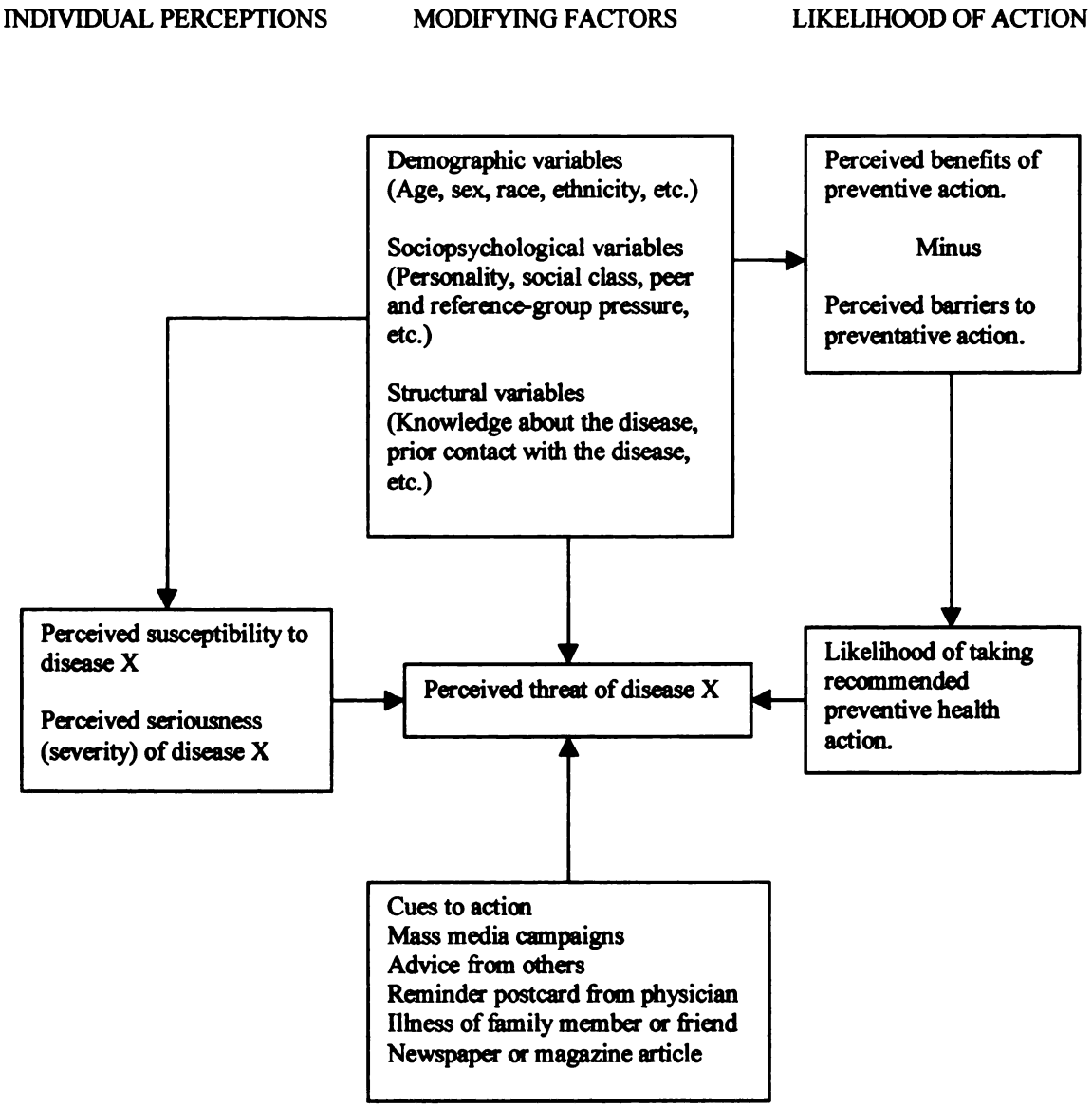

Figure 1. The Health Belief Model. Selected psychosocial models and correlates of individual health-related behaviors. Becker, M.H., Haefner, D.P., Kasl, S.V., et al. (1977). Medical Care 15: 27

questions. The screening questions designed to determine the likelihood that the female adolescent will take action to prevent a sexually transmitted disease are based upon the concepts of perceived benefits and barriers. The modifying factor, knowledge was also used to determine the female adolescents' understanding of sexually transmitted diseases. These dimensions are further defined as follows.

Perceived Susceptibility

This dimension of the HBM reflects the individuals' feelings of personal vulnerability to a specific health problem. Individuals vary widely in their feelings of personal vulnerability to a condition (Pender, 1996). Some individuals may not feel susceptible to illnesses in general or have no belief whatsoever in the given diagnosis. For this scholarly project perceived susceptibility was defined as the female adolescent's subjective perception of the risk of acquiring a sexually transmitted disease. The adolescent must view herself as vulnerable to contracting a STD. For example, if the female adolescent has sexual activity with more than one partner she is vulnerable and susceptible to acquiring a STD. The female adolescent must consider herself at risk.

Perceived Seriousness

Feelings concerning the seriousness of contracting an illness, or leaving it untreated also vary from person to person. This dimension of the HBM includes evaluations of both medical/clinical consequences and also social consequences of the illness. The medical/clinical consequences can include death, disability, and pain. The social consequences can include effects of the illness on work, family life and social relationships. Perceived seriousness of a given health problem can be judged either by a degree of emotional arousal created by the thought of having the disease or by the

medical/clinical or social difficulties that individuals believe a given health condition would create for them (Pender, 1996). For this scholarly project perceived seriousness was defined as the perceived implications to the individual (both medically and socially) of acquiring a sexually transmitted disease.

Perceived Benefits

While acceptance of personal susceptibility to a condition also believed to be serious was held to produce a force leading to behavior, it did not define the particular course of action that was likely to be taken. This was hypothesized to depend upon beliefs regarding the effectiveness of the various actions available in reducing the disease threat. Thus, a "sufficiently threatened" individual would not be expected to accept the recommended health action unless it was perceived as feasible and beneficial (Janz & Becker, 1984). For this scholarly project perceived benefits were defined as the belief about the effectiveness of taking recommended actions to prevent sexually transmitted diseases. The female adolescent must believe that using condoms will prevent her from acquiring a STD. The female adolescent must also believe this particular method of prevention will work, is something that she can do and it is beneficial to her overall health.

Perceived Barriers

The potential negative aspects of a particular health action may act as impediments to undertaking the recommended behavior. This dimension of the HBM involves a kind of cost-benefit analysis where in the individual weighs the action's effectiveness against perceptions that it may be expensive, dangerous, unpleasant, inconvenient and time consuming. For this scholarly project perceived barriers were

defined as the negative consequences of taking the prescribed health actions to prevent a sexually transmitted disease.

The modifying and enabling factors of the HBM include demographic, socio-psychological and structural variables. Some of these factors may function as cues to action, also characterized as "triggering mechanisms". These factors are considered to have an indirect influence on health behavior by their effect on an individual's health motivation and perceptions. Examples of the modifying and enabling factors include a) demographic characteristics, such as age, sex, race, and income; b) socio-psychological variables such as personality, social class, and reference-group pressure; and c) structural variables which includes knowledge about the disease and prior contact with the disease. The only modifying/enabling factor this project examined was knowledge.

Knowledge

Knowledge is a concept that is frequently explicated for specific measurement in health behavior research. The HBM was originally conceived with knowledge recognized as a significant determinant of health related behaviors and as having the potential to influence individual's readiness to undertake a specific action. According to Rosenstock (1974),"both perceived susceptibility and severity have a strong cognitive component and are at least partly dependent upon knowledge" (p.330). Because of it's potential significance as a modifier of the health beliefs and because it is an area that nursing can impact, knowledge of sexually transmitted diseases was one of the variables examined in this project.

Integration/Application of the HBM with Incorporated Review of Literature

As identified in Figure 2, the screening and prevention of risk behaviors associated with acquiring a STD can be integrated into the HBM. The basic premise of the HBM is that behavioral change results from knowledge related to health when three conditions are met. The first condition requires the female adolescent to believe that she is threatened by a particular health risk, whether because of her personal susceptibility or because of the severity of the risk itself. In other words, if a female adolescent is sexually active she is at risk for acquiring an STD; and if she is sexually active with more than one partner, this fact alone increases the severity of the risk involved in being sexually active (CDC, 1996). Sexually transmitted diseases are often asymptomatic; thus prevention measures have no immediate apparent effect. The long term seriousness and complications of STD infections including pelvic inflammatory disease, infertility and cervical cancer may seem to abstract or improbable to the adolescent.

Many studies have looked at the relationship between the adolescent's perceived personal risk for STDs and subsequent condom use. These studies are often related to an individual's perceived risk of acquiring AIDS. In a study of 585 sexually active adolescents, Strunin and Hignson (1987) found that only 15% reported changing their sexual behavior because of concern about contracting AIDS. Hingson, Strunin, Berlin and Heeren (1990) found that adolescents were more likely to report always using a condom if they felt susceptible to AIDS. However, only 31% of the 1,080 sexually active respondents reported always using a condom. A study conducted by Ricket, Jay, Gottlieb and Bridges (1989) of 99 adolescent women at a comprehensive adolescent clinic, found that although 62% of the women reported that a fear of AIDS had influenced their

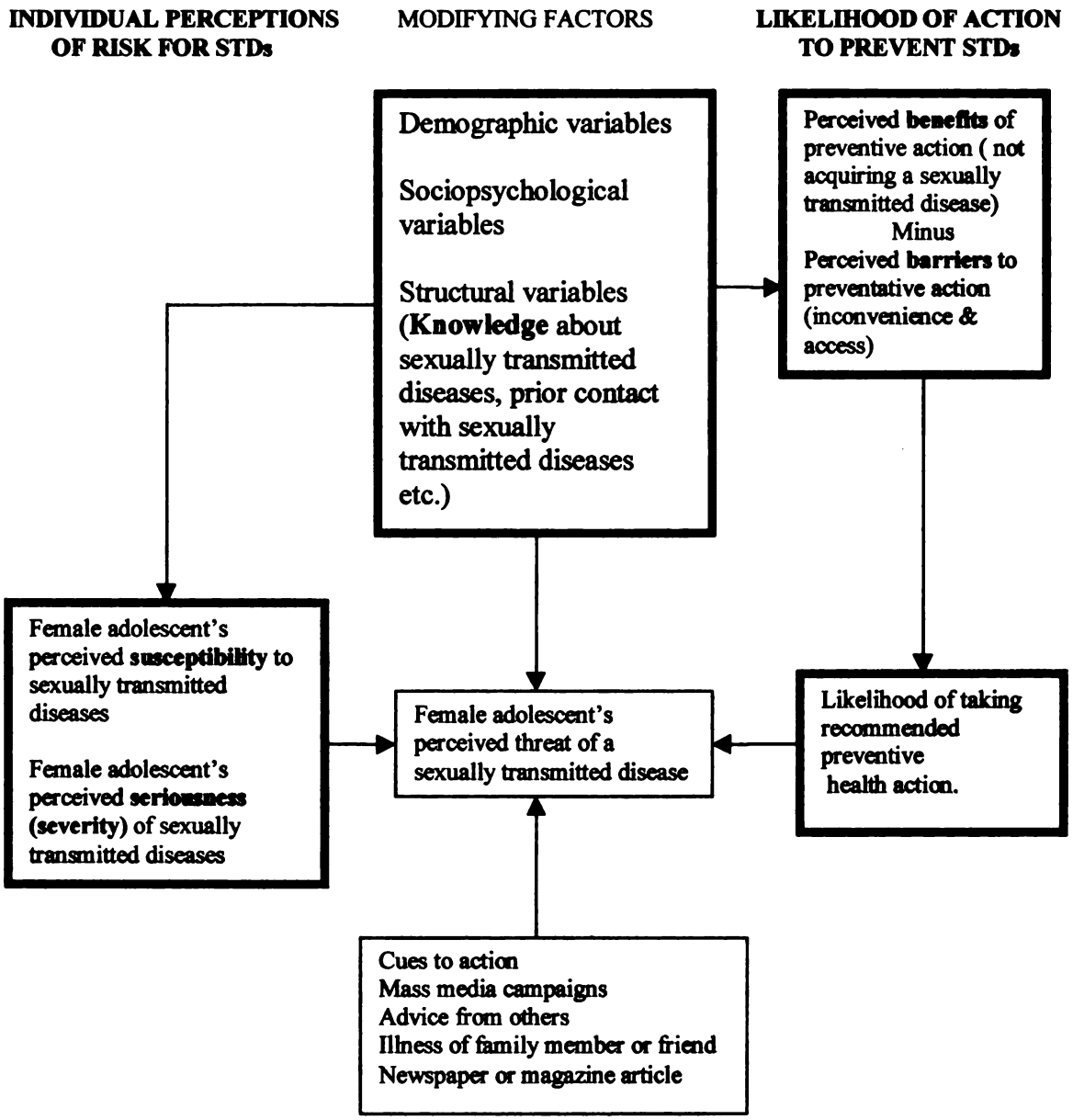

Figure 2. Integration of the STD Risk Assessment Tool within the Health Belief Model. Selected psychosocial models and correlates of individual health-related behaviors. Becker, M.H., Haefner, D.P., Kasl, S.V., et al. (1977). Medical Care 15: 27

behavior, less than 18% reported asking their partner to use a condom to prevent AIDS.

Several other studies have found no significant relationship between perceived susceptibility for STDs and self-reported use of condoms (Potter & Anderson, 1993; Weisman, Plichta, Nathanson, Ensminger& Robbinson, 1991). A recent study conducted by Ellen, Boyer, Tschann and Shafer (1996) of 231 sexually experienced urban teenagers found that adolescent's perception of risk appear to be related to anxiety about STDs and HIV and their behaviors may be related to peer influences and attitudes toward using condoms. This study also concluded that little is known about the determinants of adolescent's perceptions of personal risk for STDs and HIV; it appears that sexually active adolescents know they are at risk for STDs and HIV but they continue practicing sexual risk taking behavior without prevention.

The second condition that must be met to produce behavioral change is the risk reducing action must be viewed as providing a greater potential benefit than its potential cost. The female adolescent must believe in the effectiveness of the strategies to prevent STDs and that prevention in the long term is more beneficial to her overall health than any negative consequences or inconvenience that she might encounter. Although the most effective method for prevention of STDs is to abstain from sexual intercourse many adolescents do not practice abstinence. For those adolescents that cannot abstain the use of latex condoms is the most effective way to lower the risk of STD infection. The HBM proposes that thinking that condoms are effective at preventing STDs should correlate positively with their consistent use. However, knowledge about STDs and belief in the effectiveness of condoms has not appeared to increase their use (Agyei, Epema &Lubega, 1992). Ricket, Jay, Gottlieb and Bridges, (1989) found that although 74% of the females

knew that condom use provided effective protection from STDs and AIDS, less than 20% reported using a condom for that purpose.

Knowledge gained from health education does not always translate into subsequent health behaviors. This suggests that more detailed knowledge of the mediators of these behavioral changes is needed. Therefore in order to gain a deeper understanding of health behaviors associated with STD risk assessment and prevention, it is important for the APN to consider the psychological variables that can affect behavior change. Identification of such variables could enhance the individualization of risk assessment strategies.

The HBM proposes that the perceived negative consequences of carrying out the health behaviors will inhibit their use. Perceived barriers are not only associated with the use of condoms but also access to health care services for adolescents. Perceived barriers to condom use include perceived inconvenience of use, a belief that condoms decrease sexual pleasure and are embarrassing to use (Pendergrast, DurRant & Gaillard, 1992; Hingson et al., 1990). Pendergrast et al. (1992) and Keegles, Adler and Irwin (1989) found that health considerations played a minor role in determining condom use compared to other immediate consequences such as perceived inconvenience of use and perceived partner attitude. Therefore, although adolescents demonstrate an awareness of STD risk, their behavior remains essentially unchanged.

The decade of the 1990's has witnessed a concerted effort towards improving access to health care for adolescents. The literature on barriers to care for the adolescent has recognized such problems as inadequate health insurance, transportation and service site. These factors are known to affect adolescent's utilization of services. The female

adolescent might also view parents as a barrier. Most often adolescents must use his/her parent's health insurance to pay for services. The adolescent female could also be concerned about confidentially and obtaining parental consent for treatment of STDs. Health care providers need to negotiate with parents to provide confidential services and inform adolescent patients that parental consent is not need for treatment.

Other barriers have been identified as unique concerns to the adolescent and influence the adolescent's decision to seek health care. These barriers include cleanliness of the health care site, issues involving infection control, confidentiality and provider characteristic such as honesty and friendliness (Gingsburg, Slap, Cnaan, Forke, Balsey & Rouselle, 1995). There are also barriers that are associated with the health care provider. Health care providers fail to provide preventive messages for many reasons including both environmental factors and factors related to the clinician. Environmental factors include poor reimbursement for counseling activities, insufficient time, lack of health education resources specific to adolescents in many offices and lack of preventive services reminder systems (Kottke, Brekke & Solberg, 1993). Clinician factors include feeling inadequately trained, not believing in the effectiveness of such interventions and feeling personally uncomfortable with such discussions of sensitive topics (Igra & Millstein, 1993). When health care services are not accessible or are perceived as a barrier to the adolescent the result is a missed opportunity for STD prevention.

The third condition to promote behavioral change is environmental cues to action. These cues to action must be present to stimulate the decision to reduce the health risk specifically the risk of acquiring a STD. Many attempts have been made to reduce sexual activity among adolescents; hundreds of sexuality education curricula have been

developed and implemented in junior and senior high schools in past 15 years. Since the mid 1980's when concern about AIDS began to grow a search for educational programs to reduce behaviors associated with the transmission of the virus also increased. These cues to action also include mass media campaigns such as the "Just Say No" campaign. In 1981, Congress passed the Adolescent Family Life Act sometimes called the "chastity act" because it stressed teaching abstinence until marriage as and important part of pregnancy and STD prevention. Other cues to action include advice from others, illness of a family member or friend and newspaper/magazine articles.

The HBM conceptualizes knowledge as a modifying variable and thus is characterized as having an indirect effect upon behavior by mediating the major health beliefs. Studies using the HBM as a framework often also examine knowledge. No studies were found that used the HBM as a framework to examine knowledge and STD preventative behaviors. A review of the literature in relation to knowledge and health behavior indicates that although knowledge plays a significant role in behavior, its effect is probably indirect. Studies in which the role of knowledge is examined as an influence of the health beliefs seem to hold the most promise for additional research utilizing the variable. The HBM provides an appropriate framework for examining knowledge and can effect one or more of the health beliefs.

Given the fact that risk sexual behaviors are directly related to the transmission of HIV and STDs the ultimate goal of education based prevention efforts is to decrease risky behaviors. Preventive behaviors for example would be 1) abstinence, 2) monogamous relationships in which neither partner has a STD, 3) use of condoms, 4) limit number of sex partners, and 5) know the signs and symptoms of STDs. Education based prevention

programs often used in schools, attempt to influence students' behavior by increasing knowledge about AIDS and, to a lesser extent, knowledge about STDs (including methods of transmitting and preventing infection) and to change student's attitudes/behavioral intentions with respect to preventive behaviors. There is little evidence to suggest that increased knowledge alone will result in behavioral change (OTA, 1991). Very few studies have evaluated how educational interventions affect risky behavior related to the transmission of STDs and HIV infection.

Some available evidence suggests that brief educational instruction can significantly increase adolescent's knowledge about HIV and STD infection. A study evaluation the impact of a 3 hour AIDS prevention curriculum taught in San Francisco middle and high school classes, for example, found that students receiving the curriculum (including knowledge that condoms could reduce the risk of HIV transmission during sexual intercourse) showed significantly more knowledge than students who received no instruction (OTA, 1991). Because student's knowledge was not assessed after a long period of time, however, it is possible that the increases of knowledge may not have remained strong. One study demonstrated that student's knowledge about STDs increased significantly immediately following a CDC sponsored curriculum and then decreased six weeks later (OTA, 1991).

Breaking the chain of STD transmission is crucial to STD control. Any hope of slowing the progression of STDs and the consequences to society will require that all people, especially young people, learn and practice skills to protect themselves and others from STD risks and transmission ("Assessing and counseling ", 1994). Education must be geared at the particular group being taught. Creating positive attitudes related to

reducing sexual risk requires increasing the client's knowledge and changing beliefs and feelings (Marion, 1990). Thus, educational efforts to improve knowledge and change attitudes and behavior are a necessary component of STD prevention. The HBM can be incorporated into a STD prevention program and be utilized in identifying: 1) those individuals who do not perceive themselves as susceptible to STDs, 2) those individuals that would not use condoms or other preventive measures such as abstinence and 3) to suggest interventions that might increase resistant adolescents to engage in health protecting behaviors.

The HBM model can be applied in the screening and prevention of risk behaviors associated with acquiring a STD as indicated by the following examples relative to each of the HBM variables. If the female adolescent's responses to the screening tool indicate that she perceives herself as being susceptible, she will see herself as being likely to acquire a STD. The perception of severity is a combination of an emotional arousal created by the thought of having a STD and perceptions of the kinds of difficulties that having a STD represent to the female adolescent. For example, the female adolescent might perceive that having a STD would result in a social stigma. Once diagnosed with a STD she could have concerns related to her partner's fidelity, body image, sexuality and relationships. In regard to the benefits variable, if abstinence or use of condom is perceived as beneficial, she will believe that these preventive strategies will decrease her susceptibility to a STD. Examples of barriers that might be perceived by a female adolescent with regard to prevention of STDs include (a) viewing the purchase of condoms embarrassing, (b) inability to enjoy sex with condoms, (c) believing that condoms are inconvenient and (d) feeling powerless to negotiate condom use with her

partner. The female adolescent must be knowledgeable about the transmission and prevention of STDs, but knowledge will only be affective in changing behaviors if the female adolescent perceives herself susceptible to acquiring a STD.

Summary of the Integration/Application of the Risk Assessment Tool within the HBM

The HBM provides a logical framework to allow the APN the ability to assess adolescent female's perceptions of acquiring and knowledge about STDs. Using the model the APN may better understand the female adolescent's perceptions of STDs including the barriers encountered that might prevent them from taking the recommended health action. Because the HBM emphasizes individual perceptions it enables the APN to comprehend what factors influence the female adolescent's behavior. The APN must look at the female adolescent's needs and determine how her present behavior is fulfilling them. After assessing what the female adolescent perceives her risk to be based upon the health beliefs and her knowledge of STDs the APN can intervene. Using the model to identify risk behaviors the APN can assess each female adolescent individually and design specific interventions to encourage healthy sexual behavior.

There are other factors associated with female adolescents and STDs that this author's tool does not address. Data on the prevalence of STDs indicates that the highest STD rates occur among younger adolescent females, demographically- inner city, and minority teens. Factors such as poor role models lack of economic and educational opportunities (such as life goals and expectations), low self esteem and family formation also contribute to early sexual activity and increased risk of STDs for the female adolescent.

Health Belief Model Related Studies

The most widely tested formal model describing the relationships of health beliefs to health behavior is the HBM (Becker, 1974). The HBM has generated prolific research regarding behaviors related to disease detection and prevention of disease in asymptomatic subjects (Janz & Becker, 1984). Janz and Becker (1984) reviewed 29 HBM- related studies that were designed to investigate preventive health behavior and disease detection behaviors. These studies used the "traditional" health beliefs of susceptibility, seriousness, benefits and barriers. Most of the research supported a statistically significant association between health beliefs and behaviors. Barriers were found to account for the largest percent of variance, followed closely by susceptibility, benefits and seriousness. Janz and Becker (1984) concluded that substantial empirical evidence supports the importance of the HBM dimensions in explaining and predicting a person's health behaviors. However, it was noted that, for the most part, studies using the HBM as the conceptual framework have lacked consistent operationalization and measurement of the variables. The variability in measures was noted to make interpretation and comparison of findings across studies difficult. Refinement and standardization of tools directed toward the measurement of condition-specific beliefs was recommended for future studies.

Champion (1984), who was concerned with the inconsistency in application of the model and the lack of valid and reliable instruments for measuring the constructs, developed and tested an instrument designed specifically for the study of the HBM variables as they related to self breast examination (BSE). In addition to the four traditional HBM variables, health motivation was included. The five variables

representing the health beliefs accounted for statistically significant amount of the variance (26 percent) in BSE practice. Barriers accounted for the largest portion of variance (23 percent) for a single HBM construct, and health motivation accounted for 2 percent of the variance in BSE practice. Women perceiving more barriers tend to examine their breasts less frequently. Champion's subsequent research of 1985 and 1986, also revealed a correlation between the HBM constructs and BSE practice. Another study conducted by Champion in 1987, included knowledge as a variable and results revealed that along with knowledge, barriers and susceptibility were correlated with the frequency of BSE

Research regarding the influence of the HBM variables in disease prevention behavior also supports the conceptualization of the model (Aho, 1979; Allard, 1989; Becker, 1985; Knight & Hay, 1989; Tirrell & Hart, 1980). Allard's study (1989) adapted Champion's (1984) scale to investigate disease preventive practices and beliefs about AIDS. The HBM was found to be a good theoretical approach to obtain data on AIDS related behaviors. Perceived susceptibility to AIDS and perceived severity of the disease were found to be significantly correlated with AIDS prevention practices. Using the HBM was also found to be useful for the development of health education programs to promote behavior change to reduce the risk of contracting AIDS.

A more recent study conducted by Hittabiddle (1996) investigated factors associated with adolescent condom use for the prevention of STDs. Using the HBM as a theoretical framework, the researcher was able to identify unique risk factors related to adolescents and their risk for STDs, barriers to and facilitators of condom use, and provide suggestions for health care providers to increase condom use among adolescents.

The researcher concluded that although the HBM may had some weaknesses in its use with the adolescent population, its emphasis on the individual's perceptions may be a key in influencing adolescent behavior. Further research is needed in understanding how adolescents view their sexual behavior, what do they feel vulnerable to and who influences their health making decisions, especially peer groups and values.

The results of research using the HBM with disease detection and preventive behaviors have been varied, but suggest that certain HBM variables are useful in predicting specific behaviors. Much of the support for the HBM has come from studies in which data on beliefs and behaviors were collected at the same time. These studies have shown strong correlation between beliefs and behavior, but it is difficult to judge if beliefs produce behavior or vice versa. A problem with retrospective design is that causality can not be implied as there is evidence to show that individuals sometimes rationalize their beliefs and feelings to fit their behavior (McKinaly, 1972).

Another problem with many HBM studies relates to the self-administration of the questionnaire and self-report of the behavior. Also, problems with inconsistency regarding measurement of the health belief variables limits interpretation of many of the studies. Jette, Cummings, Brock, Phelps and Naessens (1981) reported that scales comprised of items that refer to a specific health problem (e.g. sexually transmitted diseases) have higher reliability than scales comprised of items that fail to mention the disease of interest. The development of consistent, reliable and valid measures have been recommended. Ideally, separate scales should be constructed as the HBM is applied to each new health problem (Champion, 1984; Given, Given, Gallin & Condon, 1983; Janz & Becker, 1984; Jette et al., 1981; Maiman, Becker, Kirscht, Haefner & Drachman,

1977). Champion (1984) suggests if the HBM is found to be theoretically sound and if reliable instruments are available, the study results can be used to structure individualized health promotion nursing strategies.

The HBM also has specific limitations when dealing with the adolescent population. Models that only emphasize disease related variables have been criticized as being insufficient for mounting effective behavioral interventions. Other cognitive and attitudinal variables affect sexual behavior and these must be addressed as well (Levinson, Jaccard & Beamer, 1995). The HBM fails to recognize the "positive" motivators for adolescents engaging in sexual behaviors. Some adolescents find it physically pleasurable. Other adolescents might believe that it makes them more attractive to others. Yet other adolescents believe that engaging in sex brings them an emotional intimacy that otherwise they cannot achieve (Levinson, et al., 1995). Disease related models such as the HBM tend to ignore these "positive" types of motivations. The implicit assumption is that preventive behavior is driven by the fear of negative events (e.g. STDs and unintended pregnancy) when, in fact, the behavior may be heavily influenced by the "positive" motivations to engage in risk behaviors.

The HBM has also been criticized for not incorporating peer group influence, emotional factors, or the cognitive level of adolescents, which impairs their ability to evaluate personal risks objectively in decision making. The adolescent's preoccupation with the immediate consequences of his or her actions hinders the rational decision making skills on which this model is based (Brown, DiClemente & Reynolds, 1991).

Review of the Literature

Sexually transmitted diseases are a major problem in the adolescent population. Over one half of the adolescents in the United States are sexually active, and the rates of sexually activity have increased among younger age groups (CDC, 1992). Sexually active adolescents have the highest rates of STDs of any sexually active age group. Annually 2.5 million adolescents will have a STD; this corresponds to one out of six sexually active teenagers (Braverman & Strasburger, 1994). In general, STD rates appear to vary by sex and race, there being more STDs reported among adolescent females than males and more among nonwhite than among whites. When considering possible explanations for this high rate of infection, a variety of biological, cognitive and psychosocial risk factors unique to the female adolescent need to be examined.

Biological Risk for STDs

In general, adolescents have had less lifetime exposure to STDs then adults and therefore have not developed either systemic or local antibodies to infection. The presence of such antibodies presumably would provide some protection to the female adolescent (Braverman & Strasburger, 1994). As previously mentioned the female adolescent cervix is immature. The cervix has an ectropian in which columnar cells are present on the exocervix and the transformation zone between columnar and squamous cells, which is exposed to the vaginal environment. STD pathogens can colonize these columnar cells causing pathology in the area of the transformation zone leading to an increased morbidity from STDs (CDC, 1991).

Cognitive Risk for STDs

Cognitive changes involve the adolescent moving from concrete operations to formal operations. Early adolescent girls are in concrete operations as identified by Piaget (1969). Decisions made by the early adolescent are based on experience, time orientation is almost exclusively past or present. Little or no forethought goes into activities with which the young female is not eagerly absorbed or genuinely comfortable with. The future, if considered, is perceived as uncertain or idealized. Few teens at this stage of early adolescence look much beyond a few weeks or months into their future. Since development of adult values and a sexual value system require abstract cognition and conceptualization, early adolescents whose thought processes are still "concrete" are unlikely to articulate clear values with regard to sexuality, sexual behavior or to plan for sexual intercourse (Proctor, 1986).

Formal operations according to Piaget (1969) allow the individual to plan realistically for the future, transfer information from one situation to another, and conceptualize abstract ideas such as health and prevention. Formal operations include the ability to manipulate abstractions such as algebraic expressions, to reason from known principles, to weigh multiple points of view according to varying criteria and to think about the process of thinking itself. Formal operational thought, which implies an ability to treat possibilities as real entities, may be related to critical decisions, such as whether or not to have unprotected intercourse or engage in other risk taking behaviors. As the adolescent begins to move toward abstract reasoning the process may be self directed and lead to day dreaming and increased self interest and fantasy (Neinstein, 1991).

Adolescents believe others are constantly focused on them. This egocentrism contributes to the notion of a "personal fable", identified by Elkind (1979). The personal fable is the "belief that the individual is special and not subject to the natural laws that pertain to others" (p.95). He describes adolescents' belief that he or she is an exception to the rules because of his or her own uniqueness or special qualities. This aspect of cognition may influence the female adolescents' perception of STD risk. This sense of invulnerability results in a denial of personal risk of exposure or negative health consequences related to acquiring a STD.

Adolescence also is characterized by risk taking behavior valued by the adolescent, who believes risks prepare him/her for adult status. The perceived secondary gains of increased self-confidence, attainment of adult status, popularity among peers, or affection encourages adolescents to engage in behaviors they acknowledge as dangerous. Adolescents with limited experience engage in behaviors with expectation of benefit and/or without understanding the immediate or long-term harmful consequences of their actions. Risk taking in sexual activity is one area in which this type of behavior is evident.

Psychosocial Risk for STDs

The adolescent strives for autonomy and independence developing a separate identity from the family and the peer group increases in importance. Identification with peers and fitting in with the group's values and behaviors are important aspects of adolescent development. Language, dress and values are reflective of the peer group. As a result, adolescents may engage in sexual activity to obtain peer acceptance and approval (Scott, 1996).

The adolescent shifts from same sex friendships to dating and heterosexual or homosexual relationships. Sexual experimentation and intercourse are likely to occur. Sexual romanticism is common rather than real intimacy. The sexual encounters of adolescents tend to be unplanned and sporadic. Their sexual relationships tend to be non-monogamous or to involve serial monogamy (Boyer, 1990). As the early initiation of sexual intercourse increases the chance of more sexual partners over one's lifetime also increases, and therefore intensifies the risk of STDs. Such relationship patterns increase the adolescent's risk of acquiring a STD.

Female adolescents are also psychologically vulnerable to older men often do to their low self-esteem. These relationships with older men often make negotiation of condom use difficult for the adolescent female. The female adolescent lacks assertiveness to insist that her older male partner use condoms for STD prevention.

On the basis of interviews with a large number of adolescent women, Thompson (1990) reported that they began sexual activity in one of two scenarios: (a) intercourse "just happened" and (b) intercourse was planned. Lesbian adolescents began sexual activity in either scenario, often their first sexual relationship being heterosexual and then lesbian relationships develop. Because the STD rate is high in gays, many people assumed it would be high in lesbian women also. However, researchers found that lesbian women had very low rates of STDs (Johnson, Smith &Guenther, 1987; Robertson & Schachter, 1981). No current data was found on lesbian adolescents and their rates of STDs.

Current and Emerging Concerns of STDs

Current and emerging concerns that make the prevention of STDs difficult include such problems as the huge number of infected individuals with no symptoms, the synergy between STDs and human immunodeficiency virus (HIV) infection and the particular vulnerability of females to STDs based on their biology. The STD field has expanded from a "narrow group of 'Classic Venereal Diseases' to multiple bacteria, fungi, ectoparasites, protozoans and viruses" (Shulman, Phair & Sommers, 1992 p.238). In three decades, more than 50 organisms or syndrome combinations have been identified as sexually transmitted (Cates, 1991). The societal, physical and psychological impacts of the STD crisis are staggering. The fiscal cost of caring for patients with STDs is soaring. Billions are spent each year for the treatment of STDs and their consequences (Alexander, 1992). In 1990, the estimated cost of pelvic inflammatory disease and its sequale was more than $ 4.2 billion ("Contraception and the STD epidemic", 1992).

A crucial concern to be conscious of in the prevention and detection of STDs is that significant proportions of persons with STDs have no symptoms. Most new infections are acquired from individuals who are unaware that they have a transmissible disease. In general, STDs are transmitted primarily by individuals who either lack symptoms of infection or do not perceive the importance of mild manifestations. Most people with such symptoms as urethral or vaginal discharge, dysuria, genital sores or pelvic pain are less likely to be sexually active than persons without such symptoms. Therefore, the person who transmits a STD to his or her partner is unlikely to have symptoms that will cause him or her to seek medical attention (Hansfield, 1996).

Even infections that are usually symptomatic such as gonorrhea or trichomoniasis can be present for extended periods without the development of symptoms or signs. The critical point then, is that every STD can be asymptomatic. It is a mistake, especially for the female patients, to assume that they can easily identify possibly infected partners, or for clinicians to expect all patients with STDs to have visible signs of infection.

All sexually transmitted diseases are behaviorally and clinically interrelated, and the term "epidemiological synergy" has been applied to interactions between HIV infections and the other STDs (Wasserheit, 1992 p.61). The presence of STDs facilitates the HIV spread because the lesions or inflammation in the genital tract make ready points of entry for the virus. In addition, the presence of HIV influences the natural course, diagnosis, clinical manifestations and response to therapy of STDs. Coinfection may amplify the transmission and progression of each disease, indicating the treatment of the non-HIV infections to decrease HIV risks (Hansfield, 1996).

Women carry the greatest burdens of STDs biologically (Aral, 1992). This is known as "biological sexism" (Hatcher, Trussel, Stewart, Stewart, Kowal, Guest, Cates & Policar, 1994). Many infections are transmitted more efficiently from men to women than the reverse. Women have more asymptomatic infections that lead to delayed and often difficult diagnosis and more serious sequale with irreversible damage to the reproductive system or serious illness. One coital episode carries a higher risk of infection for the female than the male. In addition, STDs carry a greater social stigma for the female. Fear or embarrassment may keep the female patient from seeking medical care, thus increasing the risks of infection (Hatcher et al., 1994).

Critique of the Literature Review

Reviewing the literature on adolescents and STDs proved to be quite extensive, but few articles were found relating specifically to adolescent's perceptions of acquiring a STD. Many articles addressed adolescents in general, not just females, and the alarming incidence rates of STDs in this population. Those articles that did address the female patient often focused upon the risk of pregnancy and not STDs. Research and non-research articles written by physicians as well as APN's often related to the diagnosis and treatment of STDs. Several articles addressed adolescent's development both biologically and psychologically as well as the social factors that place adolescents at increased risk for STDs. Information regarding early screening and detection of adolescents that are at high risk of acquiring a STD was quite often ignored.

There was also little information available on how providers feel about discussing STDs and sexual behavior with adolescents. It was noted that the adolescent patient and health care providers were both uncomfortable with discussing sexual issues and often the conversations about these subjects were not brought up or did not occur at all. A misconception also noted was health care providers perceive adolescents do not want to discuss issues of sexuality, when in fact they really do.

Many of the articles and studies proposed the need to further evaluate adolescent's perceptions and how they impact their sexual behavior. In the growing body of research about adolescent's sexual behavior, which is based generally on survey methods, there is scant in-depth information about how adolescents feel and what their perceptions are regarding their own sexual behavior. It was mentioned numerous times that a shift was needed from just teaching the facts (knowledge) about STDs to addressing the

adolescent's developmental needs and perceptions. Projects such as this one are needed to stimulate the discussion of STDs and also to understand how the female adolescent views her own personal risk and whether or not she will be likely to prevent a STD.

Project Development

Approach and Procedures

Often the approach used to screen for STDs in the primary care setting is the routine history and physical questionnaire. Many practitioners devise their own screening tools for assessment of risk of acquiring a STD and they improvise according to the age or sex of the patient. There are no specific tools available that screen female adolescent's perception of risk for, knowledge of and likelihood of taking action to prevent a STD. The tools to assess the female adolescent's risk for STDs must be concise, age appropriate and easy to use. This tool will be used in a primary care setting, given by the APN in a guided interview type format and then the findings reviewed with the female adolescent patient (see Appendix A). It is the belief of this author the female adolescent will answer the questions more honestly in a guided interview type format than if she were to fill out the tool as a questionnaire. This screening tool maybe costly in administration, but if the answers are more realistic and truthful of the female adolescent's actual behavior than the overall costs may be less secondary to prevention.

The clinical strategies used to prevent the spread of STDs are often classified by the stage of illness they target. The least expensive and most effective approach to prevent STDs is primary prevention or avoidance of exposure (Kassler, Wasserheit & Cates, 1996). Primary prevention strategies are implemented before the sexually transmitted infection occurs and involve reducing or eliminating risk factors. Secondary

prevention consists of organized, direct screening efforts or education of the public to promote early case findings of individuals with disease (sexually transmitted disease) so that prompt intervention can be instituted to halt pathologic processes and limit disability (Pender, 1996). This screening tool is to be implemented as a secondary prevention technique. It is not the intent of this author that only the tool should be used. This author recommends that this tool be used in conjunction with the routine health and family history form. It will be important for the APN to use his/her assessment and interviewing skills to complete a more in depth assessment. The tool will help to screen for misperceptions of risk and inaccurate information about STDs. If the patient has not ever been sexually active, or perhaps is contemplating becoming sexually active the screening tool may be used as a way to open discussion, allow for teaching and counseling regarding sexually transmitted diseases.

Making sure the female adolescent is not answering the questions in the tool in a manner that would under estimate personal risk is important. The tendency to systematically underestimate personal risk has been termed "optimistic bias" (Weinstein, 1989). Moore and Rosenthal (1992) found that college students are optimistically biased in their perceptions of relative risk for STDs. Little is known about early adolescent's perception of risk for STDs, one study conducted suggests that they too have optimistic bias in their perceptions of risk for STD outcomes (Millstein, 1989). When the APN is using the tool with the female adolescent patient it will be very important to clarify any questions that would tend for the patient to answer in such a way that would underestimate personal risk for acquiring a STD.

Many clinicians would recommend that all sexually active adolescents be screened for STDs yearly, especially since asymptomatic infections are common (Holmes & Mardh, 1990). The absence of definitive symptoms or physical findings does not rule out an infection. This tool is designed to help the APN teach the adolescent female patient about the signs and symptoms of STDs and also modes of disease transmission. Because of the asymptomatic nature of these infections it is crucial that the APN provide accurate information and assess those patients that are at potential risk for acquiring a STD.

In this time of health care constraint, the cost of providing adolescent health care is viewed by some as an impediment. Because of the very complex issues that adolescents face, both developmental and societal, health care visits may be time consuming if comprehensive care is to be provided (Scott, 1996). A comprehensive initial database is essential in providing care even for facilities that treat only STDs. Thirty to forty-five minutes has been recommended as the time necessary for an initial adolescent visit (Scott, 1996). Currently, 49% of adolescent visits with physicians last 10 minutes or less and 23% of these visits are first encounters (Society for Adolescent Medicine, 1992). The use of this screening tool with the adolescent female is realistic in view of the current time constraints in primary care. It is the intent of this author that the APN can, with the use of this tool, complete an accurate assessment of the female adolescent within a thirty to forty-five minute time period. As mentioned previously the costs of not screening the female adolescent is more than the initial cost of STD prevention.

If sufficient personal perception of risk or lack of information is identified while using this screening tool in conjunction with the routine health and family history, it will be the APN's responsibility to initiate appropriate medical management of the patient. Treatment of patients with STDs involves tertiary prevention strategies. These strategies are implemented to prevent adverse outcomes once an infection has occurred and are directed in minimizing residual disability from disease (sexually transmitted disease) and helping the female patient live productively with limitations. There are no strict guidelines as to the number of questions the patient has to answer that would indicate risk for a STD, when using the screening tool. The APN must rely on his/her knowledge of STDs, clinical skills and follow recommended standards of care when assessing the female adolescent's responses to the tool. The APN can also collaborate with fellow practitioners and make appropriate referrals as needed.

This screening tool was developed to better understand the female adolescent patient's perception of personal risk for, knowledge of and the likelihood of taking preventative action for STDs. This tool was not designed to specifically address the female adolescent's sexual behavior. It is this author's belief that as a result of using this tool with the female adolescent patient the discussion of her sexual behavior will occur. As the APN becomes more familiar with the use of the tool, it is this authors belief that the APN will also become more comfortable with discussing STDs and a sense of confidence in this area of adolescent sexuality will develop over time. The ultimate goal of STD prevention is to modify the risky sexual behavior that places the female adolescent patient at risk for acquiring a STD. It is this author's conviction that by

incorporating this screening tool into use with the routine history and physical, areas of sexuality that are often ignored and seldom addressed will be discussed by the APN.

Target Group

Adolescent females were chosen as the population of focus for this scholarly project screening tool. The female adolescent population was the obvious target group because they have been identified as the population of greatest risk for acquiring a STD and suffering long-term consequences as a result. For this scholarly project the female adolescence is defined as early (10-13 years), middle (14-16 years) and late (17-19). For this scholarly project the adolescent female must be between the ages of 10 and 19, but this tool could be modified to be relevant for those female patients over 20 years of age. For purposes of this scholarly project the female adolescent patients must be able to speak and understand English.

Tool Development

The screening tool for the female adolescent was compiled for this scholarly project consisting of a series of questions pertaining to five content areas: (a) perception of susceptibility to STDs, (b) perception of seriousness related to acquiring a STD, (c) knowledge of STDs, (d) benefits of taking action to prevent a STD, and (e) barriers encountered in the process of taking action to prevent a STD. The first three sections of the screening tool are composed of four questions and the last two sections have three questions each, bringing the total number of questions to 18. Each section of the screening tool is to be evaluated separately, since each section identifies a specific area of risk.

This author developed all questions on each of the age-appropriate risk assessment tools after conducting a literature search on female adolescents and STDs. The questions are to be administered by the APN in a guided interview type format. It was this authors intent that by administering the tool in this manner it would facilitate further discussion by the APN and the female adolescent patient. The following discussion will describe the questions, possible responses and includes the rationale for question selection on all three screening tools.

Early Adolescent (10-13 years) Risk Assessment Tool

The first section of questions of the screening tool is related to the early adolescent females perceived risk of contracting a STD (see Appendix B). The patient's responses to these four questions will help the APN determine if the adolescent: (a) has been sexually active, (b) sees herself at risk for acquiring a STD, and (c) has an older boyfriend that has been sexually active in the past. If the patient answers "yes" to all the questions except for number three then she would be seen as at risk for acquiring a STD and also misguided in her perception of personal risk. A "red flag" question in this section would be if the patient has an older boy friend that has been sexually active. Even if the patient has stated that she has never had sex before she should still be seen as at risk for acquiring a STD. The APN must take into account that adolescent boys of this same age group are intensely curious about sex, but few are sexually active (Alan Guttmacher Institute, 1981). Therefore most sexual partners of young adolescent females will not be young men of their own age as is still noted in the current literature today.

The second section of questions is related to how serious does the early adolescent female perceive a STD to be and how will it affect her. If the patient answers

"no" to all the questions except for number three than she does not perceive the serious nature or complications of STDs. Because the early adolescent at this cognitive level does not generally think beyond the next several weeks or months there were no questions directed at the future or long term consequences of STDs. It will also be important for the APN to impart to the patient that pills and shots do not always cure everything and some diseases you will have for the rest of your life.

The third section of questions is related to knowledge of STDs. These questions are designed to determine what information about STDs the patient already has obtained. The APN can also use these questions to clarify any misinformation the patient might have been given. One question was designed to give the patient possible options as to modes of transmission of STDs. It was discovered during the literature search that many adolescents do not understand how people can get STDs and many believed that STDs were transmitted by swimming pools (OTA, 1991). Education will be an important area for the APN to concentrate on when dealing with the early female adolescent patient.

The last two sections of the screening tool are the perceived benefits and barriers to STD prevention. The benefits questions for the early adolescent are constructed to help the APN understand if the patient believes that she can do something to prevent a STD. These questions were also designed to promote the concept of abstinence with the female adolescent. The APN needs to emphasize the fact that abstinence is the only way to prevent STDs unless condoms are consistently used every time intercourse occurs. Delaying the age of first intercourse is a fact that is also known to decrease the risk of acquiring a STD among female adolescents (OTA, 1991). It is hoped that if the female adolescent response to the questions in a manner indicating she understands the benefits

of not acquiring a STD that she would be more likely to be abstinent, delay the age of first intercourse or always use a condom.

Based upon the review of the literature many adolescents are concerned about confidentiality and their parents finding out they have a STD. The questions regarding barriers are based upon these findings. The early adolescent because of age is still under the care and supervision of her parents. The female adolescent might answer the questions in such a manner that demonstrates her reluctance and fear of telling her parents that she has been sexually active or possibly has a STD. It is important that the APN inform the female adolescent patient whom she can tell if she thinks she has a STD, stress to the patient matters of confidentiality and also that most clinics do not require parental consent for treatment of STDs.

Middle (14-16years) and Late (17-19years) Adolescent Risk Assessment Tools

The questions formulated by this author for these screening tools are very similar in content, therefore, they will be discussed together with the subtle differences noted (see Appendix C for middle adolescents (14-16) and Appendix D for late adolescents (17-19) for tools with specific questions). The first set of questions on both tools is related to the female adolescent's perception of susceptibility (risk) for acquiring a STD. These questions are constructed to help the APN determine:1) if the female adolescent has been sexually active, 2) how many partners she has been with, 3) if she thinks she has a STD and 4) whether or not she uses condoms consistently. If the female adolescent in either age group has been with more than one partner or inconsistently uses condoms she is at risk for acquiring a STD. The questions of susceptibility designed by this author for the (14-16 years) middle adolescents group differ from their younger counterparts by the

fact that they are more sexually experienced, not just physically experienced but socially as well. The late female adolescent is even more sexually experienced. By the 12th grade nearly 70% of adolescents have had sexual intercourse and approximately one-quarter of all students have had sex with four or more partners (IOM, 1996). Thus, when the APN questions the late adolescent female about the number of partners she has had within the past year, the answer should be further questioned by the APN if the patient states only one.

The second set of questions on the screening tools is related to how serious does the middle/late adolescent female perceive STDs to be. The 14-16 year old adolescent female is cognitively going through the process of developing more future oriented thinking. Because of this change in cognitive thinking of the middle adolescent female the questions for this age group were to designed to reveal the long-term complications of STDs. If the female adolescent answers "no" to questions 2, 3, and 4 and "yes" to question 1, than she is misguided in her perception of how serious STDs really are. The denial of personal risk is a factor that the APN must expect from these age groups. Thus, any endeavor undertaken by the APN should recognize the denial factor in attempting to influence the adolescent patient.

The third section of the screening tool is questions related to knowledge of STDs. Many females in both middle and late adolescence are concerned only with prevention of pregnancy and little thought is given to prevention of STDs (OTA, 1991). The questions regarding knowledge of STDs allows the APN to address this issue with the female patient. Question #1 asks if birth control pills or the shot prevent STDs; if the patient answers "yes" than she has been misinformed about what birth control does and how

STDs are prevented. The remaining questions provide the basis for the APN to further educate the female adolescent patient. These questions encourage discussion by the APN of the asymptomatic nature of STDs and how treatment will be needed even if the symptoms do go away.

The final two sections of the risk assessment tool for the middle and late adolescent female are questions on the benefits and barriers in undertaking the recommended action to prevent STDs. The benefit questions will enable the APN to assess if the female adolescent believes that she can prevent STDs. The third question in the benefits section of the tool differs slightly for the middle adolescent than the late adolescent. The middle adolescent female is asked if she believes that by delaying intercourse it could help prevent a STD. If the patient answers "no, I don't believe this" it will be a "red flag" area that the APN will need to assess further. As mentioned throughout this scholarly project, if the female adolescent delays having intercourse until she is older it will biologically allow her cervix to mature and also time to develop antibodies to protect her from infection. The third question for the late adolescent in the benefits section is an attempt to recognize the fact that late adolescent females pursue a sexual life for reasons such as the physical pleasure, emotional intimacy or being attractive to others. The APN when using this screening tool must not ignore these factors when assessing the older adolescent female. The patient might perceive that it is more important to satisfy one's sex drive and disregard the benefits of not acquiring a STD.

The last section of questions addresses the issue of barriers that the middle and late adolescent female might encounter in preventing STDs. In reviewing the literature

for question development the most common barriers encountered by the adolescent population were related to condoms. If the female adolescent answers the questions in the barriers section by saying that she or her partner does not enjoy using condoms, or they are inconvenient to use, then it is likely she is not going to protect herself from a STD. It will be important for the APN to assist the female adolescent to overcome the obstacles to condom use since it is essential in preventing STDs. The middle adolescent like the early adolescent might also perceive that parental permission is a barrier to obtaining treatment for STDs. The APN will need to inform the middle adolescent female that parental consent is not needed for the treatment of STDs and also confidentially will be maintained.

Pilot

A pilot of the tool was not conducted for this scholarly project; instead the tool was given to the following persons for them to review. The tool was given to a Women's Health Nurse Practitioner working in a Family Planning and Obstetrics Clinic, a Family Nurse Practitioner and also two different OB/GYN physicians. After reading the questions, they spoke with the author and gave insight on other possible questions and their own comments on the usability of the tool in practice.

Discussion

Evaluation of Tool

The peer review of the tool proved to be less effective than what was originally expected. It is this author's belief that the peers who reviewed the tool did not want to upset the author with any negative comments. The APN working in a family practice office felt the tool was practical and could be incorporated into the history a physical

forms. The APN working in the family planning and obstetric clinic gave the best comments since adolescent females are her clientele. This APN thought that some of the questions on the middle and late adolescent tools should be changed to different sections such as from knowledge to perceived susceptibility. Her overall comments were very positive and she thought the questions were relevant to the female population and addressed areas that are often overlooked by the provider. The two OB/GYN physicians thought the questions "looked good" and were interested in using the tool on some of their female adolescent patients.

A pilot test of the tool must be done with a diverse population of adolescent females. A meeting would need to be conducted between this author and the staff to familiarize everyone involved with the screening tool. The pilot study would be conducted first on a small sample of female adolescents and based upon the responses/reactions and overall impression of the tool refinements and revisions shall be made. This author would like to pilot the tool at the Women's Health Center clinic and also have another practitioner use the tool with a similar population and see if the results are similar. The author could then determine if there is any reliability of the screening tool. Using the tool over a period of time, which will help to prove its reliability, will also assess the tool's stability.

This author would also like to give the tool to Practitioners at the County Health Department working in a STD clinic. The tool would be reviewed by Practitioners this author does not personally know, with the hope of receiving objective comments. This author would also be more direct in asking about feedback on specific questions such as; do you think the client will understand the questions, did the Practitioner find it difficult

to use, or is it too long or short? This objective feedback will also help in making revisions of the tool.

It will also be necessary to provide the tool to an expert in the field of adolescents and STDs. This expert could verify content validity. This author has begun to establish content validity by documenting the literature, which represents the concepts and questions.

Implications for the Advanced Practice Nurse

Since the APN working in a primary care setting has the specific task of health promotion and illness prevention it is the perfect time to screen for perceived risks that can lead to poor health. The APN is in an excellent position to screen for female adolescent's perception of risk for, knowledge of and the likelihood of taking action to prevent a STD. The APN can incorporate this screening tool into the routine health history and physical exam, family planning services, sports physicals and perhaps some acute care visits. This author believes that the screening tool should be used with all adolescent females who are seeking primary care services.

The APN will determine if the patient has risk factors for acquiring a STD based upon perceptions of her own personal risk for and knowledge about STDs. For those adolescent females who are not identified as at risk for acquiring a STD, the APN will be able to use the screening tool to open discussion on STDs as well as sexual behavior. Using the tool in this manner will provide the female adolescent with knowledge regarding STDs and a personalized risk assessment, hopefully preventing her from acquiring a STD in the future.

The APN is in a position to provide education regarding STDs to small groups within a specific practice or health system. Group sessions for females at high risk to correct misconceptions about risks and ways to reduce them, as well as practice and training in these skills, have been found to reduce risk behaviors associated with STDs (Kelly, 1994) The APN could provide information through interactive small groups designed to help the female adolescent role play on how to handle awkward sexual situations. This would allow the APN to reach many adolescent females at one time instead of only focusing on the one on one relationship. For example, the APN could use the screening tool with a small group of female adolescent patients, identifying perceived barriers that might be encountered, such as negotiating condom use with a male partner or purchasing condoms. The APN could then assist the female adolescent patients in role playing how each of their perceived barriers would be overcome.

This screening tool was designed to be used by the APN as a secondary prevention strategy. It is this author's belief that this screening tool will provide the APN with a theoretical framework from which to discuss many primary prevention techniques and many aspects of STDs with the female adolescent patient. This screening tool can promote the discussions of: abstinence; knowing partners well before sexual relationships; use of drugs and alcohol with sex; decreasing the number of sexual partners; and methods of protection to prevent a STD.

If it has been determined by the APN after using the screening tool that the female adolescent patient is at risk for acquiring a STD, then tertiary prevention strategies will be implemented. The specific plan of care or interventions will be based upon appropriate standards of care and each office policies and procedures for treating patients

with STD infections. Those female adolescents identified at risk will require general screening cultures for STDs and a pelvic exam performed by the APN. If the female adolescent patient had a STD she will be diagnosed and treated appropriately. The APN will also participate, if needed in partner notification and request these individuals to come into the office/clinic to be treated as well.

It is this author's belief that once the screening tool has been tested, revised and refined it will have the potential for broader application. As mentioned earlier in this scholarly project this screening tool could be modified for use in women over 19 years old and beyond. Sexually transmitted diseases do not stop at age 19; there are in fact many women at risk for acquiring a STD that might never be questioned or diagnosed due to lack of proper screening techniques. This screening tool could also be altered to be used with the adolescent male population as well.

An area that needs to be addressed and has not yet been discussed by this author, is the fact that the environment also contributes to STD risk. The mass media has glorified sex without counterbalancing prevention messages (OTA, 1991). Children and adolescents are particularly exposed and susceptible to explicit and implicit messages in such media (IOM, 1996). Many adolescents are not receiving appropriate information regarding STDs and sexual behavior from their parents or other sources (IOM, 1996). It is this author's belief that something should be done including writing letters to local TV stations and the larger networks encouraging them to broadcast information regarding STDs and healthy sexual behaviors, including delaying sexual intercourse and using condoms, with a special focus on reaching adolescents and young adults. Another small step, but one that all APN's could participate in is to have educational programs about

STDs and prevention shown on the office waiting room TV instead of the usual afternoon soap operas.

The HBM does have limitations when applied to the adolescent population. The female adolescent must perceive that she is at risk for acquiring a STD and often because of her sense of invulnerability and stage of development this perception is distorted. In order for prevention to occur the female adolescent must perceive a STD as a health threat. The HBM also fails to acknowledge the "positive" motivators of adolescents having sexual relationships. Although the HBM may have some weaknesses in its use with the adolescent population, its emphasis on the individual's perceptions may be the key to influencing adolescent behavior. Educators in the field of sexual health must look at the female adolescent's needs and determine how their present behavior is fulfilling them. After assessing what the female adolescent perceives as barriers be it misconceptions or lack of information, the APN can intervene. Using the findings from the screening tool as a guide, the APN can assess each female individually and design specific interventions to encourage healthy sexual behavior.

Education should continue to focus on teaching modes of STD transmission and effective means of protection. The often-asymptomatic nature of STD infections and the seriousness of the sequale of PID, ectopic pregnancy, and infertility should also be stressed. Instruction on decision making skills and negotiating condom use should be included. The APN should also encourage a return demonstration of condom use on a model to instill a sense of self-confidence in the adolescent patient. It is the hope of this author that with the introduction of the screening tool into the clinical setting, it will stimulate and open discussion among the various health care providers on how to

approach the subject of STDs and how to counsel adolescents on such a sensitive topic. It has been identified that many clinicians and adolescents do not feel comfortable talking about sexual issues but these conversations do need to occur and over time with the use of tools such as this one, a sense of confidence will be developed in the APN.

Although many of the severe health consequences of STDs manifest themselves among adults, these complications usually result from infections or health behaviors initiated during adolescence (IOM, 1996). Adolescent females are at great risk of STDs because they frequently have unprotected intercourse, are biologically more susceptible to infection, and are likely to have social problems that significantly increase their risk (IOM, 1996). The APN working in a primary care setting provided with the proper screening tool can design interventions tailored specifically to the female adolescents needs. Interventions by the APN include targeting misconceptions and perceptions of personal vulnerability and assisting the female adolescent to make a more realistic STD risk assessment. Attitudinal studies of adolescents have suggested that clinician friendliness, understanding and willingness to take their time are important to adolescent's compliance with the STD treatment regime (OTA, 1991). The APN embodies all of these unique qualities and can make a difference in the health and overall well being of the female adolescent patient.

Finally, further research is needed to examine the meaning of sexuality and sexual intercourse for the female adolescent, as well as the influences on her sexual behavior and sense of vulnerability. Most research to date has not shown significant changes in adolescent's behavior after the introduction of STD prevention campaigns. A shift is

needed from teaching just the facts about STDs to addressing the female adolescent's developmental needs and perceptions and maybe this approach will be more successful.

APPENDICES

APPENDIX A

APPENDIX A

Guidelines for Administration of Screening Tool

The screening tool was designed to be administered by the APN in a guided interview type format with the female adolescent patient. The APN will ask the questions directly. The APN should conduct the interview in a quiet, comfortable place and allow at least thirty minutes to conduct the interview. The APN must inform the patient that all answers to the questions are kept confidential and parental consent is not needed for treatment of STDs.

The APN will need to use interviewing and assessment skills to stimulate further discussion, specifically asking the client to tell more about each specific question. The APN will also need to make sure that the client does not answer the questions in such manner that would underestimate her personal risk. The APN will need to clarify questions to prevent this underestimating of personal risk.

There are specific questions that will require more in depth evaluation by the APN. These questions are considered to be potential "red flags" to indicate the female adolescent would be at higher risk of acquiring a STD. The contents of the questions requiring further assessment by the APN are as follows:

1. Patient has an older boyfriend that has been sexually active.
2. Patient is misinformed of the treatment and general knowledge of STDs.
3. Patient thinks parental consent is needed for treatment.
4. Patient has multiple partners.
5. Patient does not believe that delaying intercourse would be beneficial to her.
6. Patient does not consistently or refuses to use condoms.

There are no specific guidelines as to the number of questions the patient has to answer that would indicate risk for a STD, when using the screening tool. The APN must rely on his/her knowledge of STDs, clinical skills and follow recommended standards of care when assessing the female adolescent's responses to the tool.

APPENDIX B

APPENDIX B

A Risk Assessment Tool for Sexually Transmitted Diseases
Early Adolescent Females (10-13years)

Susceptibility to Sexually Transmitted Diseases

1. Have you ever had sex with another person?
2. Have you ever heard of sexually transmitted diseases?
3. Do you think that you can get a sexually transmitted disease?
4. Has your boyfriend ever had a sexual relationship with someone else?

Seriousness of Sexually Transmitted Diseases

1. Will having a sexually transmitted disease cause you pain?
2. Will a pill or a shot always cure a sexually transmitted disease?
3. Will having a sexually transmitted disease make your body look different?
4. If you have sex with someone just once do you have to worry about getting a sexually transmitted disease?

Knowledge of Sexually Transmitted Diseases

1. How do you get a sexually transmitted disease?

   Objects Kissing Sex Don't Know

2. What do you think are signs/symptoms of sexually transmitted diseases?
3. Can you always tell if someone has a sexually transmitted disease?
4. Are sores on genital (private areas) a sign of a sexually transmitted disease?

Benefits of Preventive Action

1. Do you believe it would be good for you if you did not get a sexually transmitted disease?

2. Do you believe that if you wait until you are older to have sex this will help you not get a sexually transmitted disease?

3. If you knew that you could prevent a sexually transmitted disease would you do something?

Barriers to Preventive Action

1. Who would you tell if you thought you had a sexually transmitted disease?

2. Do you know where you could get condoms?

3. Will you need your parents permission to get treated for a sexually transmitted disease?

APPENDIX C

APPENDIX C

A Risk Assessment Tool for Sexually Transmitted Diseases
Middle Adolescent Females (14-16 years)

Susceptibility to Sexually Transmitted Diseases

1. In your whole life how many people have you had sex with?

2. How afraid are you that you might have a sexually transmitted disease in your body now?

3. How many times out of the last ten times that you have had sex, did you use a condom?

4. How sure are you that you can tell if someone you would like to have sex with has a sexually transmitted disease?

Seriousness of Sexually Transmitted Diseases

1. Will a pill or shot always cure a sexually transmitted disease?

2. Will having sexually transmitted diseases affect your future sexual relationships?

3. Could having a sexually transmitted disease prevent you from having children some day?

4. Could you get cancer some day from having a sexually transmitted disease?

Knowledge of Sexually Transmitted Diseases

1. Will taking birth control pills prevent you from getting a sexually transmitted disease?

2. Does using condoms prevent all sexually transmitted diseases?

3. Can you always tell if you have a sexually transmitted disease?

4. Should you still be concerned about a sexually transmitted disease if the symptoms clear up in one to two weeks?

Benefits of Preventive Action

1. Do you believe that it is beneficial to you to avoid sexually transmitted diseases?

2. Do you believe it will be beneficial to you to use condoms?

3. Do you believe if you waited until you were older, to have intercourse, it could help you prevent getting a sexually transmitted disease?

Barriers to Preventive Action

1. Are you embarrassed to use condoms?

2. Are condoms easy for you and your partner to use?

3. Will most clinics require permission from your parents to get treatment for a sexually transmitted disease?

APPENDIX D

APPENDIX D

A Risk Assessment Tool for Sexually Transmitted Diseases
Late Adolescent Females (17-19 years)

Susceptibility to Sexually Transmitted Diseases

1. How afraid are you that you might have a sexually transmitted disease in you body now?

2. How many partners have you had sex with in the past year?

3. Are you confident that you can tell if someone that you would like to have sex with had a sexually transmitted disease?

4. How many times in the last 10 times that you had sex did you use a condom?

Seriousness of Sexually Transmitted Diseases

1. Will a pill or a shot always cure a sexually transmitted disease?

2. Could you get cervical cancer from having a sexually transmitted disease?

3. Could having a sexually transmitted disease prevent you from having children someday?

4. Will having a sexually transmitted disease affect your future sexual relationships?

Knowledge of Sexually Transmitted Diseases

1. Will taking birth control pills or the "shot" prevent you from getting a sexually transmitted disease?

2. Is the only way that you can catch a sexually transmitted disease is by having sex with someone who has one?

3. Can you always tell if you have a sexually transmitted disease?

4. Does using condoms always prevent you from getting a sexually transmitted disease?

Benefits of Preventive Action

1. Do you believe it is beneficial to use condoms?

2. Do you believe it is beneficial to avoid sexually transmitted diseases?

3. Which is more important to you having intercourse or not getting a sexually transmitted disease?

Barriers to Preventive Action

1. Are condoms easy for you and your partner to use?

2. When you use condoms do you enjoy sex?

3. Are you embarrassed to use condoms?

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