Prevalence and Determinants of Adolescent Sexual Risk Behavior

by

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Abstract

Some adolescents are engaging in inconsistent use of contraception in their dating relationships. This behavior places them at high risk for STDs, HIV/AIDS, and unwanted pregnancy. These high-risk sexual behavioral outcomes have social and personal costs that compromise healthy development. A secondary analysis utilizing the Vancouver Family Survey data was conducted in order to broaden the scope of understanding regarding adolescents' sexual health risk behavior. Adolescents sexual risk behaviors are examined within domains of influence including demographic, family, peer, personality, problem behaviors, and high-risk sex practices. With regard to peers, the amount of close friends is shown to be an important protective factor overall for condom use. Risk factors increased with the number of sexual partners and were correlated with drug and alcohol abuse and other problem behaviors. Family influences such as monitoring, specific rules for behavior were found to act as protective and family stresses as risk factors.

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Prevalence and Determinants of Adolescent Sexual Risk Behavior

Introduction

Risky adolescent sexual activity can have consequences such as sexually transmitted disease, HIV infection or unintended pregnancy. Research on early adolescent sexuality has focused primarily on the negative health outcomes of unplanned teen pregnancy and sexually transmitted diseases. More recent research on adolescent sexuality includes a focus on life threatening consequences such as HIV/AIDS.

HIV/AIDS is transmitted through sexual contact and through sharing needles. The only effective means to date, apart from abstinence, of preventing HIV transmission is through the consistent and proper use of latex condoms. The Centers for Disease Control in British Columbia (2002) report that the cumulative number of AIDS cases from 1996 to 2002 reported for ages up to and including age 29 are 437, of which 393 are males and 44 females. Of these reported cases of AIDS, nearly all of them contracted HIV as an adolescent. With this in mind, the focus of this study is on contraception and condom use behavior patterns and their predictors in youth.

Statement of the Problem

HIV and other STDs have social and personal costs that compromise healthy development and are the consequences of risky sexual behavior with respect to contraceptive use. HIV is life threatening. Adolescents make sexual decisions that can increase their risk of HIV infection. The use of alcohol or drugs may also affect the context of sexual activity among adolescents. Inconsistent contraceptive use among adolescents and young adults is a reoccurring theme found throughout the sexuality literature. Just one act of unprotected sexual intercourse can expose an adolescent to a

high risk of infection. McCreary Centre Society statistics revealed that 38 percent of the students surveyed reported having had sex at least once. Fifty percent of the students in grades ten to twelve, and 25 percent of students in grades seven to nine reported being sexually active (Peters & Murphy, 1993). The main objective in this investigation will be to identify the prevalence, risk and protective factors associated with high-risk sexual practices in a Vancouver youth sample.

The Vancouver Family Survey (Barnes, Patton, & Marshall, 1997) includes data on youth dating behavior and sexuality. The youth surveyed were between the ages of 14 and 25. The youth answered questions with respect to their personal experiences with dating, sexuality, drug and alcohol use and contraception. Sexual risk behavior questions in the Vancouver Family Survey (Barnes et al., 1997) include items addressing drinking alcohol before or during sex, using contraception or a condom, having multiple partners, and coerced sexual activity.

The Vancouver Family Survey (Barnes et al., 1997) is a study consisting of a large representative sample. The survey data set includes data on adolescent sexual behavior and problem behaviors such as drug and alcohol use. Comprehensive questions are also included in the survey examining the family, peer, personality and problem behavior domains. Both parents and adolescents were surveyed regarding their experiences and perceptions. Risk and protective factor theory will be the framework for my thesis, and the various domains and their subsequent influencing factors will be identified in this context.

Risk Factors

Risk and protective factor theory has traditionally been directed toward prevention, and looked for antecedents to problem behaviors such as drug and alcohol abuse. The goal of the risk factor component of this approach is to prevent unwanted behaviors by identifying and eliminating, decreasing, or alleviating the antecedent risk factors to those unwanted outcomes such as drug or alcohol abuse.

Hawkins, Catalano, and Miller (1992) divided risk factors into two categories: cultural and societal contextual factors and individual and interpersonal contexts. Jessor (1998) considers risk behavior as risk factors that have undesirable outcomes. These risk behaviors occur at multiple levels and affect individuals personally, socially, or developmentally. Risk factors are considered as conditions that are associated with the higher likelihood of unwanted or negative outcomes. These involve behaviors that can jeopardize health, welfare, or social efficacy (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). Risk factors are thought of as increasing the likelihood of participating in problem behaviors by directly promoting activity or acting as the catalyst to those activities.

Protective Factors

This theory posits that certain personal characteristics or environmental conditions can bring about or lessen the effects of exposure to risks (Hawkins et al., 1992). From this perspective protection involves intensifying abilities to adapt to stresses or strains without being permanently affected.

Jessor et al. (1995) draw protective factors from the personality, perceived environment, and behavior systems of problem behavior theory to show relations

between protective factors and engaging in problem behaviors. Jessor et al. (1995) state that protective factors act to temper the relationship that risk factors have to problem behaviors. Protective factors serve to modify, neutralize or isolate against risk and possibly alleviate the impact of risk. Jessor et al. consider protective factors as independent variables that can have their own direct effects on behavior as well as restraining the relationship between risks and behavior.

Protective factors are also thought to diminish the likelihood of taking part in problem behaviors by acting as personal or social controls against incidents of problem behavior. Protective factors tend to occur contrary to or instead of problem behaviors and are oriented toward generally accepted traditional activities (Jessor et al., 1995). The influences of protective factors decrease the likelihood of problem behaviors taking place and are also thought to change the relation between risk and problem behavior. In problem behavior theory variables are either instigators to or controls against participation in problem behavior (Jessor et al.). Instigators correspond to risk factors and controls to protective factors.

Literature Review

The use or non-use of condoms is indirectly related to multifaceted factors in the literature related to contraception in the context of the threat of HIV. A variety of approaches have been utilized to study predictors of risky sexual behavior in the reviewed literature. The contexts of various domains of influence contribute to patterns of risk-taking or protection. I have separated an individual's context into the various environmental/social domains of influence, demographic, family and peer. Personality, problem behaviors, and high-risk sex practices are included as variables in the individual domain that also have influences as risk or protective. In the reality of individual lives, the borders of the various domains of influence overlap and are interrelated in their effects.

Determinants of adolescent sexual behavior, either risk or protective factors may indirectly or directly influence the use or non-use of condoms. The explanations for adolescent sexual behavior found in the literature run on a continuum from individual, to societal/environmental influences. The literature in the individual domain includes individual conditions, and relationship factors that influence either risk or protective outcomes. Drug and alcohol risk-taking behaviors are also identified as environmental as well as contributing to risky individual sexual behavior. Family and peer dynamics and their interrelations are presented as contributing factors in the family and peer domains as environmental/socializing influences. Demographic variables are also examined as contributors of environmental risk and protective factors.

Environmental Risk Factors

Low social economic status, (SES), particularly conditions of poverty, limited resources, or lack of access, can act as barriers to condom use, and increase vulnerability (Anderson, Nyamathi, McAvoy, Conde, & Casey, 2001; Sobo, Zimet, Zimmerman, & Cecil, 1997). Anderson et al. (2001) studied youth confined in detention and living in inner cities and stated that clusters of risk factors increased adolescents' vulnerability to HIV/AIDS. Focus group research (Anderson et al.) revealed that interactions with peers within their neighborhood environments included engaging in the same drug, sex, and violent behaviors that got them into detention in the first place.

Bronfenbrenner (1979) stated that roles within various social positions in a culture or subculture are a powerful strategy for influencing the course of development. Individuals act on the basis of their own role related expectancies (Bronfenbrenner). Role expectations can present as a risk factor with respect to transmission of social norms regarding the meaning of sexual activity (Nahom et al., 2001). Nahom et al. suggest that social processes are a factor where the societal norm about the meaning of sexual activity for either gender is an influencing factor. Nahom et al. examined the amount of pressure adolescents felt to engage in sexual activity and their perceptions about the number of their peers engaging in sex. Nahom et al. found that perceptions influence more than actual behaviors do, that peer pressure varies by age and gender, and that expectations and desires of the adolescents did not match. Nahom et al. data revealed, "4/5 of the girls expected to have sex even though they did not desire it... and 2/3 of the boys desired sex even though they did not expect it" (p. 154).

Boyer, Tshann and Schafer (1999) also stated peer affiliation and perceptions of peer norms were associated with risk. Low intentions to use condoms and the perception that peers are not using condoms are also identified as predictors of high-risk sexual behaviors (Langer & Girard. 1999). Lang (2001) stated that the peer group is a major influence for maintaining high-risk sexual behavior. Analysis of focus group data (Lang) revealed that being popular was desirable for younger youth and was associated with sexual activity and peer pressure to engage in sexual behavior. Youth reported confidence in knowing sexual refusal skills. However, Lang found that avoiding peer pressure to engage in sexual activity and actually using sexual refusal skills was more difficult for them. Lang states that what is perceived and believed as risky behavior by the peer group ultimately influences what the individual adolescent views as risky behavior. Lang found that misperceptions and lack of personal risk assessment regarding sexual behavior were very common.

Parents' beliefs and the expectations they have of adolescent's behavior factor into discussions on sexuality behavior. Whitaker and Miller (2000) examined whether parent/child discussion had an impact on peer influence, specifically peer norms and subsequent behaviors regarding sexual behavior. The study (Whitaker & Miller) examined both parents' and peer influences on adolescent sexual behavior and whether examples of family/adolescent discussions at the family level would affect adolescent/peer interactions, altering the influences toward individual behavior. The study showed the reverse as occurring. Whitaker and Miller (2000) identified that in the absence of parent/child communication, the individual may look to their peers for information, which ultimately has a greater influence on their individual behavior. Those

adolescents who did not discuss sexual issues with their parents, were at greater risk for lower condom use (Whitaker & Miller). The specific issues in the discussions were about peer norms regarding condom use and the dislike of condoms. Luster and Small (1994) and Resnick et al. (1997) found that sexual risk taking behaviors are influenced by certain family factors such as little or no communication.

Social support is a complex construct, having both risk and protective effects on outcome behaviors. In the literature, social factors related to support were generally identified as preceding, accompanying, or maintaining sexual risk behaviors. St. Lawrence, Brasfield, Jefferson, Alleyne, and Shirley (1994) measured differences in sexual risk behaviors and high and low social supports in African-American adolescents. St. Lawrence et al. (1994) assessed adolescents' perceptions of available social support and whether high or low social support makes a difference in their sexual risk behavior. St. Lawrence et al. identified that perceived low social supports made significant differences in adolescent sexual behavior and seemed to reinforce adolescent risk taking behavior. The variables investigated included: engaging in sex with a partner 'just met and never see again,' being treated more often for STDs, engaging in sex with someone they knew has multiple partners, and being coerced into unwanted sexual activity. The study (St. Lawrence et al.) concluded that perceived lower social supports for adolescents equated with higher risks for HIV infection. Resnick et al. (1997) also looked at social contexts that shaped adolescent behavior. Family and school contexts were examined, with risk factors identified as including emotional health, violence, substance use and sexuality.

Coercive parenting style was also found (Barnes et al., 1997) to be associated with adolescents increasing delinquent risk behaviors. Strained relationship between parents and adolescent as well as corporal punishment as part of the family dynamic and family demographics were also found to be important in research by Luster and Small, (1994); and Resnick et al., (1997) with lower parent education levels being identified as a contributing factor. Luster and Small (1994) identified low levels of parental monitoring and low parental support as part of the family influencing process in high-risk families. Low levels of parental support were a factor in the males and low levels of parental monitoring a contributing factor to sexual risk taking behaviors in females (Luster & Small).

Franz and Poon (1997) in a multi cultural study, found that adolescents were mostly not using family members as their source of HIV/AIDS information. Family living arrangements can provide opportunities to discuss sexuality. Franz and Poon found however that some cultures that had more opportunities to discuss sexuality were actually less likely to do so. Whether sexuality was discussed with children was dependent on family standards, expectations, and varied due to family or cultural values. Franz and Poon also point out that parental supervision also factors into an adolescent's opportunities to engage in sexual activity.

Protective Environmental Factors

Communication studies (Rafferty and Radosh, 1997; Whitaker and Miller, 2000) show that parent communication with their adolescents about sexuality is associated with the adolescent having fewer partners and engaging in less risky sexual behavior. Those parents whose communication specifically related to condom use (Miller, Levin,

Whitaker, & Xu, 1998) had a direct impact on adolescents actually using condoms. Miller et al. (1998) examined the timing, content and the process of communication between mothers and their teens. Results showed that the timing of sexuality discussions prior to adolescent sexual debut had the most influence on greater condom use and had a strong association with current and regular use of condoms (Miller et al.). It was thought that adolescent/parent discussions might interact with peer norms to influence sexual behavior and that in the process of parent/child discussion, parental values may be reinforced (Whitaker & Miller, 2000).

Discussions may also provide an avenue to promote decision-making skills that may in turn reduce peer pressure to engage in sexual behavior (Whitaker & Miller, 2000). The specific topics in relation to adolescent and peer norms were in regard to initiating sex and condoms, specifically "whether discussions about initiating sex relate to sexual behavior and whether discussions about condoms relate to condom use behavior" (Whitaker & Miller, p. 254). The results showed that adolescents who discussed sexual issues including initiating sex, with their parents, identified their parents as the best source of information on sex and generally initiated sex at a later age and had fewer sexual partners (Whitaker & Miller). The study suggests that the adolescents who discuss sexual issues with parents spend more time with their parents, have closer relationships and may be monitored more closely, contributing to the explanation for reducing peer influences with respect to sexual behavior (Whitaker & Miller).

Shoop and Davidson (1994) measured the effects of communication patterns regarding condom use between adolescent and parents, and between adolescent and partners. The study (Shoop & Davidson) defined communication as a perceived ability to

communicate about AIDS, and the ability to express specific desire for condom use. Shoop and Davidson found that adult/adolescent discussions about AIDS might help prepare adolescents to effectively express their desire for condom use with their partner. They also found that specifically expressing desire for condom use was associated with more condom use (Shoop & Davidson). DiClemente (1991) examined how perceived peer norms influence condom use. DiClemente measured partner communication about AIDS, and found that those whose perceived peer norms supporting using condoms were more likely to use condoms consistently.

In the context of family, a high level of family connectedness, parent/adolescent participation in activities, and parental disapproval of being sexually active, were associated with delaying sexual debut (Resnick et al., 1997). In the context of school, high levels of connectedness to school and attending regularly were also associated with some delay in sexual debut (Resnick et al.). Connectedness with school, identified and measured by perceived caring from teachers and high expectations regarding performance, was also found to have positive influence on adolescents and acted as a protective factor (Resnick et al.) Lang's (2001) focus group data revealed that all adolescents in this study were receptive to hearing sex information from adults, specifically their parents and teachers. Perceptions of social supports have influences on adolescent sexual outcomes and Boyer et al. (1999) also included having more social supports as a protective factor.

Feeling connected to family and school is shown to have protective value for adolescent's sexuality. Barnes, et al. (1997) surveyed family influences and perceptions on substance use patterns including smoking, drugs, and alcohol. The data (Barnes et al.)

confirms that parental care and support are important factors that have positive influence on adolescents' risky behaviors. Monitoring of the children within the family environment, from the youth perspective was found to be an important factor protecting against adolescent risk behaviors (Barnes et al.). Connectedness to parents, and not just monitoring behavior was also found to be an important correlate of healthy behavior (Resnick et al., 1997). Connectedness was defined as "feelings of warmth, love and caring from parents" (Resnick et al., p. 830).

Individual Level Risk Factors

Factors that seem to reinforce adolescent sexual risk taking behavior identified by Reitman, St. Lawrence, Jefferson, Alleyne, Brasfield, & Shirley, (1996) were young age at sexual debut and having multiple partners. Shoop and Davidson (1994) found that being able to communicate generally about condom use was not related to actual condom use. Luster and Small (1994) identified a lack of communication regarding birth control for females and for males a history of sexual abuse and suicidal ideation as contributing to sexual risk taking behavior. Resnick et al. (1997) also identified emotional distress, violence perpetration and a history of pregnancy as well as early sexual debut as characteristics associated with risk.

Reitman et al. (1996) and St. Lawrence et al. (1994) also found that low self-efficacy regarding condom use, and previous negative experience with condoms were associated with risky sexual behavior. Boyer, Tshann and Schafer (1999) also stated perceptions of risk and self-efficacy were associated with risk. Greater knowledge deficits, attitudes and behaviors put them at greater personal risk. Adolescents also perceived fewer positive benefits from using condoms (St. Lawrence et al.). Reitman et

al. found that adolescents generally did not even perceive themselves to be at risk for HIV or AIDS.

Problem behaviors such as smoking, alcohol and drug use, antisocial behavior and academic failure were also correlated with sexual risk taking behavior (Luster & Small, 1994). The use of marijuana/alcohol was also found to reduce the likelihood of using condoms (Brown, DiClemente, & Park, 1992). In an earlier study on drug and alcohol use at first intercourse, Leigh, Shafer, and Temple (1995) found that alcohol/drug use with sex, was associated with non-use of contraception. Boyer, et al. (1999) found that alcohol/drug use was associated with sexual experience and sexual risk behaviors. Participants in focus group research (Anderson et al., 2001) expressed their views about HIV/AIDS in connection with personal promiscuous behavior. These views included getting tested for HIV, and the concept of trust within their partner and neighborhood relationships as risks.

Langer and Girard (1999) stated that high-risk sexual behavior occurs if alcohol/drugs is used with sex, because alcohol/drug use causes an impaired state where rational decision making skills compromise the capacity to weigh consequences effectively. However, Langer and Girard found that low decision-making skills were only associated with high-risk sexual behavior not with specific condom use behavior. These results were explained because these participants were found to be using alcohol as an avoidance mechanism.

Tubman, Langer, and Calderon (2001) studied a sample of substance abusers and found that coerced sex was an additional risk factor affecting these participants as well as their partners, who were also more likely to be coerced into sexual activity. Tapert,

Aarons, Sedlar, and Brown (2001) reported that substance-abusing youth are even more likely to engage in sexual risk behavior and had a greater prevalence of HIV. Substance abuse was identified as a risk factor and when combined with sexual activity, contributed to impaired judgment, and inabilities to make safe decisions regarding condom use.

Peters and Murphy (1994) measured attitudes and behaviors of grade seven to twelve students in British Columbia, and compared HIV/AIDS risk taking behavior in at-risk street youth and mainstream youth in school. The data explored factors in the at risk youth that contributed to risk taking behavior, such as emotional distress related to previous abuse and suicidal thoughts or intentions (Peters & Murphy). The study (Peters & Murphy) concluded that HIV/AIDS risk taking behavior is associated with other types of risk taking.

Murphy, Rotheram-Borus, and Reid (1998) examined gender difference in sexual risk behaviors with a focus on cognitive factors and behavioral skills. The cognitive factors measured were risk perception and partner social norms. The behavior skills measured included condom use and negotiation skills (Murphy et al., 1998). Peer/partner social norms varied by gender; females scored higher on perceived peer norms and males on perceived partner norms with respect to safer sex behaviors (Murphy et al.). Gender differences in self-efficacy for condom use were identified: females perceived themselves as able to plan ahead and make condoms enjoyable, whereas males did not (Murphy et al.). In general, adolescents were found to be in need of negotiation skills training to optimize safer sex behavior (Murphy et al.).

Parsons, Halkitis, Bimbi, and Borkowski (2000) studied the perceived costs and benefits of condom use and found that "adolescents age 17 to 25 are more driven by their

perceptions of the positive benefits associated with risky behavior rather than the costs or dangers involved in risk taking"(p. 377). Levels of temptation were identified as a significant factor, as was a high need for optimal arousal, stimulation, and low self-efficacy for safer sex (Parsons et al., 2000).

Christ, Raszka, and Dillon's (1998) data uncovered that obtaining and using condoms effectively was a barrier to condom use, an additional risk factor. In this study (Christ et al., 1998) the only factor that was significantly associated with intending to use condoms was fear of HIV infection.

Persons with differing personality types may conduct their individual sexual behaviors and practices from different perspectives. The research reviewed on popular personality systems measures includes the NEO Five-Factor Inventory (FFI)(Costa & McCrae, 1992) and Eysenck's theory on personality and sexuality (Barnes, Malamuth, & Check, 1984; Barnes & Malamuth, 1998; Pinkerton & Abramson, 1995). The NEO FFI explores five personality traits including neuroticism, extraversion, openness, agreeableness, and conscientiousness. Eysenck made predictions based on three personality traits. Included in his scale are the personality trait measures of extraversion, neuroticism, and psychoticism. Briefly explained: Extraversion measures an individual's social tendencies, a nonspecific mixture of sociability and impulsivity. Psychoticism measures tough mindedness, reflecting asocial and atypical attitudes and tendencies. The neuroticism trait measures emotional instability. A Lies scale is also used with the three personality dimensions to measure social conformity (Eysenck, Eysenck, & Barrett, 1985; Barnes & Malamuth, 1998; Pinkerton & Abramson, 1995). Eysenck's psychoticism measure is comparable to sensation seeking personality trait and other

problem behavior including problems with alcohol (Anderson, Barnes, Patton, & Perkins, 1999). I was unable to find studies directly linking personality factors to sexuality practices. The relationship between personality factors and research on drug and alcohol suggests that contraception patterns and predictors can be drawn from those studies. Personality characteristics associated with alcohol/drug and other problem behaviors may also be expected to predict risky sexual practices. Research by Barnes, Murray, and Anderson (2000) on Addiction Prone Personality (APP) has found that high neuroticism scores and high APP scores to be associated with alcohol and drug abuse. Persons with high psychotism/low social conformity personality scores are more likely to develop alcohol problems including vulnerability to addictions. Current research also anticipates that these characteristics will predict lower contraceptive use.

Individual Protective Factors

Those factors that contribute to condom use, consistent use as well as increased use are considered protective factors. Brown et al. (1992) found that individual perceptions or beliefs that condoms prevented HIV, and that condoms do not reduce sexual pleasure, and that they are not embarrassed about using condoms or believed themselves to be at high-risk for HIV/AIDS, all acted as protective factors. Brown et al. (1992) also found that if the initiation of sexual activity was synonymous with safe behavior, i.e., consistent condom use, that the behavior was more easily maintained in subsequent and future sexual activity. Reitman et al. (1996) also identified that having a positive attitude toward condom use acted as a protective factor. Resnick et al. (1997) found that some individual characteristics acted as protective factors and were associated with later sexual debut. These individual characteristics include value placed on religion,

prayer, and making a pledge to abstain from sex, looking younger than peers, and having a higher GPA.

Two studies (Brown et al., 1992; Reitman et al., 1996) undertook to research what influences and predicts condom use in sexually active adolescents. Brown et al. (1992) and Reitman et al. (1996) found that the best prediction of using a condom was the ability to discuss condom use with a sexual partner. They also uncovered that adolescents were more likely to use condoms if they believed that they were at a higher risk for contracting HIV, that condoms prevented HIV transmission, and if condoms did not reduce sexual pleasure (Reitman, et al.).

Summation of the Literature

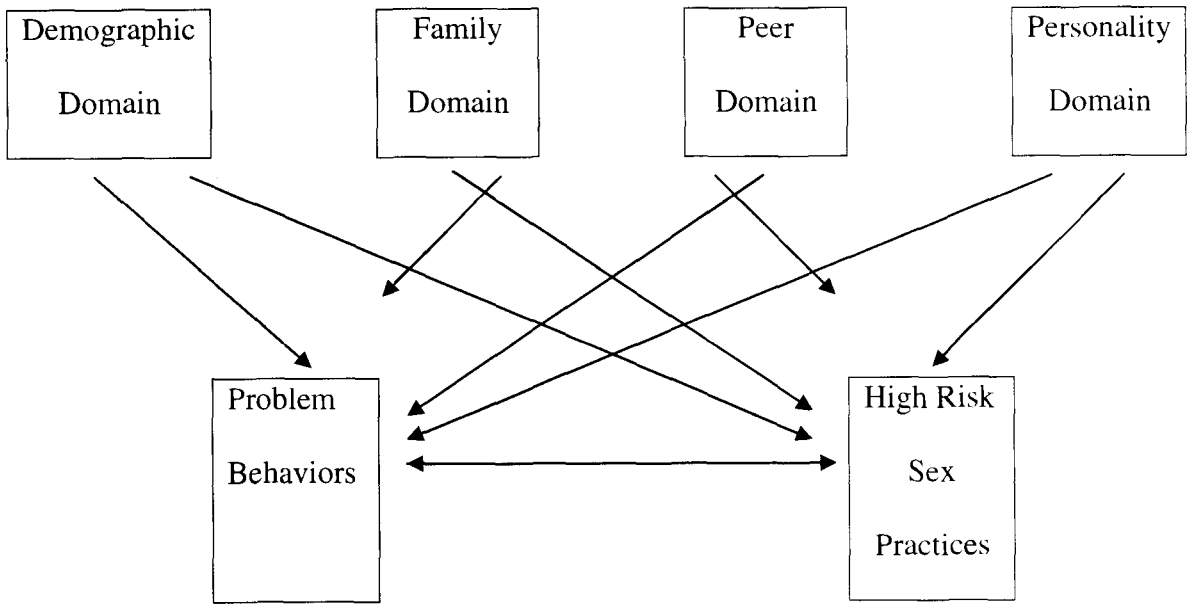
Viewing determinants of adolescent sexual behaviors in a context of risk and protective factors places lives into the context of various influencing domains. Demographic, personality, family, peer, and problem behaviors domains help identify and clarify individual traits, behaviors, and circumstances that can influence behavior. The risk and protective factor theories provide a framework to determine the relationship of these factors and the influences, positive or negative, they have on an individual's behavior. The relation to risk or protective influences are determined based on these previously mentioned domain variables in regard to adolescent sexuality decisions and behaviors.

I have constructed a theoretical model (Figure 1) of risk and protective factors that can be identified in each domain of influence on high-risk sexual practices. Six domains of influence are included: demographic, family, peer, personality, problem behaviors, and high risk sex practices. The demographic, family, peer and personality

domains all have degrees of influence on both problem behaviors as well as high-risk sex practices. These domain influences can act as either risk for or protective against high-risk sex practices. Problem behaviors and high risk sex practices all act as risk factors. The combination of problem behaviors and high-risk sex practices only serves to increase the risk of undesired outcomes.

Figure1*: Theoretical Model*:

Risk and Protective Factors in each Domain of Influence on High Risk Sexual Practices



Methodology

Research Design: Secondary Analysis

Secondary analysis is an approach to research used to analyze data collected by someone else. Secondary analysis can be used to answer questions that were not originally posed in a long-term developmental research study or longitudinal data set (Hyman, 1972). Availability of previously collected data provides a context of published research to utilize in a new way with new questions. Secondary analysis can involve a lengthy process in just conceptualizing the problem to be investigated and formulating questions that have a good fit with the existing data set. Becoming familiar and understanding the original data set, including its strengths and limitations is a necessary part of the process.

Advantages of using a secondary analysis approach vs. conducting a primary research, includes having access to a data set of a large representative sample. Surveys have already been done, so questionnaire design and interview techniques are outside the scope of required experience or influence. Savings of time and money are made evident by obtaining data already quantified, from an existing primary data source (Hyman, 1972; Hinde, 1991). The experience and expertise of the original investigators indirectly adds immeasurably to the advantages of conducting a secondary analysis (Hinde, 1991).

Disadvantages to conducting a secondary analysis also includes using the data for purposes that the original data set did not intend or collect data for. In particular, variables within the original data set may not adequately represent the total context of the queries of interest in relation to a specific new topic (Hinde, 1991).

Problem behaviors, personality and family stress research all provide a framework of the individual in context, to conceptualize variables to conduct a secondary data analysis. The purpose of this secondary analysis is to determine what factors predict adolescent contraceptive behavior and determine to what extent, risk or protective, the various domains of influence have on those behaviors.

Main Objective

Examine contraceptive use patterns in the Vancouver Family Survey youth sample. Associations within the contexts of family influences, personality traits, and their propensity toward risk or protection will be identified.

The following hypotheses are based on the literature on contraceptive use and the theories on family and peer influences, problem behaviors and personality. In my secondary analysis of the Vancouver Family Survey data set I expect to find the following associations:

Demographic Domain

Risk factors:

The demographic variables of age; gender; and times moved last year, from the Vancouver Family Survey are expected to act as risk factors.

1. Gender differences in sexual frequency and number of sexual partners will be higher in males and males may therefore be at higher risk.

2. Involvement in other problem behaviors such as drug and alcohol, in combination with risky sexual practices will be higher in females.

3. An increased number of moves will be associated with less use of contraception.

Demographic Domain

Protective factors:

Variables from the Vancouver Family Survey that are expected to reveal protective outcomes include: income and educational levels of the mother and father as well as both mother and father occupation status. Another variable: how long at current address, is expected to act as protective.

1. Higher parental education and income levels will be associated with more contraceptive use in adolescents.

2. Longer time spent at present address will be associated with greater contraceptive use.

3. Increased use of contraception will be associated with older adolescents.

Family Environment Domain

Risk factors:

Within the Vancouver Family Survey data, family variables relating to a coercive parenting style are risk factors. Risk factors tested include the following variables:

1. Parenting Overprotection: Mothers Parental Bonding Instrument (PBI) and Fathers Parental Bonding Instrument (PBI) (Parker, Tupling, & Brown, 1979).

2. Family Stress: Mothers Family Inventory of Life Events (FILE); Fathers Family Inventory of Life Events (FILE) (McCubbin, Wilson, & Patterson, 1979 as cited in Olson & McCubbin, 1982).

3. Parental Coercion: Mother Coercion and Father Coercion

4. Parental Alcohol Abuse: Father two or more CAGE items; Mothers two or more CAGE items (Ewing & Rouse, 1970).

The Family environment risk factors include the following hypothesis:

1. Sexual behavior without contraception will be positively associated with parental overprotection, parental coercion, family stress and parental alcohol abuse.

Family Environment Domain

Protective factors:

Vancouver Family Survey nurturing variables are associated with being protective. Positive parenting practices as listed below are expected to be protective and positively associated with contraceptive use.

1. Family Resources: Fathers Inventory of Resources for Management (FIRM) and Mothers Inventory of Resources for Management (FIRM) (McCubbin, Comeau, & Harkins, 1979).

2. Family Cohesion: Adaptability, Cohesion linear score

3. Parental Supervision: Monitoring, Specific rules for behavior, Father carry out punishment, Mother carry out punishment, and Strictness

4. Parental Care: Fathers care score, Mothers care score, Parental Bonding Instrument (PBI) Father care scale (Parker, Tupling, & Brown, 1979); PBI Mother care scale

5. Other Supportive Parental Strategies: How were decisions made-Father, Know what Father expected, Father Induction, Talked about personal problems-Father, Talked about plans-Father, Father Support, How were decisions made-Mother, Know

what Mother expected, Mother Induction, Talked about personal problems-Mother, Talked about plans-Mother, Overall Support

1. Parental monitoring, clear expectations for behavior, and high levels of parental support and family strengths for managing life situations will be positively associated with contraceptive use.

Personality Measures Domain

Risk factors:

Six variables from the Vancouver Family Survey data are examined within the personality domain. Extraversion and Neuroticism personality traits are expected to act as risk factors, as are high scores on the PREAD measure (Barnes, Murray, Patton, Bentler, & Anderson, 2000).

1. Decreased contraceptive use will be associated with: high neuroticism, high extraversion, and high addiction proneness.

Personality Measures Domain

Protective factors:

Personality traits including Agreeableness, Conscientiousness, and Openness are expected to act as protective.

1. Increased contraceptive use will be associated with: openness, high agreeableness, and high conscientiousness.

Peer Environment Domain

Four variables from the Vancouver Family Survey were tested in the peer domain.

Risk factors:

Two variables; peer illicit drug use and peer vs. friends influence are expected to act as risk factors.

1. Peer drug use is expected to influence individual behavior in a negative way and contribute to lower contraceptive use.

2. Higher peer influence vs. parental influence will be associated with lower contraceptive use

Peer Environment Domain

Protective factors:

Two variables in this peer domain are expected to act as protective: Amount of close friends and Parents/Friends Compatibility.

1. The number of close friends will be positively associated with higher contraceptive use.

2. Parents/friends compatibility will be associated with higher contraceptive use.

Dating Behavior Domain

Risk factors:

Questions included in the Vancouver Family Survey regarding risky sexual behaviors include the following: number of sex partners in the last year?; drink before sex?; drink and sex without condom?; and drink and sex without contraception?. These variables are all expected to act as risk factors.

1. Not using contraception will be associated with other problem behaviors, such as drug and alcohol use and abuse, and increased number of sexual partners.

2. Engagement in alcohol behavior preceding engagement in sexual behavior will predict non-contraceptive use.

Dating Behavior Domain

Protective factors:

One question: How long with present partner?, is expected to have protective outcomes.

1. Increased contraceptive use will be associated with length of time with a present partner.

Problem Behaviors

The relationship with other problem behaviors is associated with health risk behavior and is not viewed as predictor variables. Contraceptive non-use and other health risk behaviors are likely associated because underlying predictors that are common to both behaviors influences them each.

Design

The Vancouver Family Survey Phase 1 data set, includes both biological and adoptive families, and is a rich data set for examining the effects of the family environment on the course of development. The primary purpose of the Vancouver Family Survey was to examine the associations between family environment and substance use and abuse. The Vancouver Family Survey collected data from a large representative sample in the greater Vancouver area. The original study proposed to screen over 100,000 families in order to identify a sample of intact families with children, ages 14 to 25, living at home. Data collection was restricted to intact families to allow for an examination of the influence of both parents on offspring development (Barnes et al. 1997).

Sample Description

Each family included in the survey was intact and have either biological or adopted children in the 14 to 25 year age range living at home. The sample included 473 biological families and 128 adoptive families. The survey questions were administered to the youngest child in the 14 to 25 year age range and to both parents.

Measures

A variety of measures are used in the Vancouver Family Survey data. The measures are used to identify family influences, personality traits, and alcohol and problem behaviors. For the purposes of a secondary analysis on contraceptive use, these measures are expected to yield information to broaden the scope of understanding adolescent health risk behaviors. These measures are described in detail in the demographic, family domain, personality domain, and problem behavior domain sections below. The contraceptive and condom use questions are included in Appendix A.

Demographics

The demographic variables included in the Vancouver Family Survey data include age, gender, the number of changes of address, and length of time at present address, and individual measures for fathers and mothers educational and income levels.

Family Domain

The Family Adaptability and Cohesion Evaluation Scales (FACES).

This is a self-report scale developed in 1978 (Olson & McCubbin, 1982) to measure each of the 16 variables related to the cohesion and adaptability dimensions. There are six items for processing each of the 16 variables related to the Circumplex model plus a 15-item social desirability scale, making a total of 111 items in FACES.

Each family member completes FACES in terms of his or her perception of the marital and family system. Each has a score in the two dimensions and the social desirability score. Individual scores can be plotted so that it is possible to compare family members (Olson & McCubbin, 1982).

Family Inventory of Life Events (FILE).

The original instrument (McCubbin, Wilson, & Patterson, 1979 as cited in Olson & McCubbin, 1982) contained 171 items and was an adaptation on the original ABCX model, which incorporated the construct of multiple life changes occurring in a short time or "pile-up". O'Brien and Brown, (1994) state that "FILE assesses cumulative stressors in order to provide an index of family stress and to identify family's vulnerable to crisis" (p. 261).

The current FILE scale is a 71-item self-report instrument, grouped into subscales, originally designed to measure families' level of stress by recording the normative and non-normative life events and changes experienced by them during the past 12 months. The FILE also includes family life cycle stage events. The FILE provides an index of the family's vulnerability as a result of this pile-up of dealing with several life changes or events simultaneously. The subscales in the reduced 71-item questionnaire include: family development, extended family relationships, health, work, finances, management, social activities, and law (O'Brien & Brown, 1994).

The Family Inventory of Resources for Management (FIRM).

The FIRM (McCubbin, Comeau & Harkins, 1979) is a 69-item self reports instrument, which assesses the family, social-psychological, community and financial

resources, the family system, and social support dimensions. It includes family strengths, extended family social support, and financial well-being scales.

The Parental Bonding Instrument (PBI) (Parker, Tupling, & Brown, 1979) consists of two scales. One scale contains 13 items and measures parental overprotection. The other scale contains 12 items and assesses parental care.

The Vancouver Family Survey data set (Barnes et al., 1997) also includes parental control and support variables from Grace Barnes research (1990). Parental control variables include parental rules, strictness, punishment, overprotection, and coercion. Supportive measures include how decisions were made, parental monitoring and support, knowing what is expected, and talking about plans and personal problems with parents.

Personality Domain

NEO Personality Inventory (NEO-PI).

The NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1992) was developed as a short form of the NEO-PI. This instrument consists of personality descriptions designed to correlate age, sex and education level demographics with basic tendencies identified in five factor/domains of personality identified as: neuroticism, extroversion, openness, agreeableness, conscientiousness. Each one of the five factors is derived from six facets that form the dynamic process of each particular personality domain. The facet scales include the following measures: neuroticism facets include anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability; extroversion facets include warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions; openness facets are fantasy, aesthetics, feelings, actions, ideas, and values; agreeableness facets are made up of trust, straightforwardness,

altruism, compliance, modesty and tender mindedness traits; a conscientiousness facet consists of competence, order, dutifulness, achievement striving, self-discipline, and deliberation factors.

Development of Pre-alcoholic/APP Measure.

Barnes, Murray, Patton, Bentler, and Anderson (2000) purpose for developing a prealcoholic or addiction prone personality measure was to develop a personality measure that would prospectively predict who would be likely to abuse alcohol and other drugs. The pre-alcoholic personality measure (PREALC) was the original test and consisted of a self-report questionnaire on personality containing 23-items. The Addiction Prone Personality (APP) scale is a measure of personality vulnerability to substance abuse and contains the modified PREALC measure and consists of the 21-item scale (Barnes et al., 1997). The 21-item scale is used to test predisposition to addictive behaviors.

Barnes et al. (2000) state that as a basic construct the APP 21 measures personality traits that are present before the onset of a problem. The measure taps into traits of personality that are related to physiological dependence on alcohol. APP has been found to have predictive ability for the incidence of development of new cases of alcoholism and to predict the deterioration of alcohol-related problems.

Research by Barnes et al. (2000) on personality and alcohol abuse supports two pathways that may result in addiction. The first path of addiction is through stimulus reduction/sensation seeking and alcohol consumption increasing to alcohol abuse. The second path to addiction identified in the research shows that a history of the abuse expressed through the psychoticism/low social conformity factors are more likely to

develop alcohol problems. The APP combined these two pathways into a single measure of vulnerability to addiction.

Problem Behavior Domain

The CAGE test is a screening measure for alcohol abuse and prevalence of alcohol related problems (Ewig & Rouse, 1970).

The MAST Michigan Alcoholism Screening Test (MAST; Pokorny, Miller & Kaplan, 1972) is a 10-item measure consisting of drinking related consequences.

The Jessor, 12-item general deviance scale and a 13-item adolescent deviant behavior scale, an abbreviated conflict tactics scale (Barnes, Greenwood, & Sommer, 1991; Sommer, 1994; Straus, 1979), and smoking and illicit drug use measures are also included in the data set.

The dependent smoking and illicit drug use variables include the following:

1. Smoking measures: amount and frequency, age of onset, and parental use of tobacco.

2. Quantity, frequency, and type of alcohol consumption, drinking and marijuana use activities.

3. Frequency of other drug use including: Cocaine/crack, LSD, speed, and heroin.

4. Use/misuse of medications and in combination with alcohol.

Data Analyses

Data analyses were completed in a sequence starting with looking at univariate associations between predictors in each domain and high-risk sexual practices. Techniques including correlation analysis, and one-way ANOVAs were used as

appropriate. In the second stage of the data analysis predictors within each domain were combined in separate linear regressions to predict high-risk sexual practices. In the final step of the data analysis, predictors that were previously found to be significant in the individual domain analyses were entered in a combined regression model.

Results

Demographics of the Sample

The demographic characteristics of the youth sample interviewed in the Vancouver Family Survey with respect to age, gender, family structure (biological vs. adopted) religion and income are summarized in Table 1. The average age of the youths living at home was 17.9 years. Males and females were fairly equally represented in this sample. English was the language spoken in the majority of households (94.5 percent). Almost half of the respondents reported no religious affiliation (46.7 percent). The balance (53.3 percent) reported a combination of Protestant, Catholic, and other religious beliefs. The average income range of the parents of these youth was in the 60 to $69,000 range.

Responses on Dating Behavior

Of all the respondents in this survey 44.3 percent reported never had sex. (See Table 2) Frequency data also revealed that 48.6 percent of adolescents reported not having any sex partners in the last year, 32.5 percent reported having had one partner in the past year. 15.1 percent reported having two or three partners, 2.3 percent reported four to six partners and 1.5 percent reported having more than six partners in the past year. In response to being asked how often no contraception was used, 57.1 percent stated never. Others reported not using contraception one to two times (22.2 percent), and three to six times (6.5 percent). Another 14.2 percent of the sample reported not using contraception more than six times. In response to using a condom, 50.4 percent reported always using a condom, 13.5 percent reported never using a condom, 16.9 percent reported sometimes, and 19.2 percent reported frequent use of a condom.

Table 1

Demographic Characteristics of the Sample

Category	N	%
Age		
M		17.86
Range		14-25 years
Gender		
% Female	300	49.9
% Male	301	50.1
Language Spoken (Family of Origin)		
% English	568	94.5
% Other	33	5.5
Religion		
% None	277	46.7
% Protestant	101	17.0
% Catholic	109	18.4
% Other	106	17.9
Biological vs. Adopted Family		
% Biological Youth	473	78.7
% Adopted Youth	128	21.3
Family Income		
Mdn Range		$60,000 – 69,000
Overall Range		≤ $10,000 - ≥ $80,000

Table 2

Frequency of Responses on Dating Behavior

	N	%
Ever had sex?		
never	208	44.3
once or twice	41	8.7
3 to 6 times	33	7.0
7 to 12 times	21	4.5
more than 12 times	167	35.5
Sex partners in last year?		
none	229	48.6
one	153	32.5
two or three	71	15.1
4 to 6	11	2.3
more than 6	7	1.5
How often no contraception?		
never	149	57.1
1 to 2 times	58	22.2
3 to 6 times	17	6.5
more than six times	37	14.2
Use condom?		
never	36	13.5
sometimes	45	16.9
frequently	51	19.2
always	134	50.4

A one-way analysis of variance of dating behavior and contraceptive use patterns by gender shows significant differences in sex partners in last year and use of condoms. The direction of effects, shown in Table 3 reveals that males report more partners than females. Males also report using condoms more often than females report.

Responses on Drinking and Sexual Behavior

Frequency data (Table 4) revealed that 38.7 percent of respondents reported never drinking before having sex. 55.4 percent reported sometimes drinking, 3.7 percent reported drinking frequently before sex, and 2.2 percent reported always drinking before sex. In this sample 54.8 percent reported never drinking and having sex without a condom. 35.6 percent reported sometimes drinking and having sex without a condom. Drinking without using any type of contraception was reported as never occurring by 48.9 percent of the respondents. Another 39.3 percent reported sometimes not using contraception, 5.2 percent reported frequently not using contraception and 6.7 percent reported always drinking and having sex without using contraception.

One-way analysis of variance showed significant differences in drinking before sex without using contraception. Table 5 (drinking and sexual behavior by gender) shows that females report drinking before sex without using contraception more often than males.

Demographic Predictors

Several significant associations between demographic characteristics and contraceptive use patterns were found. (See Table 6)

Table 3

Dating Behavior and Contraceptive Use Patterns by Gender

	Males	Females	F
Ever Had Sex	5.77	5.25	.88
Sex Partners in Last Year	1.11	.76	7.98**
How Often No Contraception	1.60	1.79	.33
Use Condom	2.23	1.89	6.32*

*p<.05. **p<.01.

Table 4

Frequency of Responses on Drinking and Sexual Behavior

	N	%
Drink before sex?		
never	104	38.7
sometimes	149	55.4
frequently	10	3.7
always	6	2.2
Total	269	100
Drink and sex with no condom?		
never	103	54.8
sometimes	67	35.6
frequently	9	4.8
always	9	4.8
Total	188	100
Drink and sex with no contraception?		
never	66	48.9
sometimes	53	39.3
frequently	7	5.2
always	9	6.7
Total	135	100

Table 5

Drinking and Sexual Behavior by Gender

	Males	Females	F
Drink Before Sex	.69	.70	.03
Drink and Have Sex with No Contraception	.54	.85	4.80*
Drink and Have Sex with No Condom	.55	.64	.60

Note: *p< .05.

Table 6

Demographic Characteristics and Contraceptive Use Practices Correlations

Variables	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Risk Factors						
Age	.06	.11	-.00	-.16**	-.30**	-.01
Times moved in last year	.02	.08	-.05	.01	-.00	.03
Protective Factors						
Fathers education level	-.08	-.05	-.11	.13*	.08	.16
Mothers education level	-.07	-.04	-.09	.08	-.01	.14
Fathers income level	.05	.09	-.01	.05	.04	.11
Mothers income level	.05	.14	-.04	-.00	-.10	.09
How long at current address	.00	-.07	.09	-.17**	-.24**	-.11
Father occupational status	-.10	-.17*	-.01	.02	.04	-.02
Mothers occupational status	.03	.02	.05	-.06	.07	-.21*

*$p<.05$. **$p<.01$

Risk factors:

Age and times moved last year variables are expected to act as risk factors for youth. Older youth overall and males in particular reported not using condoms. The number of times moved last year showed no significant findings in relation to either contraception or condom use behavior. This is in contrast to my hypothesis based on prior research.

Protective factors:

Father's and mother's education level, father's and mother's income levels and father's and mother's occupational status were expected to act as protective factors in relation to contraception and condom use behavior. Higher father education was associated with higher reported use of condoms (.13*). This is consistent with my hypotheses however the social economic indicators were not significant. Lower mother's occupational status correlated with females using less condoms (-.21*). This is also consistent with the hypothesis made. The longer time spent at a current address correlated with less condom use overall (-.17**), and in the males (-.24**). These findings are contrary to what was hypothesized; the expectation was that longer time spent at a current address would act as a protective factor.

Regression analysis:

In the final regression analysis (Table 7) the significant demographic variables of: how long at current address, mother's occupational status, and father's educational level were used to predict contraceptive use patterns. Results of this regression analysis showed that older males reported not using condoms. The direction of effects although not significant are not the same for age in females. The longer time spent at the current

Table 7

Demographic Characteristics and Condom Use Regressions

Predictors	Condom Use		
	Beta		
	Overall	Male	Female
Age	-.10	-.25**	.07
How long at current address	-.15*	-.15	-.15
Mothers occupational status	-.05	.09	-.20*
Fathers education level	.12*	.09	.15
Adjusted R^2	.05	.09	.06

*$p<.05$. **$p<.01$

address, the less likely the youth was to report using a condom. Low Mother's occupational status indicates less condom use overall and in females.

Although not significant, the direction of effects differs in males and indicates lower occupational status in mothers as having a positive effect on males using condoms.

Family Environment: Youth Perspective

Risk factors:

Parenting overprotection and parental coercion are parental behaviors both of which are expected to be associated with less contraceptive use behaviors in youth. Table 8 shows the following findings: The more mothers are overprotective the less contraception is used overall and by females. This is consistent with the hypothesis. The more coercive a father's parenting style is revealed that the more a condom is used by youth overall. This finding is contrary to what was expected.

Protective factors:

The youth's perspective of the family environment tested family cohesion, parental supervision, parental care, and other supportive parental strategies. These variables are expected to act as protective factors, and are shown in Table 9. The more adaptable the family is overall correlates with both greater use of contraception and with more condom use in the youth. Parental supervision, specifically the more parental monitoring in relation to contraception use, the more contraception use is reported overall and by males. Specific rules for behavior also have more effect on using condoms more often overall and in males. Parental care variables showed that more care from fathers results in more contraceptive use particularly in males. More care received from fathers

Table 8

Youth Perspectives of Family Environment Risk Factors

Risk Factors	No Contraception			Condom Use		
	Overall	Male	Female	Overall	Male	Female
Parenting Overprotection:						
PBI Father overprotection	.02	-.03	.02	.09	.13	.10
PBI Mother overprotection	.17**	.16	.19*	-.01	.01	-.02
Parental Coercion:						
Father coercion	-.10	-.02	-.18	.13*	.07	.15
Mother coercion	.07	.06	.09	.05	.02	.02
Overall coercion	-.02	.01	-.05	.11	.06	.09

*$p<.05$. **$p<.01$.

Table 9

Pearson Correlation Coefficients: Youth Perspectives of Family Environment Protective Factors

Protective Factors	No Contraception			Condom Use		
	Overall	Male	Female	Overall	Male	Female
Family Cohesion:						
Adaptability	-.14*	-.17	-.13	.13*	.14	.15
Cohesion linear score	-.12	-.13	-.14	.07	.11	.08
Parental Supervision:						
Monitoring	-.22**	-.34**	-.14	-.05	-.01	-.01
Specific rules for behavior	-.07	-.10	-.05	.17*	.24**	.15
Father carry out punishment	-.03	.00	-.06	.07	.07	.04
Mother carry out punishment	-.09	-.05	-.12	.06	.02	.06
Strictness	.03	-.01	.07	.05	.04	.08
Parental Care:						
Fathers care score	-.16	-.29**	-.02	.13*	-.02	.25**
Mothers care score	-.06	-.01	-.10	-.02	-.08	.04
PBI Father care scale	-.09	-.20*	.02	.06	.14	.05
PBI Mother care scale	-.13*	-.13	-.12	.01	.10	-.05
Father support	-.06	-.14	.01	.08	.12	.08
Overall support	-.09	-.15	-.05	.08	.14	.05

Table 9 continued

Protective Factors	No Contraception			Condom Use		
	Overall	Male	Female	Overall	Male	Female
Other Supportive Parental Strategies:						
How were decisions made-Father	-.03	.07	-.13	.03	.03	.01
Know what Father expected	.02	.05	-.00	.06	.19*	-.06
Father induction	-.09	-.10	-.06	.16**	.15	.13
Talked about personal problems-Father	-.11	-.14	-.07	.12*	.08	.14
Talked about plans-Father	-.03	-.08	.02	.12	.11	.11
How were decisions made-Mother	-.03	-.03	-.02	.00	-.06	.02
Know what Mother expected	-.02	-.01	-.04	-.06	-.01	-.08
Mother induction	.03	.03	.04	.02	-.03	.02
Talked about personal problems-Mother	-.04	-.03	-.07	.04	.10	.02
Talked about plans-Mother	.00	-.10	.10	.08	.13	.02

*p<.05. **p<.01

is also significant overall and for females in regard to more condom use. More care received from mother's indicates more contraception use overall. Other supportive parental strategies revealed that knowing what father expects is related to using more condoms in males. Father induction and also talking to father about personal problems relates to using more condoms overall.

Family Environment: Parent's Perspective

Instruments used to measure family pile-up of stressors and strains (FILE) and an alcohol measure (CAGE) were tested as risk factors. Family perception of their inventory of available resources for management (FIRM) measure was used as a protective variable. (See Table 10)

Risk factors:

Family environment variables in regard to no contraception were not significant in the correlational analyses. Only condom use findings were found to be significant. Stressful family environment variables, mother's and father's family inventory of life events (FILE) were tested, as was both mother and father two or more CAGE items, an alcohol drinking measure. The father FILE score was positively correlated with condom use in females. The higher father stress scores relate to less condom use by females. This is consistent with my hypothesis of family stress associated with not using contraception. High Father's CAGE scores relate to high condom use in females. In this case fathers' drinking acts as protective, inconsistent with my hypothesis.

Protective factors:

A family's perception of their inventory of resources for management (FIRM) measures were tested for both mother and father perceptions of resources. High father's

Table 10

Pearson Correlation Coefficients: Parental Perceptions

Variables	No Contraception			Condom Use		
	Overall	Male	Female	Overall	Male	Female
Risk Factors						
Fathers two or more CAGE	-.01	.02	-.04	.12	.05	.20*
Mothers two or more CAGE	-.01	-.06	.03	.02	.03	.03
Fathers FILE score	.05	.02	.10	-.07	.03	-.21*
Mothers FILE score	.07	-.02	.18	-.00	.06	-.08
Protective Factors						
Fathers FIRM score	-.07	-.04	-.12	.09	-.04	.24**
Mothers FIRM score	.01	.06	-.05	-.02	-.08	.06

*$p<.05$. **$p<.01$

FIRM scores, reflecting father's perception of high family resources is associated with more condom use (.24**) in females. This is consistent with my hypothesis.

Family environment regression:

In the regression analysis separate predictor variables for contraception and condom use were utilized. These variables were selected based on significance levels from the correlation data results from both parents and the youth's perspective. The results are shown in Table 11. With regard to contraceptive behavior, only the protective factor of more parental monitoring remained significant in relation to increased use of contraception overall and for females. In regard to condom use behavior, four predictor variables revealed significant findings. With regard to increased condom use behavior (see Table 12) greater perceived family adaptability remained a significant predictor of condom use, overall and in males. Specific rules for behavior also remained as a protective factor for increased condom use behavior. Risk factors that remained significant include father's stressful life events. Fathers drinking, expected to act as a risk factor, remained protective for females and overall.

Personality Characteristics

Correlations between personality and contraceptive use patterns are presented in Table 13. Agreeableness, Conscientiousness, Openness, Extraversion, and Neuroticism are the personality trait measures. An addiction prone characteristics measure (PREAD) was also included.

Risk factors:

Extraversion, Neuroticism and the PREAD, alcohol measure were expected to act as risk factors. Results showed that high Extraversion Scale scores were related to high

Table 11

Family Environment Regression: No Contraception

Predictors	No Contraception		
	Beta		
	Overall	Male	Female
Risk Factors			
PBI mother overprotection	.13	.09	.12
Mothers FILE	.02	-.07	.12
Protective Factors			
PBI Father care	.02	-.15	.20
Adaptability	-.07	-.04	-.17
Cohesion	.03	.07	-.01
PBI Mother care	-.00	.04	-.02
Monitoring	-.18**	-.32***	-.03
Adjusted R^2	.04	.11	.02

**$p<.01$. ***$p<.001$

Table 12

Family Environment Regression: Condom Use

Predictors	Condom Use		
	Beta		
	Overall	Male	Female
Risk Factors			
Father coercion	.10	-.01	.08
Fathers two or more CAGE	.18**	.04	.33**
Fathers FILE	-.12	-.01	-.20**
Protective Factors			
PBI Father care	.07	.05	-.12
Adaptability	.22**	.21*	.23
Father induction	.07	.08	.07
Talked about personal problems - Father	-.03	-.11	.00
Specific rules for behavior	.17**	.24*	.20**
Fathers FIRM	.04	.09	.17
Adjusted R^2	.07	.05	.14

*$p<.05$. **$p<.01$. ***$p<.001$

Table 13

Personality Characteristics and Contraceptive Use Correlation

Personality Scale	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Risk Factors						
FFI Extraversion	-.02	-.10	.05	.14*	.11	.16
FFI Neuroticism	.09	.16	.01	-.08	-.13	.01
PREAD	.19**	.17	.23*	.01	-.10	.03
Protective Factors						
FFI Agreeableness	-.28**	-.34**	-.24**	.06	.11	.09
FFI Conscientiousness	-.21**	-.19*	-.22**	.05	.09	.03
FFI Openness	.01	-.03	.05	.02	-.03	.08

*$p<.05$. **$p<.01$

condom use behavior. Results show that high extraversion traits relate to increased condom use overall. This finding is inconsistent with my hypothesis. High scores in PREAD indicate more tendencies toward addiction proneness and high scores in the no contraception measure relates to more often not using contraception. Results show that higher scores on addiction proneness are associated with not using contraception in the overall sample and in females.

Protective factors:

Agreeableness, Conscientiousness, and Openness personality trait measures are expected to act as protective for the individual. Only Agreeableness and Conscientiousness personality trait measures were significant with regard to the no contraception measure. The results were all negative. High scores on the personality measure indicate having more of this trait and low scores on no contraception measure indicates using contraception more often. Results show that the more agreeable and conscientious youth are the more they are using contraception. The findings were consistent with my hypothesis.

Regression analysis (Table14) revealed that only the Agreeableness personality trait is predictive of not using contraception. However Agreeableness only remained significant overall and for males.

Peer Environment

Four variables were used to measure peer environment influence on contraception behavior, (see Table 15).

Table 14

Personality Characteristics and Contraceptive Use Regressions

Predictor	No Contraception Beta		
	Overall	Male	Female
PREAD	.03	.02	.11
FFI Agreeableness	-.21**	-.31***	-.08
FFI Conscientiousness	-.10	-.05	-.15
Adjusted R^2	.08	.10	.06

**p<.01. ***p<.001

Table 15

Peer Environment and Contraceptive Use Correlations

Peer Variables	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Risk Factors						
Peer Illicit Drug Use	.09	.09	.09	.03	-.04	.09
Peer/Parent Influence	.10	.12	.08	.02	-.04	.07
Protective Factors						
Amount of close friends	-.10	-.13	.07	.20**	.13	.29**
Parent/ Friends Compatibility	-.06	.06	-.19	.16	.03	.24

*p<.05. **p<.01.

Risk factors:

Peer illicit drug use and peer/parent influence were expected to act as risk factors. These measures did not reveal any significant findings.

Protective factors:

The amount of close friends and parent/friends compatibility are expected to act as protective factors. Those youth overall who have more close friends and particularly females report more condom use behavior. This is consistent with my hypothesis. However, Parents/friends compatibility failed to show any significant findings, which is inconsistent with my hypothesis.

Dating Behavior

Three variables were tested in the dating behavior domain (see Table16).

Risk factors:

The two variables tested, sex partners in last year?, and drink before sex are expected to act as risk factors. Both variables correlated with no contraception and not with condom use behavior. High scores on contraception indicate youth not using contraception. Having more sex partners related to less contraceptive use in youth. Also reported was more drinking before sex, overall and by males and this related to less contraceptive use. This is consistent with my hypothesis.

Protective factors:

The variable, longer time with a present partner, is expected to act as protective and be associated with increased condom use behavior. This variable only correlated with condom use behavior. High scores indicate longer time with present partner and the negative score indicates not using condoms. Results show that the longer time with a

Table 16

Dating Behavior and Contraceptive Use Correlations

Variables	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Risk Factors						
Sex partners in last year?	.23**	.29**	.18*	.02	-.05	.07
Drink Before Sex	.16*	.26**	.04	-.04	-.08	-.01
Protective Factor						
How long with present partner?	-.01	.08	-.09	-.16*	-.18	-.12

*$p<.05$. **$p<.01$

present partner, the less often condoms are used (-.16*). This is not consistent with my hypothesis.

Alcohol and Dating Behavior

Alcohol variables measured in this domain are shown in Table 17. All of these measures were expected to act as risk factors. High scores on all of these measures indicate greater use of alcohol. All the variables have a positive relationship with no contraception, in which high scores indicate not using contraception. All the alcohol measures variables showed significant findings in relation to not using contraception. Low scores on condom use indicate not using condoms and also relates to higher alcohol use. The respondent drinking measures results showed significant findings with not using condoms in males. These alcohol measures were not viewed as predictors, but rather symptoms of underlying problems that were probably caused by similar factors as those predicting contraceptive use patterns.

Other Problem Behaviors

Other problem behaviors as seen in Table 18 measures include: cannabis and other illicit drug use, smoking behaviors, Jessor Deviant Behavior Scales, school marks, runaway and criminal behavior, and a conflict tactics scale. These variables were all expected to show positive associations with less contraceptive behavior including less condom use. The other problem behaviors tested all correlated with contraception behaviors and none of them showed any significant findings with condom use behavior. High scores on both Jessor Deviant Behavior scale and conflict tactics scale correlated with not using contraception overall and particularly for females. Cannabis and other illicit drug use correlated with less contraceptive behavior overall and in the males.

Table 17

Alcohol Measures and Contraceptive Use Correlations

Risk Factors	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Respondent CAGE	.32**	.42**	.20*	-.11	-.27**	.02
Daily average ethanol 1	.20**	.25**	.15	-.05	-.09	-.05
Daily average ethanol 2	.17**	.18*	.18*	-.05	-.06	-.09
More than 8 glasses of wine, beer, or liquor	.16**	.14	.23*	.05	.09	-.07
How often high or tight?	.19**	.08	.29**	-.08	-.02	-.14
Respondent MAST	.28**	.35**	.19*	-.07	-.18*	.02

*$p<.05$. **$p<.01$

Table 18

Pearson Correlation Coefficients: Contraceptive Use and Other Problem Behavior Correlations

Variables	No Contraception			Use Condom		
	Overall	Male	Female	Overall	Male	Female
Cannabis frequency	.15*	.22*	.09	.06	.07	.00
Other illicit drug use	.18**	.25**	.10	.04	-.01	.06
Usual marks in school	.01	.00	-.00	-.04	-.16	.12
Ever run away from home	.20**	.10	.29**	.01	.06	-.02
Average daily smoked 1	.11	.22*	-.03	.03	-.06	.10
Average daily smoked 2	.15*	.21*	.07	.01	-.07	.07
How many smokes in last year	.11	.11	.17	.00	-.05	.03
Jessor General Deviant Behavior scale	.27**	.32**	.27**	-.01	-.08	-.01
Jessor Adolescent Deviant Behavior scale	.30**	.41**	.21	-.05	-.16	-.11
Criminal behavior	.11	.16	.07	.09	.06	.08
Conflict tactics scale	.24**	.19*	.30**	-.02	.03	-.06

*$p<.05$. **$p<.01$

Three variables, criminal behavior, the number of smokes in last year, and usual marks in school variables revealed no significant findings.

Overall Regression Analyses

In the next stage of the data analyses linear regression analyses were carried out (See Tables 19 & 20). The intention was to examine the contributions of predictors within the various domains of influence first and then select variables for inclusion in a final overall regression model. The dependent variables in each domain are; no contraception, and condom use.

Demographic domain: Four Demographic variables: age, how long at current address, Mother's occupational status, and Father's education level were included. Demographic variables used in the final overall regression analysis included the risk factor of age. How long at current address, mother's occupation status, and father's educational level were included as the remaining significant protective factors. In the final overall regression analyses the demographic variables were significantly related to condom use behavior only and not to no contraception. Older age and longer time at current address were significant in the males with respect to not using condoms or using condoms less often. Father's education level remained significant for females and in the overall sample for using condoms more often. Mother's occupational status in the final overall regression failed to show any significant findings. Mother's occupation is not a strong predictor related to condom use.

Family environment domain: For the no contraception behavior, the family environment variables of mother overprotection and monitoring were included. Mother overprotection remained as a risk factor for not using contraception in this sample

Table 19

Overall Regression: Condom Use

Predictor	Condom Use		
	Beta		
	Overall	Male	Female
Demographic			
Age	-.11	-.35**	.08
How long at current address	-.10	-.25*	.08
Mothers occupational status	-.00	.09	.09
Fathers education level	.16*	.12	.22*
Family Environment			
Fathers two or more CAGE	.15	-.05	.34**
Fathers FILE	-.18*	-.08	-.36**
Specific rules for behavior	.23**	.17	.27**
Adaptability	.04	.04	.01
Personality			
FFI Extraversion	.11	.15	.09
Peer			
Amount of close friends	.21**	.18	.18
Dating Behavior			
How long with present partner	-.09	.01	-.16
Adjusted R^2	.23	.33	.28

*p<.05.**p<.01.***p<.001.

Table 20

Overall Regression: No Contraception

Predictor	No Contraception		
	Beta		
	Overall	Male	Female
Family Environment			
PBI Mother overprotection	.13*	.11	.15
Monitoring	-.09	-.22**	.02
Personality			
FFI Agreeableness	-.15*	-.21**	-.13
Dating Behavior			
Drink before sex	.09	.21**	-.06
Sex partners in last year	.18**	.17**	.20**
Adjusted R^2	.13	.25	.05

*p<.05.**p<.01.***p<.001

overall. Parental monitoring remained protective in males indicating increased use of contraception.

In the condom use behavior overall regression four family environment variables were used. The risk factor of Father's drinking (CAGE), and father's family stresses (FILE) were included. Fathers drinking remained protective in females indicating increased condom use behavior. Father's stresses showed significant findings overall, and in females relating to using less condoms, remaining as a risk factor.

Protective factors included in condom use behavior for the overall regression were the family cohesion variable of adaptability and specific rules for behavior. The adaptability measure failed to remain significant. Specific rules for behavior predicted more condom use behaviors overall and in females.

Personality domain: From the personality domain, Extraversion as a risk factor and Agreeableness as a protective factor were included in the final regression analysis. Although Extraversion was a strong predictor in the overall sample for condom use behavior, this personality trait did not come out as a significant factor in the overall regression model. In the overall regression, the Agreeableness personality trait remained significant overall and in males, with respect to increased use of contraception.

Peer domain: The amount of close friends was the only peer domain predictor variable included in the final regression. In the overall sample the amount of close friends was positively associated with using more condoms, whereas the findings failed to remain significant for the females in the final overall regression.

Dating behavior domain: The three dating domain variables: sex partners in last year, drink before sex, and how long with present partner were included in the final

regression. With regard to the risk factor variables of drinking before sex and the number of sex partners, no significant findings in relation to condom use behavior were found. Drinking before sex was found to be highly significant in males for increasingly not using contraception. The number of sex partners in last year was significant for all youth related to higher numbers not using contraception, found in the final regression analysis. The factor of how long with present partner failed to show significant results in this sample with respect to not using condoms.

Discussion

Prevalence

Vancouver Family Survey data were analyzed to examine the prevalence and predictors of high risk sexual practices in a Vancouver youth sample. Findings were consistent with previous research in showing that youth were engaging in risk behavior in the process of exploring their sexuality.

Secondary analysis of the Vancouver Family Survey revealed several demographic factors with significant associations with high risk sexual behavior. Older age and longer time at current address acted as a risk factor in males with respect to condom use behavior. Fathers' education level overall and in females was identified as a predictor for protective condom use behavior. In the family environment, mothers overprotection overall, with regard to contraception, and fathers drinking overall and in females, with regard to condom use were identified as predictors for risk behavior. Monitoring in males with regard to no contraception and having specific rules for behavior regarding condom use overall and in females acted as protective factors. Fathers drinking had an unexpected finding in this sample of female youth. Fathers' drinking was identified as a predictor of more condom use in females. Having more close friends overall also related to more condom use. Youth overall and males in particular who have high agreeableness as a personality trait also reported using contraception more often. Drinking before sex in males and having more sex partners was identified as a risk factor with regard to not using contraception for both males and females.

As noted above in the introduction to the thesis, at risk youth are more likely to come from socially disadvantaged homes. Street youth (Peters & Murphy, 1994) have far different intervention needs and strategies than do mainstream youth who live at home and attend school. Youth in detention programs (Anderson, et al. 2001) clinics, minority or disadvantaged, are also groups with multi factorial problems affected by the context of their economic environment. A need for needle exchange programs, condom availability, and access to safe neighborhoods and environments become the priorities in the lives of disadvantaged groups of adolescents.

The Vancouver Family Survey demographic data demonstrates that youth in middle-income families are also engaging in unsafe sexual practices. In order to affect the threat of HIV/AIDS, environmental conditions need to be addressed at community and family levels in order to intervene effectively at the individual adolescents' level.

Domains of Influence

Evident throughout the literature is that multiple influencing factors occur in and across multiple domains that affect sexual risk behavior and condom use in adolescents. The Vancouver Family Secondary data analyzed two health risk variables, not using contraception and condom use behavior. The data analysis was carried out in the various domains that influence these sexual risk-taking behaviors. Included were demographic, family, and peer domain factors. Personality trait factors and dating behavior including drug and alcohol use were also examined as having individual domain influences.

SES influences the context of the world within which individual adolescents find themselves. In this sample demographic data from the Vancouver Family Survey shows that the average income was in the 60 to $69,000 range. The average age of the

respondent was 17.9 years. In the demographic domain, age, length of time at current address, father's education, and mother's occupation were variables used to predict condom use behaviors. Condom use was found to relate to age, particularly in males. It appears that the older the male, the less likely they are to report using condoms. This also appears to be the pattern in relation to the longer time at the present address the less condom use is reported. These findings may reflect that as males get older and are at a fixed address more opportunities or likelihood of engaging in long-term stable and monogamous relationship exists. Given those conditions of relationship stability, there may be less perceived need to protect against HIV. Mother's occupational status in the final regression didn't show any significant findings. Fathers with higher levels of education did predict more condom use overall and in females. In the final overall regression analysis, the demographic variables predicted condom use behavior and not contraception behavior. These findings were not found in the reviewed literature and this could indicate the need for a further investigation.

Vancouver Family Survey data regarded the family environment as a primary socializing influence with adolescents. The family domain was assessed by investigating the effects of the family context from the youth perspective as well as from the parental perspective. Adolescents require adequate life skills to cope and negotiate successful behavioral outcomes.

Whitaker and Miller, (2000) suggest that communication may provide opportunities to reinforce parental values. In this study, female youth report father's drinking behaviors had influence on, 'use a condom' messages and males report, 'use contraception' messages as having influence. In the correlation analysis of the family

domain of this study, connectedness with fathers' in knowing what father expected, talking about personal plans and father induction had positive influence on using condoms for youth.

From the youth perspective in the final regression analysis parental supervision in the form of having specific rules for behavior predicted more condom use overall and in females. These findings are consistent with more communication. More parental monitoring predicts males using more contraception. Having an overprotective mother predicted less use of contraception overall.

In the final overall regression analysis and from the parent's perspective, the secondary data analysis in the family domain revealed that fathers drinking as well as family stresses had affects on condom use behavior and not on contraception. Father's drinking in the bivariate correlation analysis revealed that this variable acted as a protective factor, contrary to what was expected. It appears that females with alcoholic fathers receive and interpret significant messages that favor increased condom use. Father's with more family stresses predicted less condoms being used overall and by females.

Personality traits (Parsons et al. 2000) have been suggested as factoring into the level of vulnerability, which may interfere with abilities to make accurate positive safe sex decisions. Parsons et al. (2000) identified levels of temptation as a significant risk factor and suggests including personality variables, such as sensation seeking, impulsivity, and sexual compulsivity, which are involved in relationship dynamics and partner communication, as possible predictors of adolescents' sexual risk-taking behavior. Vancouver Family Survey secondary analysis PREAD measure also revealed

that adolescents with addiction proneness are identifiable intervention targets, who as individuals have specific needs. A relationship between the PREAD measure and no contraception was found. People who were high on Addiction prone characteristics were less likely to report using contraception than those low on this trait.

Other personality measures were also included in the Vancouver Family Survey data and studied for the influences they have on individual behavior in regard to contraception behavior and condom use. Those individuals who scored high on Agreeableness and Conscientiousness traits were less likely to report not using contraception. In the early analysis there was some indication of a positive relationship between females with extraversion tendencies toward the use of condoms. Extraverts are more likely to report using condoms than introverts are. This personality trait however, failed to remain significant in the final regression analysis when all other significant variables were included. The Agreeableness measure remained as a predictive personality trait connected to safe sex behavior, in particular using contraception in males and in the overall sample.

Peer measures were included in the Vancouver Family Survey data. The amount of close friends had a positive relationship in this youth sample. Those youth who have more close friends report more regular condom use overall. Contrary to the literature cited in this paper, peer influences, parent/friends compatibility and peer/parent influences did not come out as significant in this sample of youth. These peer environment measures did not reveal any significant relationships using the Vancouver Family Survey data.

Dating behavior in the Vancouver Family Survey data revealed findings

consistent with the literature reviewed in this paper. High numbers of sexual partners related to less frequent use of contraception. Males reported more partners than females. The length of time with a partner had a negative relationship with condom use behavior in the initial analysis, meaning that less condoms were reported in longer lasting relationships overall. However in the overall final regression this measure did not come out as a predictor. Dating behavior data in the secondary analysis also confirms reports of high frequency of sexual activity occurring without the use of contraception or condoms. As well, sexual dating behavior in this set of youth was also related to alcohol use combined with non-use of contraception as confirmed in other studies.

Drug and alcohol use and other risk behaviors compound AIDS risk behavior. AIDS risk-taking behaviors were found to be closely associated with other risk behaviors and significantly associated with drug and alcohol use (Boyer et al. 1999; Tapert et al. 2001). The Vancouver Family secondary data analysis also confirms those findings. Alcohol consumption patterns in relationship with unsafe sexual practices were also in evidence either in not using contraception or in not using condoms. This study analyzed alcohol in relation to dating behavior and found that women were more likely to report drinking before having sex without contraception than men reported. A significant number of females who are engaging in unsafe sexual behaviors also appeared to be engaging in other problem behaviors such as excessive drinking. This present study also found that males who do not use contraception also tend to engage in drinking before engaging in sexual activity.

Drug and alcohol use impairs judgment. Brown et al. (1992) found that alcohol and marijuana use reduce the likelihood that a condom would be used, and increase the

likelihood of engaging in risky sexual behavior. Other problem behaviors were also investigated in the secondary analysis and using cannabis and other drugs correlated with not using contraception. Running away from home also correlated with non-use of contraception in females and overall. Smoking, general deviant behavior, Adolescent deviant behavior, and scores on conflict tactics scale were also factors affecting the use of contraception, found in this current study.

Opportunities for further research within the Vancouver Family Survey data set exist to explore relationship dynamics of drug and alcohol including coerced sexual activities and other problem behaviors in relation to unsafe sex practices. This would involve exploring gender and relationship power dynamics, violence in dating relationships, as well as analysis beyond what was currently undertaken.

Limitations

Limitations in this research are related to the limitations inherent in conducting secondary analysis of existing data. There are two sexuality questions regarding condom use and use of contraception in the Vancouver Family Survey data. In order to broaden the scope of understanding the complexities of adolescent sexuality, more questions specific to both health risk and healthy sexuality need to be investigated. What are the sexual priorities in adolescent dating behavior? Open-ended questions and also definitions as to the meaning of sexuality, defined by the adolescent would provide more detailed information. Age related questions focused at developmental levels of emotional understanding as well as cognitive functioning would also provide more specific data useful for identifying timely targets for interventions. Question particular to contraceptive issues and how they are dealt with in the family were not in the original

data. Important to know would be specific information on what the family does to educate and inform their children. Questions from both the parental and the individual perspectives would offer more data. What are the specific adolescent attitudes regarding contraception, and condom use? Power dynamics found in relationships were also not examined here.

Implications for Practice

There are fundamental needs in the complex relationship between adolescents and risk behaviors: to be supported, to be valued, and to be in caring relationships (Barnes et al. 1997; Boyer et al. 1999; Peters & Murphy, 1994; St. Lawrence et al. 1994). Also identified as a strong indicator to affect safer sex behaviors, specifically parental closeness, are connectedness and monitoring (Barnes et al. 1997; Luster & Small, 1994; Resnick et al. 1997).

Franz and Poon (1997) stress the importance of being culturally sensitive to family values of youth who come from backgrounds with divergent family values regarding sex and gender roles. The ways individual adults have constructed their sexual knowledge within their individual and cultural contexts needs to be considered. Interventions need to be tailored to specific target groups of adolescents encompassing diversity whether it exists by gender, culture, family circumstance, environmental, or personal conditions.

One method, described by Anderson et al. (2001), is to include the adolescents in the management of meaning in their own lives. In this method the adolescents could identify the dynamics that shape attitudes and behaviors about risk and danger and link these risk factors found within their personal social contexts, with types of behavior and

address intervention in those directions. Once attitudes, behaviors, risks and resources are identified, they could be implemented and made more meaningful to youth if presented through a peer delivery system or in a mentor approach to intervention. A peer or mentor system could promote greater information sharing, facilitate accurate comprehension of sexual health information, and facilitate assertive decision-making skills. A mentor approach could make the self-efficacy concerns regarding contraception, condoms, and other health risk behaviors such as drinking and dating behaviors more realistic than sexuality education that provides information only.

Sobo et al. (1997) found that misperceptions exist regarding mode of transmission for HIV, that the most ill informed were also the most vulnerable to protect themselves. Questions in the Vancouver Family Survey on youth contraceptive practices may provide an example. If these youth are not thinking that HIV could happen to them and are more concerned about birth control, they could interpret the no contraception and condom use questions from different standpoints. Acting on personal perceptions could be aiding in their misbeliefs that contraception in the form of female birth control is enough protection. Emphasizing the benefits of safe sex, challenging attitudes, misperceptions, and previous negative experiences is one concept for intervention (Parsons et al. 2000; Whitaker & Miller, 2000). Promoting consistent condom use could affect change and encourage condom use behavior.

Increased knowledge or awareness in of itself is not enough to change risk behaviors. Messages need to be clear, concise, and factual emphasizing how the threat of HIV/AIDS can be controlled and also not arouse unnecessary fear (Christ et al. 1998). The most effective methods for encouraging consistent condom use were to present

information to adolescents early before sexual debut (Christ et al. 1998; Miller et al. 1998; Resnick et al. 1997) and encourage sexual delay (Whitaker & Miller, 2000). Brown et al. (1992) state that safe behaviors are more easily maintained if adolescents starting sexual activity start with safe behaviors. Brown et al. (1992) suggest promoting safe and responsible behavior from the onset by combining sexual education messages with consistent condom use messages.

Reitman et al. (1996) also found that generally adolescents do not consider themselves to be at risk. The literature suggests that intervention methods for those adolescents who were sexually active needs to include relevant information tailored towards the various risk factors and adolescents being targeted, at multiple levels of their lives. The Vancouver Family Survey secondary analysis revealed demographic, family, personality, and dating behavior domains as specific multi levels towards which to direct intervention efforts. The family home environment may offer opportunities to present, reinforce, and monitor healthy sexual information, as well as behaviors. The current secondary analysis showed that youth respond positively to specific rules for behavior, knowing what's expected, monitoring, and parental caring. Parenting effectively is as much of a balance and as individual as every child is. Having a number of close friends was identified as an important protective factor for adolescents. Adolescents with agreeable and conscientious personality traits fare better in adhering to positive health messages for safe contraceptive use. These personality traits are related to nurturance in the family environment. The family can provide a pivotal environment for educating children toward social norms and also provide them with better social skills for negotiating safe sex decision making. This current study also demonstrates that alcohol,

drugs, other problem behaviors and risky sexual behaviors have close associations. Interventions aimed at addressing these behaviors together, or a combination such as dating and drinking, rather than treating them as separate risk factors may be effective in modifying or alleviating the impact of those risks.

Langer and Girard (1999) state that prevention of HIV will depend on our ability to influence behavior. In order to do that we need to understand what the factors are that are involved within adolescent's individual and social domains and target our interventions to various groups, in their environments, and the specific needs relevant to those individual domain influences. This current secondary analysis has identified the effects of some of those influences.

HIV/AIDS and condom use, a straightforward concept, yet the complexities are far-reaching. Individual beliefs and behaviors through to family, peer, cultural and societal influences on that behavior are parts of that complexity. Risky sexual behaviors do not occur without a context. Many factors that can and do influence risk occur within the process and context of individuals carrying out activities of their daily lives. In order to create opportunities for change and apply sensitivity to cultural diversity, we can be instrumental in facilitating healthier, safer behaviors for those adolescents we have opportunities to influence in a positive way.

Future Research

There are unlimited questions that could provide a greater understanding of how to promote making healthy sexuality decisions in adolescence. Some of the factors that effect sexual behaviors have been explored in this data set. More information is needed regarding such issues as when does sexual activity begin and how do decisions impact the

individual and the family, and how are sexual decisions made? At what age do family values or social norms get integrated by adolescents enough to make a positive impact on their individual behavior? How the family deals with sexuality information, from the parents as well as the youth's point of view? How power dynamics may affect decision making? More investigation on father's alcohol abuse would also be an important avenue for further exploration.

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Appendix

Contraceptive and Condom Use Questions

1. How often have you had sexual intercourse when not using some form of contraception to guard against pregnancy?

never

1 – 2 times

3 – 6 times

more than six times

do not know

2. Do you protect yourself from AIDS or other sexually transmitted diseases by ensuring that a condom is used?

never

sometimes

frequently

always