

FREQUENCY AND DETERMINANTS OF CONDOM USE AMONG
WOMEN ATTENDING AN URBAN COMMUNITY HEALTH CENTRE

BY

ALAN KATZ

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A thesis
submitted to the Faculty of Graduate Studies
in partial fulfillment of the requirements for the degree of
Master of Science

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ABSTRACT

Condoms are promoted by public health practitioners as part of safer sex guidelines. While intercourse between two mutually monogamous uninfected individuals is advocated, uncertainty about partner HIV status has led to reliance on condoms for additional protection. The effectiveness of condoms in preventing the transmission of infection is dependent on consistent and correct condom use.

One thousand and forty eight women attending Mount Carmel Clinic were interviewed to determine the frequency and determinants of condom use. Forty two percent of respondents never used condoms, 24.6 % sometimes, 6 % about half the time, 14.6 % usually, and 12 % always used condoms. Condom use decreased with increasing age, non-married women used more often than married women, never-pregnant women used more than ever-pregnant, and women on oral contraceptives used less frequently than women not on oral contraceptives.

Multiple logistic regression analysis resulted in five significant predictors of condom use. Women who used oral contraceptives (OR = 0.43) and those with a past history of sexually transmitted disease (OR = 0.57) were less likely to be condom users. Condom use was positively associated with frequency of intercourse (OR = 1.35), ethnicity (OR = 1.85), and number of partners in the past year (OR = 1.03). The reasons given for not using condoms were also explored for the various demographic groups.

Condom use in the study population is not different to that

reported in other studies. Women at highest risk, with a history of sexually transmitted disease, are least likely to use condoms.

Counselling programs at the clinic have not been successful in persuading women who use oral contraceptives or those with a history of sexually transmitted disease to use condoms. The reasons for not using condoms vary from group to group, providing the opportunity to direct specific education at each identifiable subgroup.

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CHAPTER ONE

INTRODUCTION

Sexually transmitted diseases (STD) are a common problem in Canada. Despite a concerted effort over many years by Public Health authorities and practitioners to prevent the spread of these infections, the morbidity and mortality from STD's continues to increase. The last ten years have seen the emergence of the acquired immunodeficiency syndrome (AIDS) as a significant threat to public health. The lack of a cure for this syndrome or the viral infection responsible for the development of AIDS, the human immunodeficiency virus (HIV), has resulted in a greater reliance on prevention as the primary thrust of attempts to control this STD.

Unlike other STD's, AIDS remains a fatal syndrome. The costs of HIV infection in terms of human suffering, loss of life and health care dollars have resulted in a major international effort to control the spread of this preventable infection.

While the spread of HIV is not limited to sexual activity, over seventy-five percent of new AIDS cases in the United States in 1992 were due to sexual spread. Efforts directed at the prevention of infection with HIV include needle exchange programs for intravenous drug users and various measures designed to prevent the spread of HIV via the therapeutic use of blood products. Public health programs have recommended abstinence as the only guaranteed method of preventing

sexual spread of HIV. Health educators are however aware that this is not a viable alternative for the majority of post pubertal adults

Those engaging in intercourse are advised to enter into mutually monogamous relationships with an uninfected partner. As neither monogamy nor the fact that one's partner is uninfected with HIV can be guaranteed, the use of a condom with each act of intercourse is recommended. Public health programs combined with the extensive media coverage of the HIV epidemic can be expected to result in more frequent condom use amongst sexually active women and their partners.

Little is known about condom use in Canada. Much effort is put into the various public and school education programs with minimal evaluation of their effectiveness or success in promoting condom use amongst the various target populations. The incidence of STD's has not decreased noticeably during this period of active condom promotion. While this is a reliable indication of the lack of success of condom promotion programs, a deeper understanding of the problem will facilitate improved programming. More detailed knowledge of present patterns of condom use, the attitudes of sexually active women to their own risk of acquiring a STD and HIV, and patterns of sexual behaviour is required. In addition, the reasons given for not using condoms will provide valuable information to those designing programs promoting condom use.

The Mount Carmel Clinic is a community health clinic in the core area of Winnipeg. The clinic has a long established reputation for

providing "hassle-free" reproductive-health care. When oral contraceptives were not freely available, sexually active women (especially teenagers) came to Mount Carmel to obtain these. And when whatever birth control method being used failed, women came to Mount Carmel to explore the options open to them. Today when both oral contraceptives and abortions are more readily available in Winnipeg, the clinic has retained its popularity amongst sexually active teenagers from all areas of the city. The clinic is situated in one of the poorest and most violent areas of the city. It is well supported by the culturally diverse local population as well as those attending from other areas specifically for reproductive-health care. Approximately half of the clinic population are of Aboriginal descent.

One of the most active programs at Mount Carmel is the Sexually Transmitted Disease (STD) Treatment and Prevention Program. More than one thousand women were treated and counselled for the presumptive diagnosis of an STD in 1992. The prevalence of *Chlamydia trachomatis* in the clinic population in 1990 was over 12%. This population thus represents a high risk group who are the target of a great deal of programming aimed at reducing the incidence of HIV infection through promotion of condom use with intercourse.

This study examines the frequency of condom use amongst women attending Mount Carmel for routine annual Pap tests and the reasons given for not using condoms. By comparing the demographic characteristics of those using condoms and those not using condoms,

valuable insight into the required characteristics of future preventive programs will be provided. In addition, the subjective barriers to condom use as described by the respondents will be explored.

CHAPTER TWO

LITERATURE REVIEW

The acquired immunodeficiency syndrome (AIDS) is a prominent cause of morbidity in North America. In the the fourteen years since the initial description of AIDS, considerable strides have been made in understanding this devastating syndrome. Despite this, the morbidity and suffering wrought amongst the homosexual population in North America has been unparalleled in modern times. The spread of HIV continues. The heterosexual community now represents the majority of those newly infected and each year more people are infected with this virus.

The majority of those infected with HIV are exposed to the virus through sexual intercourse (CDC, 1993 a). This represents a burden of infection which is preventable. A hierarchy of actions has been advocated to prevent HIV infection. Abstention from all sexual intercourse has been identified as the only guaranteed route to avoid infection. Safer sex guidelines are advocated for those who choose to engage in intercourse. A mutually monogamous relationship with an uninfected partner is the next safest form of intercourse. The guidelines promote limiting the number of partners to a minimum, careful selection of sexual partners, avoidance of high risk activities (anal intercourse) and the use of condoms with each act of intercourse (U.S. Preventive Service Task Force).

This message has not been successful to date in controlling the

spread of HIV infection. The public health and family planning journals have published an array of articles addressing this issue. While a decade ago research in sexual behaviour was limited to a relatively small group specifically interested in sexuality per se, the need to address the sexual spread of HIV has resulted in cooperation between a variety of interest groups. Those interested in contraception, infectious disease in general, and sexually transmitted disease in particular, and sexuality have combined with adult educators and public health officers to deal with the HIV pandemic.

Various reasons have been advanced for the lack of success amongst the heterosexual community in controlling the spread of HIV. In an editorial in the American Journal of Public Health, Ehrhardt (1992) notes that "knowledge about HIV and AIDS is relatively high in the US population." He points out that despite this the incidence of STDs is continuing to rise. He advances three reasons for the relative lack of change in sexual behaviour.

The first is the result of what he describes as a sociopolitical struggle. He suggests that efforts at designing, implementing and evaluating prevention programs have been severely hampered by the rear guard action of 'moralisers'. The ongoing debate between the moralisers and public health 'realists' has handicapped efforts to get the message through to adolescents. While 'moralisers' join the 'realists' (public health and social scientists) in their desire to stop the spread of disease, they object to the morally neutral stance of the realists. They assess

policies on the basis of moral standards and object to the programming which does not conform to their message of the sin of sex outside of marriage. Second, Ehrhardt (1992) also believes that the message fails to recognise gender differences. Too much of the educational effort directed at women has not been rooted in the reality of women's lives. Culturally dictated gender differences and the lack of control many have over their own lives are not addressed. Promotion of condom usage should be primarily directed at men as the condom is a male-controlled barrier method. In addition to this women need to learn the skills to negotiate safer sex with their partners. There is an urgent need for an acceptable, easily available, effective female-controlled barrier method (Rosenberg & Gollub, 1992).

The third reason advanced by Ehrhardt is the lack of coordination between the strategies for STD prevention and those for family planning. There are many differences in approach and substance between the two as further explored by Cates and Stone (1992).

First, family planning services deal with preventative care while STD care is usually not preventative but precipitated by symptoms. Second, fully two thirds of those seeking STD services tend to be men, while women are the major consumers of contraceptive services. Third, public health professionals working to design interventions to prevent the spread of STDs have concentrated primarily on the number and choice of sexual partners. Those aiming at preventing unintended pregnancy are more concerned with the frequency and timing of

unprotected intercourse. This is due to the difference in the risk of unintended pregnancy with each act of intercourse as opposed to the risk of acquiring an STD from an infected partner. The fourth difference is due to the different backgrounds of researchers and policy makers in the two fields. They seldom meet and little sharing of ideas between the two groups occurs. Finally, the most effective tool of those working in family planning has been the oral contraceptive pill (OCP). As OCPs offer no protection against acquiring an STD and allow sexual freedom without risk of pregnancy, the promotion of OCPs has undermined attempts to prevent STDs. The combination of these factors has resulted in ineffective and poorly focussed HIV prevention programs.

Public health programs traditionally concentrated on case-finding and treatment with contact tracing as the major thrust of STD control (Brunham & Plummer, 1990). The relative importance of viral STDs (HIV, herpes virus, and human papilloma virus) in terms of subsequent morbidity and mortality in the last decade, has shifted the emphasis to prevention of infection; that is, primary prevention.

Control programs thus emphasise modification of high risk behaviour. Intercourse with unknown partners or with partners who have engaged in anal intercourse with men or who are injection drug users should be avoided. Condom use is encouraged and symptomatic infections should be treated. Detection of asymptomatic infections and the tracing of sexual contacts of infected persons allows for treatment where available for bacterial STDs and gives public health nurses the

opportunity to emphasise safer sex guidelines to those at greatest risk. While condoms were initially introduced and promoted as an effective method of preventing unwanted pregnancy (contraception), their efficacy in preventing infection with HIV and other STDs has led to a new role for condoms.

Effectiveness of Condoms

The effectiveness of condoms in preventing the transmission of infection has been investigated both in the laboratory and in observational studies. Laboratory tests have shown latex condoms to be effective mechanical barriers to herpes simplex virus (Conant, Spicer & Smith, 1984), hepatitis B virus (Minuk, Bohme & Bowen, 1987), *Chlamydia trachomatis* (Centre for Disease Control, 1988) and HIV (Conant, Hardy, Sernatinger, Spicer & Levy, 1986)

Various human studies have confirmed protection against gonorrhoea and *Ureaplasma urealyticum* (Cates & Stone, 1992). Many studies in homosexual men have explored the role of condom use in reducing the spread of HIV infection. There are, however, major differences in sexual behaviour between homosexual men and heterosexual couples which limit the value of these studies as evidence of the effectiveness of condoms in heterosexual relationships. In particular the risk of HIV transmission via anal intercourse is significantly different from the risk associated with vaginal intercourse. Due to the low prevalence of HIV infection among women, cross-sectional studies have lacked the power to demonstrate statistically

significant associations between condom use and infection. There are, however, three studies from the United States reviewed by Cates and Stone (1992) which "demonstrated lower rates of HIV seropositivity among high-risk women whose partners used condoms than comparable women whose partners did not". While not reaching statistical significance these studies do suggest a trend.

Weller (1993) performed a meta-analysis of studies published prior to 1990 which reported the effects of condom use on seroconversion in serodiscordant heterosexual couples. The author excluded studies involving prostitutes from her final analysis as there was no evidence of proven exposure to HIV or the extent of exposure. Studies from Africa and the United States involving prostitutes were thus excluded from the meta-analysis. A further thirteen studies were evaluated with two being excluded from the analysis due to methodological problems. The final analysis involved eleven published studies, most of which did not show a statistically significant protective effect of condoms when considered in isolation. Thus publication bias (the tendency for journals to only publish articles demonstrating statistically significant results) does not appear to be a factor in evaluating this literature. The combination of these studies in meta-analysis does confirm that protection provided by condoms is greater than chance with a significance level of $p < 0.001$, with a 69 % reduction of risk of HIV infection.

Weller's analysis highlights many of the methodological problems associated with attempting to define the effectiveness of condoms in

preventing HIV infection. A significant problem is the reliance of researchers on subjects to report condom use without objective verification. In addition, the difficulties in measuring various confounding factors and lack of knowledge about the natural history of the infection compromise the value of *in vivo* studies. Issues such as frequency of intercourse, accuracy of recall, infectivity of the positive partner, other sources of HIV infection, infection before initiation of condom use, presence of genital lesions (and the significance of these), as well as the "blinding" of respondents are not addressed in published studies. The issue of correct condom use (user failure) is not addressed in any of the cohort or cross-sectional studies published to date. A further confounder has been suggested by Plummer et al in unpublished data from studies with prostitutes in Nairobi. There appear to be certain women who, despite repeated sexual exposure to HIV-positive male clients without condoms, remain seronegative. Although few in number, these women are postulated to have natural immunity to HIV.

Rosenberg and Gollub (1992) point out that "protection increases with more consistent use". Indeed, when commenting on the widely accepted 12% failure rate in preventing pregnancy, Cates and Stone (1992) suggest that this high contraceptive failure rate is due to nonuse and misuse of condoms rather than condom failure. Contraceptive failure rates as low as 0.6% have been documented amongst experienced condom users (Vessey, 1988) while other studies have shown a 2% failure rate amongst consistent users of condoms (Trussel, Hatcher, Cates ,

Stewart & Kost ,1990). As none of the HIV transmission studies address the issue, it remains speculative at this time.

A recently published paper (De Vincenzi,1994) addresses the issue of HIV transmission in a longitudinal prospective study of serodiscordant couples in Europe. Of the 124 couples who consistently (with every act of intercourse) used condoms, none of the seronegative partners became infected with HIV. The rate of seroconversion among the 121 couples who used condoms inconsistently was 4.8 per 100 person years. The risk of transmission increased with advanced stages of HIV infection and the presence of genital infection in the seronegative partner. There was no statistical difference in the percentage of males and females who were infected in the two groups. The effectiveness of condoms in preventing the transmission of HIV in this prospective study is impressive. Other than the protective effects of condom use, this study also demonstrates the resistance to condom use. Nearly half of the study group failed to use condoms consistently despite repeated counselling and the knowledge that their partners were HIV infected. While this study was carried out at different sites and the counselling was not standardised, it is nevertheless a valuable source of information. The fact that only 50% of couples used condoms consistently despite programming designed to encourage greater condom use is not addressed but a closer look at the strategies employed may be instructive for future programming.

Consistent condom use implies both regular use of a condom with each and every act of intercourse as well as correct use of the

condom. The Centres for Disease Control listed seven directions for correct use (CDC, 1993 b): (1) Using a new condom with each act of intercourse, (2) carefully handling the condom to avoid damaging it with fingernails, teeth or other sharp objects, (3) putting on the condom after the penis is erect and before genital contact with the partner, (4) ensuring no air is trapped in the tip of the condom, (5) ensuring adequate lubrication during intercourse, possibly requiring the use of exogenous lubricants, (6) using only water-based lubricants (e.g. K-Y jelly or glycerine) with latex condoms. Oil-based lubricants (e.g. petroleum jelly, shortening, mineral oil, massage oils, body lotions or cooking oil) that can weaken latex should never be used, and (7) holding the condom firmly against the base of the penis during withdrawal and withdrawing while the penis is still erect to prevent slippage.

In vivo studies have shown that condoms do not break frequently (1.2 %) with only 0.6 % of condoms failing when used with detailed instructions as part of the study (Trussel, Warner, & Hatcher, 1992). These circumstances however do not represent the usual conditions under which condoms are used.

There are no studies of either public awareness of the CDC guidelines for condom use or studies of reported adherence to these guidelines. It is too early to expect the effect of the guidelines to be evident in population studies of effectiveness of condoms as these are too new.

There are numerous methodological pitfalls in trying to

demonstrate in vivo effectiveness of condoms in preventing HIV transmission in heterosexual vaginal intercourse. Despite this, there appears to be enough evidence at this time to justify the continued promotion of condom use as one component of safer sex education.

Condom use

The decision to use a condom during sexual intercourse is a complex one. It involves the interaction of two individuals with potentially different attitudes and behaviours. Implementation of the decision to use a condom usually involves the cooperation of the male. The exception involves those women who have developed the skill of applying the condom to the penis without the partner's awareness and/or cooperation in this process.

The dynamics involved between sexual partners depends both on the individuals (and the multiple factors shaping their attitudes) and on the particular circumstances. The unavailability of condoms and the use of other forms of contraception can be expected to impact negatively on condom use (Kost and Forrest, 1992). The consumption of drugs and/or alcohol when associated with sexual intercourse has been shown to have a strong negative impact on compliance with safer sex guidelines (Stall, McKusick, Wiley, Coates & Ostrow, 1986; Robertson & Plant, 1988). Perceived risk of STD or HIV infection is positively associated with consistent condom use (Kost & Forrest, 1992).

Health education programs have over the past ten years been developed and implemented which promote condom use. Exposure to

these programs as well as the proliferation of AIDS-related articles in the media may result in increased condom use (Kelly et al., 1992).

Numerous studies have indicated dramatic behaviour change amongst homosexual men, as reviewed by Becker and Joseph (1988). The picture amongst heterosexuals is somewhat different, resulting in the changing demography of the AIDS epidemic. Increased condom use has resulted in the number of homosexual men reported as AIDS cases in the USA in 1992 falling, continuing a trend begun in 1991 (Centres for Disease Control, 1993 a). In contrast to this is the trend amongst heterosexuals, where the proportionate increase in AIDS cases from 1991 to 1992 was 17.1%. Women accounted for 59.4% of reported cases through heterosexual contact in 1992.

Reported AIDS cases for any given year reflect the time delay in case reporting as well as the time lag between infection with HIV and clinical progression to the development of an AIDS-defining diagnosis (CDC, 1993 a). These statistics thus represent an established pattern, with no indication of its reversal at this time.

It is beyond the scope of this review to analyse the reasons for this shift. AIDS was, however, initially believed to be a "gay" disease. The initial rapid increase in the number of infected gay men served to reassure the average heterosexual that the risk of being infected with HIV was thus limited to homosexual men. Much of the early heterosexual spread has been amongst inner city populations whose risk behaviours include injection drug use and prostitution. Once again this identifiable

group is distinct and "different" to the general population, further reinforcing the perceived invulnerability of the suburban middle class.

Frequency of condom use - US data

Analysis of the 1988 National Survey of Family Growth, where personal interviews were conducted with a representative sample of over 8000 women between the ages of 15 and 44, showed an overall increase of only 2.6 % from 12% to 14.6% in condom use for contraception from 1982 to 1988. The increase in the 15-19 year age group was more dramatic from 21% to 33% (Mosher, 1990). Further analysis of the same data reveals that 19,7% of the sexually active population used condoms in 1988 (Kost & Forrest, 1992). Potter and Anderson (1993), reported on condom use at first intercourse from the same source. In 1988 47% of women used condoms at first intercourse compared to 23% in 1982. This increase in condom use would appear to be due to the desire for protection against sexually transmitted disease and HIV in particular. There is no reason to explain this sharp rise in terms of contraception alone.

Unfortunately the National Survey of Family Growth, which is the data source for all these analyses, is primarily concerned about contraception. Limited information is provided about the reason for condom use (contraception vs disease prevention). While Potter and Anderson (1993) attempted to surmise consistency of condom use, the closest they could come was to determine reported condom use in each month of sexual intercourse. They had no way of assessing the

consistency of use within each month.

Respondent characteristics associated with condom use were identified. Teenage women (15 - 19 years) were significantly more likely to use condoms with a consistent trend of reduced use with increasing age. Women with post-secondary education were more likely to use condoms. Condom use decreased with an increase in the number of lifetime sexual partners. Women who engaged in sexual intercourse once a week or less were also more likely to use condoms.

Kegeles, Adler and Irwin (1988) failed to demonstrate an increase in condom use in a cohort of San Franciscans aged 15 to 19 years over a one year period in 1985-1986. The study was conducted at a university-based clinic and health maintenance organisation (Kaiser Permanente) adolescent health clinic. The socioeconomic distribution included 20 % Medicaid patients, however the majority were from middle class families whose parents are employed full time. This study also showed that while 27% of females reported using condoms, only 2.1% used condoms with every act of intercourse. The reported condom usage of males was 41% but only 8.2% reported consistent usage. A 1986 Massachusetts statewide telephone survey of 825 teenagers of both sexes was compared to an independent 1988 survey (Hingson, Strunin & Beerlin, 1990). The proportion of respondents reporting condom use increased from 2% to 19%. In 1988, 78% of women and 77% of men said they would use a condom if this was requested by a partner. Only 5% of males said they would be very upset with such a request. No further demographic

information is reported about respondents in this study.

An impressive increase in consistent condom use amongst college women was demonstrated by a study at the health service of a private university from 12% in 1975 to 21% in 1986 and to 41% in 1989 (DeBuono, Zinner, Daamen & McCormack, 1990). The proportion of women using condoms for birth control rose from 6 % in 1975 to 14 % in 1986 and to 25 % in 1989. Previous pregnancies were reported by 9.9 % in 1975, 4.3 % in 1986, and 12.6 % in 1989. Unfortunately this analysis failed to compare condom use among women with or without previous pregnancies, by number of sexual partners, or frequency of intercourse despite the fact that this information was available from the questionnaires. The trend to higher rates of condom use being reported by male teenagers is confirmed by Kirby, Harvey, Claussenius and Novar (1989) and Ku, Sonenstein and Pleck (1992). The earlier study describes an experiment in which 54% of both the experimental and control groups (all males) reported condom use at last intercourse. In this experiment a master list of 16 and 17 year old males was randomly divided into an experimental and a control group. The experimental group received a mailing of educational material promoting condom use and coupons to claim free condoms. The control group received no mailing. Both groups were interviewed five weeks later. The interview questionnaire included various demographic questions as well as questions relating to condom use and attitudes towards pregnancy and STDs.

Data from the U.S. National Survey of Adolescent Males of 1988

are presented by Ku, Sonenstein and Pleck. While the survey population had a condom use frequency of 56%, condoms were only used during 34% of the acts of intercourse. In addition, those who have multiple partners use condoms less, as do young men who are substance abusers. The National Survey of Adolescent Males reported 21 % of respondents using condoms at last intercourse in 1979 with 58 % in 1988. In 1991, 55.9 % of seventeen to nineteen year olds reported using a condom at last intercourse (Ku, Sonenstein, & Pleck, 1993). Consistency of condom use (mean percentage of times condoms were used) increased marginally from 51 % in 1988 to 54.7 % in 1991. Condom use became less frequent as the sample aged. Alcohol or drug use prior to engaging in intercourse also resulted in less frequent condom use.

Measures of condom use are not standardised. Condom use is reported over various periods of time (last intercourse, previous 30 days, previous three months, previous six months or previous year) in some studies while others report use at last intercourse. Consistency of use is most often ignored, while some researchers have chosen a variety of measures of the respondents' "usual behaviour".

Some researchers have tried to improve recall by asking about specific time periods. They then use the number of partners in that period as a reminder of specific relationships. Consistency has been measured in terms of "always, almost always, sometimes...never" and various similar terms. Some have attempted to correlate the number of acts of intercourse with the number of times condoms have been used

within a time period. Other studies have concentrated on change in behaviour. They have used various measures to suggest initiation, cessation or continuation of condom use. Examples of this include questions about condom use at first and last intercourse. The concept of primary partners ("the one you care about most during this period") is also used to differentiate behaviours which may differ with partners of different standing. Men may report using condoms with prostitutes or casual sexual partners while feeling a lack of need to do the same with their established partner. Prostitutes distinguish between 'work' and 'intimate' sex by not using condoms with their primary partner (Cohen, Alexander, & Wolfsy, 1988). Prostitutes in Winnipeg have been reported to use condoms with their clients but not with pimps/boyfriends (Campbell & Heinrich Research Associates, 1994).

In interviews with 800 patients attending a sexually transmitted disease clinic in Baltimore, Upchurch, Ray, Reichart, Celentano, Quinn and Hook (1992) noted that 28% of women and 36% of men reported using condoms at least once during the previous month. Twenty three percent of women used condoms only once, 28 % of women reported using condoms occasionally, 20% used them about half the time and 29% of women who had used a condom in the last month used them all of the time. This represents only 7% of the total sample.

The discrepancy between male and female reporting of condom use, demonstrated above is further illustrated by the analysis of the Secondary School Student Health Risk Survey (Anderson, Kann,

Holtzman, Ardy, Truman & Kolbe, 1990). Thirty nine percent of male students in this large survey of over 8000 students in grades 9 to 12 across the US reported always using condoms compared to only 28% of female students. This discrepancy may be due to over-reporting by males who feel the primary responsibility to use condoms. Females would, in contrast, not appear to have any reason to underreport condom use. While this survey did ask about the number of sexual partners, this was used as an independent risk factor and not related to condom use. Increased exposure to different partners is undoubtedly an independent risk factor for exposure to sexually transmitted disease but its relationship to condom use is also of interest. The question remains whether women with multiple partners have them use condoms more often than those with few partners thus alleviating some of the added risk. Other studies do not support this (MacDonald, 1990). The youngest students in this study (ninth graders) were not likely to always use condoms. A similar problem is identified by Ornstein (1989) when looking at the number of sexual partners reported by males and females in surveys. Men consistently report a significantly higher number of sexual partners than women.

In a study conducted at two Baltimore inner city sexually transmitted disease clinics, Upchurch et al (1991) reported on the inter-partner reliability of reporting recent sexual behaviours including condom use with vaginal intercourse. Seventy one couples were surveyed about sexual behaviours in the preceding four week period. When the

answers were compared no significant differences were found between the sexes. The authors conclude that there is good inter-partner reliability and that reliable although not necessarily accurate, reports of sexual behaviour can be obtained from either partner. The number of couples in this study was too small however to demonstrate a statistical difference in condom use between the couples considering the limited frequency of condom use.

Weisman, Plichta, Nathanson, Chase, Ensminger and Robinson (1991) studied adolescent women's contraceptive decision making and Weisman, Plichta, Nathanson, Ensminger and Robinson (1991) reported on condom use amongst adolescent users of oral contraceptives at a Baltimore Planned Parenthood clinic. While 38% of respondents reported condom use at last intercourse, only 16% used condoms consistently. Consistency of condom use was determined in this later study by dividing the number of times condoms were reportedly used by the number of acts of intercourse in two week reporting segments. Comparison of consistent users with users at last intercourse, shows that only 50% of users at last intercourse were classified as consistent users. While the average respondent answered 7 out of 9 knowledge testing questions correctly, only 47% were sure they would not get AIDS in the next five years. In a 1988 Massachusetts state wide telephone survey of adolescents, 31% reported always using condoms, 32% sometimes and 37% never used condoms (Hingson, Strunin, Berlin & Heeren, 1990). Males reported always using condoms more often than females (34% vs 26%) in keeping

with other studies.

Women attending Pennsylvania's Planned Parenthood Clinics in the fall of 1987 were asked to complete a self administered questionnaire (Soskolne, Aral, Magder, Reed & Bowen, 1991). Of 16,020 respondents 10% always used condoms with their regular partners and 14% always used condoms with casual partners. Sixty-seven percent never used condoms with regular partners while 72% never used condoms with casual partners.

Condom use - Canadian studies

Few studies have looked at condom use in Canada. Those that have been published show the same variable pattern as US studies. Herold and Thomas (1978) reported on a study in a large Ontario city involving females attending high school and college. This study, published prior to the AIDS epidemic and resultant increase in safer sex education programming, revealed condom use of only 15% at first intercourse and 14% at most recent intercourse in high school students. College students reported 25% use at first intercourse dropping to 18% at most recent intercourse.

A 1984 national survey of women aged 18 to 49 revealed a condom use rate of 9.1% among all respondents (Balakrishnan, Krotki & Lapierre-Adamcyk, 1985). This study was conducted prior to HIV being identified as a heterosexual problem. No subsequent nationally representative studies of Canadian respondents have been published.

The Canada Youth and AIDS Study was completed in 1988 and

MacDonald et al (1990) reported on the sexual behaviour of first-year college students across Canada after analysis of these data. While 24.8% of men and 15.6% of women reported always using condoms during intercourse, 19.2% of women with 1 or 2 partners always used condoms compared to 7.5% of women with 10 or more partners.

Grade 10, 11 and 12 students in north central Alberta reported that 59% of sexually active students always or frequently used condoms during sexual intercourse (Varnhagen, Svenson, Godin, Johnson & Salmon, 1991). These results are not consistent with the other reported frequencies of condom use quoted above. The high frequency of condom use in this study may be explained by various local factors. There were only two public schools within the municipality suggesting a likelihood of specific local factors influencing the results.

Aboriginal studies

Few studies have focused on condom use and sexual risk-taking of specific populations. Myers, Calzavara, Cockerill, Marshall and Bullock (1993) conducted a survey among 658 randomly selected Aboriginal Canadians living on reserves in Ontario. They found that 40% of men and 18% of women reported having two or more sexual partners in the past year. Seven percent of respondents reported all acts of intercourse being protected with condoms and 22% reported intermittent condom use. While the results of this study are difficult to generalise to the off-reserve population, 22% of men and 9% of women reported having had sex with partners from outside their community. In addition, 17% of

respondents reported using drugs in the past year.

Further indications of high risk behaviour amongst Aboriginal Canadians was found by Jolly, Orr, Hammond, and Young (1994) when looking at risk factors for infection in women undergoing testing for *Chlamydia trachomatis* in Manitoba in 1988. This study linked the results of tests obtained at Cadham Provincial Laboratory in Winnipeg with the Manitoba Health Services Commission database. There was a seven-fold increase in risk for infection of status Indian women in multiple logistic regression analysis. A review of case notification reports of *Chlamydia* in Manitoba from 1988 to 1990 indicated a relative risk of 1.8 for status Indians (Orr, Sherman, Blanchard, Fast, Hammond, & Brunham, 1994). In addition, status Indians were significantly more likely to be diagnosed with recurrent infection.

These studies indicating increased risk for infection with *Chlamydia* of Aboriginals indicates an increased risk for other STDs including HIV. This increased risk is also consistent with lower rates of condom use as condoms have been shown to be protective against infection when used correctly.

Factors associated with condom use

Any attempt to increase the frequency of condom use needs to be based on an understanding of why those who use condoms at present do so, and more importantly, why those who fail to use condoms are not complying with safer sex guidelines. Any barriers to condom use need to be identified and education programs need to address these issues with

the solutions being appropriate to the target population. Different demographic groups may respond best to different programs depending on the perceived barriers to condom use within that particular group. A lack of knowledge about the risks of noncompliance with safer sex guidelines (resulting in the belief that condom use is unnecessary) for example, needs to be differentiated from the inability to convince one's partner of the need to use a condom.

Kost and Forrest (1992) in their analysis of the National Survey of Family Growth of 1988, identified various characteristics which were associated with "being a condom user". Those characteristics associated with increased odds ratios include marital status, with never married women having significantly higher odds ratios than formerly married women; educational status with college educated women significantly more likely to be condom users than those without a college education; employment status with women who were working either full-time or part-time being less likely to be condom users. Women who did not want more children were also more likely to be condom users. While the likelihood of condom use amongst women with multiple partners did not differ from those with a single partner, the odds of reporting condom use at last intercourse among condom users with multiple partners was less than half of those amongst women with only one partner. As pointed out by the authors, this may represent the difficulty women may have in negotiating condom use with a variety of partners rather than one partner. Women in their teens were more likely than those in all other

age groups to use condoms.

Upchurch et al (1992) also found that women less than 20 years old were significantly more likely to have used a condom in the previous month compared to other women. The number of partners in the past month was not associated with a significant difference in condom use. Weinstock et al studied a similar high risk population at a sexually transmitted disease clinic in San Francisco (Weinstock, Lindan, Bolan, Kegeles, & Hearst, 1993). Women who believed that condoms reduced sexual pleasure were less likely to use condoms as were women who had difficulty getting their partners to use condoms. Both men and women reported that they would not use condoms with somebody they were in love with and men were less likely to use condoms at last intercourse if they had been using alcohol and drugs. Failure to comply with safer sex guidelines while using alcohol and drugs has been reported elsewhere (Hingson, Strunin, Berlin, & Heeren, 1990 ; Robertson & Plant, 1988 ; Stall, McKusick, Wiley, Coates, & Ostrow, 1986).

In their analysis of respondents in the 1988 U.S. National Survey of Family Growth, Potter and Anderson (1993) performed multivariate logistic regression of condom use on the characteristics of never married women. Women aged less than 20 were once again more likely to use condoms as were those with greater than 12 years education, those who reported using condoms to prevent disease and those who demonstrated a higher level of knowledge about HIV/AIDS.

The U.S. National Survey of Men was conducted in 1991

(Tanfer, Grady, Klepinger & Billy, 1993). A total of 3321 men aged 20-39 were interviewed, 2608 of whom had had intercourse in the preceding four-week period and were included in the analysis. Thirty-six percent of men younger than 30 reported using condoms compared to 19% of those older than 30. The authors suggest three reasons for this difference. Older men are less likely to engage in high-risk behaviour, the sexual behaviour of older men is more likely to be resistant to change and younger men are more likely to have been exposed to educational material promoting safer sex. Having been diagnosed with an STD in the previous 3 years was positively associated with condom use, as was perceived risk of HIV infection and the perception that condoms are a good way to prevent STD transmission.

Catania et al (1992) examined condom use amongst heterosexual adults during vaginal intercourse within three "risk groups", blood transfusion recipients, those with multiple partners, and those with partners in either category, for HIV infection. This study involved a national telephone survey involving random digit dialling in 1990. Relative to transfusion recipients, respondents with multiple partners were 4.7 times as likely to report using condoms. Respondents with partners classified as being at high risk did not differ from transfusion recipients in condom use. Those in these two risk groups can be presumed to have chosen to regard themselves as being at lower risk than respondents in the multiple partners group. In logistic regression analysis of the demographic correlates of condom use, the following were

more likely to use condoms: unmarried compared to married or cohabiting couples, more than 12 years education relative to not having received a high school education, male relative to female and those in their 20s relative to each of the subsequent decades. This study, while being more specifically HIV-risk orientated than others discussed, supports many of the demographic determinants of condom use previously described.

Valdiserri et al examined the attitude to condom use of women attending contraceptive care clinics in Pennsylvania (Valdiserri, Arena, Proctor & Bonati, 1989). Eighty -six percent of these women reported a single sex partner. Twenty-one percent reported currently using condoms for birth control and 14% were currently using condoms "to prevent VD" with another form of birth control. Although there was a generally high level of knowledge about HIV/AIDS demonstrated in true /false questions, 26% believed Vaseline to be the best form of lubricant to use with condoms and 9% thought a woman "could not get AIDS" from a sexual partner unless she engaged in anal intercourse with him. Thirty-seven percent expressed uncertainty about their ability to initiate condom use and 22% believed they would be "too embarrassed" to purchase condoms.

Predictors of condom use at last intercourse were analysed by Weisman et al (1991) using multiple logistic regression. Those women attending Planned Parenthood clinics in Baltimore who reported having asked a partner to use a condom and those who reported knowing that

condom use reduces AIDS risk were significantly more likely to have used condoms at last intercourse. Those with partners five years older than themselves, those who had been pregnant, and those who had used illicit drugs in the past year were significantly less likely to have used a condom at last intercourse. Consistent oral contraceptive use was also negatively correlated with condom use.

In their analysis of the factors associated with condom use among women attending Planned Parenthood Clinics in Pennsylvania, Soskolne et al confirmed the findings of others that women younger than 20 were significantly more likely to use condoms (Soskolne, Aral, Magder, Reed & Bowen, 1991). Other significant associations with condom use in regression analysis were being married, having more than 12 years education and the partner not being an injection drug user. Previous history of STD infection was also associated with condom use. Women with multiple partners also used condoms more often than women with one partner.

A number of factors was identified by Orr, Katz, Carter, Roberts and Brooks (1992) which were associated with the intention to use condoms at next intercourse among adolescent females attending for treatment of STDs. The study population was predominantly (80%) African American and 33% reported condom use at last intercourse. Factors associated with intended condom use included previous use of condoms for HIV prevention, communicating with partners about condoms and positive attitudes towards condoms.

Interpartner communication and "higher condom self-efficacy scores" were associated with always using condoms amongst women attending Baltimore STD clinics (Zenilman, Elish, Celentas, Rompalo, Pare & Weisman, 1994). Multiple regression analysis for 242 women and 284 men revealed different significant variables for men. Perceived higher AIDS risk and suspicion that the last partner was not monogamous were predictors of always using condoms among the male respondents.

The factors associated negatively with condom use in the Canada Youth and AIDS Study (MacDonald et al, 1990) included use of oral contraceptives, belief that condoms interfere with sexual pleasure and difficulty discussing condom use with a prospective partner.

The studies by Orr et al (1992) and Zenilman (1994) with different population characteristics emphasize the importance of interpartner communication. Women require the cooperation of their partners to use condoms. In order to achieve this cooperation they need to be able to negotiate effectively with their partners.

The Canadian Health Promotion Survey (Health and Welfare Canada, 1993) was conducted in 1990. Telephone interviews were conducted with 13,792 respondents across Canada. Although frequency of condom use was not asked in this survey, respondents were asked if they had changed their sexual behaviour in the past year. Of the 9% of women who had made changes, 89% reported selecting sexual partners more carefully. Sixty-seven percent of those making changes reported the use of condoms as the change they had made. Most of those who had

made changes were in the 15 to 19 years age group. This age group also accounted for the majority of those who had more than one sexual partner in the last year, thus putting this group at increased risk.

Women and condom use

A commentary in the American Journal of Public Health by Zena Stein (1990) highlighted the problems of HIV prevention for women. For heterosexual couples, effectiveness of condoms in preventing HIV infection " depends far less on efficacy (in barring transmission per coital act) and much more on acceptance by the male partner ". The woman's desire to protect both herself and her partner with the use of a condom calls upon the woman to negotiate the use of a condom with her partner. In many cultures it remains unacceptable for a woman to suggest the use of a condom to her partner (Mantell, Schinke, & Akabas, 1988). Drug and alcohol use, the lack of economic power, racism, and sexism are all additional barriers to sexual decision making by women making them vulnerable to HIV infection.

Women may prefer not to have their partners use condoms for reasons of their own. A woman's fertility, or potential fertility, often has great significance defining her social role and therefore her self esteem (Worth, 1989). The suggestion of condom use by a man in this context means that he is just 'using' her by removing the possibility of her fulfilling her potential role as a mother.

Women who carry condoms may be perceived as having 'been around' or being 'loose' by their sexual partners. Alternatively, insistence

on condom use invokes the criticism of being pushy or domineering (Orr et al., 1992). Some males will perceive this insistence as being an indication that the woman may have an infection.

While oral contraceptives give women control of their own fertility in their sexual relationships, the need to use condoms for protection against STDs robs women of that control. They are once again dependent on men to use condoms in order to protect themselves against infection (Stein, 1990).

Summary

The HIV epidemic has focused attention on the sexual behaviour of heterosexuals in particular regarding high risk behaviours and compliance with safer sex guidelines. The majority of those studied to date fail to comply with these guidelines. Rates of condom use vary from study to study. Comparison between studies is often difficult due to differing measures of condom use as well as the intrinsic problems identified in measuring self reported behaviour. Despite this, trends in condom use and other sexual behaviour can be identified. In addition insights into the factors associated with condom use should lead to more effective education programs.

The above literature has identified various barriers to condom use including the use of alcohol and drugs, the belief that condoms reduce sexual pleasure, and difficulty negotiating condom use with partners. The unavailability of condoms at the time of intercourse either due to lack of foresight or the cost of condoms has also been identified. Women

who use oral contraceptive pills for fertility control are also less likely to use condoms. Having multiple partners has been reported as a barrier to condom use due to the repeated need to negotiate condom use but has also been associated with more consistent condom use in other studies.

Condom users tend to be younger than non-users, unmarried and have attained a higher level of education. They perceive themselves to be at risk for HIV. Men with a past history of STDs are more likely to use condoms but women with the same history are not. Men who believe their partners are not monogamous are also more likely to use condoms.

Although data on condom use amongst Aboriginal Canadians are not available, the rates of sexually transmitted disease for urban Aboriginal Manitobans are sufficiently high to conclude that high risk behaviour is common amongst this group. Condom use is probably lower than in the general population. Women with low mean household income in Manitoba were also found to be at increased risk for infection with a STD.

There is no published data on the rates of condom use in Manitoba. AIDS prevention programs and STD prevention education have focused on promotion of condom use. While the incidence of HIV infection and other STD rates are of ultimate concern, measurement of the frequency of condom use amongst various sub-groups is vital to the planning of appropriate programs. The determinants of condom use amongst the various population sub-groups will provide greater understanding of the barriers to behaviour change. In particular,

Aboriginal women have been identified as being at high risk for HIV infection due to their high rates of STDs. The present study population is expected to include a balanced mix between Aboriginal and non-aboriginal women. Comparisons between the various sub-groups of this urban population will increase the understanding of the determinants of condom use in Winnipeg.

The findings are expected to mirror many of those summarised above. Aboriginal women are expected to use condoms less than non-aboriginal women. Those using oral contraception and women with a history of an STD are expected to use condoms less often. Younger women are expected to use condoms more frequently as are those who perceive themselves to be at risk for STDs and / or HIV infection.

The most common barriers to condom use can be expected to be those associated with the negotiation of safer sex and substance use. Many barriers to effective communication have been identified especially the difference in power in the relationship between women and their partners.

CHAPTER THREE

METHODS

Introduction

The studies described in the previous chapter have identified various influences on condom use among the different populations studied. The study samples are generally not population based but represent self selected populations , such as those attending Planned Parenthood and STD clinics or first year college students. The determinants of condom use as described in these studies may be common to different populations or unique to a specific population. As few of these determinants have been explored in Canadian studies, the present research explores the various factors predicting condom use amongst women attending the Mount Carmel Clinic. Of particular interest is the high proportion of Aboriginal women in the Mount Carmel population. This chapter will further describe the context of the study, questionnaire development, and the analysis of the responses.

The Human Papilloma Virus Study (HPV Study)

The Northern Health Research Unit and a member of the Department of Community Health Sciences at the University of Manitoba, were contracted by the Laboratory Centre for Disease Control (LCDC), Health and Welfare Canada to develop a proposal to look at the prevalence of Human Papilloma Virus (HPV) infection in Aboriginal women and the relationship of HPV infection to the development of

cancerous and precancerous lesions of the uterine cervix in those women. Due to the high proportion of Mount Carmel Clinic patients who are of aboriginal descent, this researcher was approached with a view to conducting the proposed study at the Mount Carmel Clinic.

The HPV study involves the collection of the relevant patient data with the use of an appropriate questionnaire as well the collection of cervical specimens to determine the prevalence of the various HPV subtypes. In order to collect specimens with minimal deviation from the normal routine of patient care, all women scheduled for a Pap test were included in the study. As the study was scheduled to run for more than one year and women are encouraged to undergo an annual Pap test at the clinic, the majority of women attending Mount Carmel would eventually be included in the sample.

The Instrument

A questionnaire was developed to gather data on demographic characteristics, sexual behaviour, contraceptive history, and history of sexually transmitted disease. The original questionnaire was tested in a pilot study at Mount Carmel Clinic with fifty clinic patients. This pilot study provided the basis for the proposal to Health and Welfare Canada for the HPV study (Young, Orr, McNichol, & Katz, 1991).

On approval of the HPV study by Health and Welfare Canada, development of the final questionnaire began. The pilot study questionnaire had been found to be well accepted by the respondents. Additions were, however, necessary because of the composite funding

from Health Canada. In order to fund this study, the Laboratory Centre for Disease Control involved two other divisions from Health Canada. These departments were interested in the dietary intake of respondents and respondents' past exposure to sexual abuse. Questions designed to elicit this information were added to the piloted questionnaire.

For the specific purposes of this study, additional questions on condom use were added. After reviewing the questions used in various published studies, open ended questions were developed and a series of these were put to clinic patients. The responses received were then used to formulate the response alternatives for the pretest. Further refinement of the questions then preceded a final pretest on fifty clinic patients.

The dependent variable of prime interest is condom use. Various measures of condom use have been described in the literature. No particular measure has emerged from previous studies as more valuable than any other. The result has been a lack of consistency amongst measures of condom use. Pretest respondents expressed the need for a wide range of possible options. The range needed to include the extremes of never using condoms and always using condoms. When questioned about possible responses to bridge these two extremes, those asked felt they should not be forced to choose between options which were too ambiguous. By offering the options of 'sometimes, about 50 % of the time, usually' the respondents said the task of identifying the most appropriate response would be easier. Respondents in the final pretest answered quickly and without hesitation to this question and

subsequently confirmed their comfort with the options offered.

The reason for condom use is important in the development of educational programming. An understanding of the motivation for condom use of those using condoms more frequently may identify important differences which could be exploited in developing educational materials. The relative importance of birth control and disease prevention to respondents is of particular interest.

As the respondents are all women, it is important to ascertain the extent to which they feel empowered to influence their partners to use condoms. Women are becoming infected with HIV more rapidly than men. They are also more frequently in contact with the health care system. The potential for educational programming this represents depends on the power women have to influence the frequency of condom use.

No previous studies have investigated the reason given for not using condoms. This question is of particular relevance in understanding the issues respondents feel are important in the decision as to whether to use a condom. The reasons for not using condoms were generated from discussion with patients and nurses at Mount Carmel Clinic. All the reasons suggested in discussion with the nurses and patients were included in the final ten reasons as listed below :

no need for condoms

condoms are not reliable

partner refuses to use a condom

no condom available
had been drinking / taking drugs
do not like condoms
scared to ask partner to use a condom
never considered using a condom
cannot afford to buy condoms
no need for a condom with someone you love

The questions on drinking and taking drugs were added because previous studies have shown a clear relationship between condom use and the consumption of alcohol and/or drugs. The negative influence of substance use on condom use can be expected in the study population.

Other variables included in the study were age, marital status, use of oral contraceptives, and a previous history of STDs. The influence of age and marital status is not consistent between studies and their influence on condom use is difficult to predict. The literature also reports that women who use oral contraceptives use condoms less frequently, probably because the desire for birth control has traditionally been a strong motivating factor in condom use. In contrast, those who have been previously diagnosed with an STD may be expected to have learned from the experience. Condom use is encouraged at the time of diagnosis to prevent further infection.

Another question asked women to identify themselves as being Aboriginal or non-Aboriginal. The strong correlation between being

Aboriginal and the prevalence of chlamydial infection suggests high risk behaviour amongst Aboriginal women. The frequency of condom use amongst Aboriginal women can thus be expected to be less than that of non-aboriginal women.

Other questions asked about the frequency of intercourse and the number of partners. The influence of frequency of intercourse and number of partners on condom use has been inconsistent in published studies. While having many partners in itself represents high risk behaviour for the transmission of infection, the effect on condom use is unclear.

Respondents were not asked about household income in the questionnaire. The population however comprises women living in the immediate geographical vicinity of the clinic as well as those who choose to attend the clinic from other areas. Postal codes were used to determine average household income using data published by Statistics Canada. Respondents were thus classified as living in a postal code area with average household income less than \$35,000 per year or those with average household income greater than \$35,000 per year.

Particular attention was paid to using language that could be understood by patients with the wide range of literacy skills to be expected at the clinic. The wording and content of the questions was chosen with care recognising the fact that condoms are a male oriented form of protection. Women require the cooperation of their partners with each act of intercourse for condoms to be used. In addition, women are

often in situations where they, for sociocultural reasons, are lacking power within sexual relationships. The questions and their wording were chosen within this reality, and are neutral and non-judgemental. As all respondents are women, the choice of words with regard to condom use was also done with utmost care.

Implementation

Interviews

Funding was provided through the HPV study for the employment of two nurses to share one full-time position to administer the questionnaires. The nurses were chosen based on a number of attributes and skills. They were familiar with the research process. They were non-judgemental and comfortable with the terminology and language used with regard to sex. They were people who would earn the confidence of the respondents resulting in frank and honest responses. They demonstrated the ability to communicate effectively with women of all ages and backgrounds in a non-threatening manner.

Clinic Procedure

Patients at the clinic are accustomed to waiting up to an hour before seeing the physician and may then wait for the on-site pharmacy to fill their prescriptions. This has resulted in patients making appropriate plans, in most cases, to spend an extended period of time at the clinic. The study has benefited to a great extent from this situation.

The initial wait before seeing a physician is partly taken up by a clinic nurse interviewing the patient. This interview identifies the reason

for the visit as well as exploring health issues with the patient. The result is that those patients who have declared their intention to undergo a pelvic examination and Pap test (see inclusion criteria) either at their own suggestion or at the suggestion of the nurse, are easily identified in the chart while waiting to see the physician. These patients were then approached by the study nurse -interviewer to seek their consent for inclusion in the study. Interviews then proceeded immediately if there were a number of patients ahead of the respondent indicating sufficient time to conduct the interview prior to the examination. If the physician was able to see the patient almost immediately, the interview was delayed until after the physician visit.

Clinic nurses who are responsible for assisting the physicians with pelvic examination ensured that those patients who had not been approached prior to the examination were identified to the study nurse after the examination. Clinic nurses did not, however, seek the respondent's consent nor participation in the study in any way other than identifying potential respondents to the study nurse. Those patients interviewed after seeing the physician did not find this an imposition on their time as they were often waiting for pharmacy service.

Interviews were carried out in an interview room dedicated to the study. Completed questionnaires were immediately locked in a filing cabinet in the interview room to ensure confidentiality. Each interview lasted an average of fifteen to twenty minutes. The study nurses often found that patients raised questions about topics covered in the

questionnaire. Respondents were encouraged to ask all questions after the questionnaire had been completed. Clarification of terminology during the interview was permitted. The need for such clarification was anticipated due to the wide variety of ages and life experiences of the respondents.

Consent

The initial task of the study nurse was to introduce herself and her task. Potential respondents were assured that further participation was completely voluntary. The women were assured at this time that refusal to participate in the study would in no way prejudice or impact upon their present or future care at the clinic. Because many respondents were young and members of minority groups who could be expected to be intimidated by clinic staff, any reluctance on the part of the potential respondents at this time resulted in the study nurse offering to terminate the discussion at that time. While this served to reassure respondents and helped them to feel more comfortable with the study nurses, it did not result in many women choosing this option. Those women who did elect to not participate in the study were then given the choice to participate at a later date. The 143 respondents who indicated that they did not wish to participate at all then had the inside cover of their charts marked accordingly to avoid approaching them repeatedly. Consenting women's charts were also appropriately identified. The formal consent form (Appendix I) was then read to the potential respondents and clarified where necessary.

Population and sample

The study population included all sexually active women aged fifty five years or younger attending Mount Carmel Clinic. This represents a unique self selected group of women who have chosen to attend Mount Carmel for their health care. The study sample consisted of 1048 consecutive women attending the Mount Carmel Clinic and undergoing Pap testing who had consented to their participation in the study.

Adolescents from throughout the city attend the clinic due to the availability of "hassle free" medical care. This predominately relates to reproductive health. Oral contraceptive pills are available to sexually active adolescents without parental consent. The clinic pharmacy also provides OCPs to patients without charge on request. This has resulted in teenage women from throughout the city seeking health care at the clinic. Public health nurses in Winnipeg run an active program tracing contacts of those infected with a reportable STD. Referrals for treatment and testing of contacts are then made to a limited number of clinics. Due to public health nurse referral the prevalence of STDs at the clinic is higher than the general population. The prevalence of *Chlamydia trachomatis* genital infection was 12.8% in 1991 (unpublished data, Katz, Orr, Sekla & Brunham, 1991). Patients with a history of STD are at particularly high risk of HIV infection and condom use within this group is of special interest. They are also likely to have undergone specific counselling with regard to condom use and the other safer sex guidelines at the time of treatment. Many of the women referred for STD

investigation would not be up to date with their Pap tests. They would be encouraged to have a Pap test when attending at the clinic. While the study population is unique due to the different factors influencing the clinic client make up, there are two studies from Baltimore (Upchurch, 1992; Weisman, 1991) which studied STD and Planned Parenthood clinic patients respectively. A combination of these two populations would share many characteristics of a section of the study population. An additional group within the study population are those women living in the area who attend the clinic for their regular health care.

The HPV study included the collection of a swab from the uterine cervix of the respondent for HPV determination. To facilitate this with minimum patient inconvenience, only those patients who were to undergo a Pap smear as part of their regular medical care were included in the sample. As the HPV study was anticipated to continue for three years, it was expected that the vast majority of sexually active women under 55 years of age would be included in the final HPV sample. The sample for this study however, was collected over the first fifteen months and is limited to those women who participated in the HPV study during that period. Women attending Mount Carmel Clinic are encouraged to undergo a Pap test on an annual basis, thus all eligible women should have had a Pap test during the study period.

The clinic does not have a reminder system to recall women to attend for a Pap test unless there was an abnormality reported on the previous test. In this case women are so informed at the time the

abnormality is reported and reminded in writing of the need for follow-up examination with an appointment time offered. Failure to keep this appointment results in two further attempts to encourage the patient to attend.

It is routine practice at the clinic to check the date of the patient's last Pap test with every visit. Thus women who regularly attend the clinic for medical care will be reminded of the need for such a test when appropriate. No method exists at present within the clinic to assess the success of this method in ensuring patient compliance.

While the study nurses' hours include the full day time clinic operation hours, coverage at the clinic has not been one hundred percent due to illness, vacation, and university mandated days off. This has resulted in seventeen days over the period of 15 months when no interviews were conducted. No records were kept of the number of women who were eligible for inclusion in the study who attended on those days.

Questionnaire management

Completed questionnaires were checked at the end of each day by the study nurse for omissions or errors. Where any problems were identified, the patient's chart was marked with a request to notify the study nurse on their next attendance at the clinic. This allowed the correction of identified problems and improved the quality of information collected.

Questionnaires were not labelled with the respondents name. The only identifying feature on the questionnaire is the clinic chart number.

This is a unique number assigned to each clinic patient. The computerized registry ensures that each patient has one unique clinic number. Questionnaires were kept under lock and key until transfer to the Department of Community Health Sciences for entry into the database. After initial entry of the database in batches, the database was checked and necessary corrections made. The data were then transferred for analysis via a floppy disc.

Analysis

Analysis was performed using the various modules of NCSS. Bivariate analyses were performed with Chi-squared goodness of fit. Multivariate analysis using stepwise logistic regression was performed after recoding of the significant variables from the bivariate analysis. The outcome variable was dichotomous, namely condom use or no condom use with condom use defined as using a condom about half the time or more frequently (usually, always).

CHAPTER FOUR

RESULTS

Introduction

This chapter presents the results of 1048 interviews completed between October 1992 and February 1994. The respondents' demographic and other characteristics are presented. These are analysed with respect to condom use. Significant variables in the bivariate analysis are then entered into the multiple logistic regression analysis with regular condom use as the outcome variable. Finally the analysis looks at the reasons given for not using condoms. These are analysed with respect to the different respondent characteristics.

During the period of interest, only 143 women were not prepared to be interviewed at all. Some women did decline to be interviewed at the time they were approached but agreed to be interviewed at a later visit to the clinic. As the HPV study is continuing over three years and women at the clinic undergo Pap tests annually, no formal record of these women has been kept. They were easily identifiable on subsequent visits as their charts had not been marked as either "interviewed" or "refused". There is no significant difference in the ages of the 143 refusals and the 1048 participants. Further information about those who refused was not available to make additional comparisons due to their refusal to be interviewed.

The Sample

The demographic characteristics of the sample are presented in . Table 1. Other relevant behaviours and responses are presented in Table 2. The study sample is young with 74 % of participants younger than 30 years of age and almost half are between the ages of 20 and 29 years. Only 1 % of participants are over 50 years of age. Almost half the sample identified themselves as being Aboriginal (41.5 %). No attempt was made to further define whether these women represent women with treaty numbers (status Indians). This proportion is in keeping with the general population distribution of those attending Mount Carmel Clinic. The majority of participants are not married which is consistent with their age. Only 2 % have some post-secondary education. Household income levels were assigned based on the respondents' postal code.

Table 1. Demographic Characteristics of Respondents

	n	(%)
Age (years)		
<20	268	(25.6)
20-29	513	(49.0)
30-39	195	(18.6)
40-49	61	(5.8)
50+	11	(1.0)
Ethnicity		
Non-Aboriginal	613	(58.5)
Aboriginal	435	(41.5)
Marital Status		
Married	294	(28.1)
Non-married	754	(71.9)
Educational Level		
Grade 1-12	830	(79.2)
Some post second.	218	(20.8)
Employed in past year		
Employed	620	(59.2)
Unemployed	428	(40.8)
Household Income		
<\$35,000	586	(56.1)
>\$35,000	458	(43.9)

Non-demographic characteristics of the sample are presented in Table 4. Over eighty percent of the sample smoke cigarettes and about 65 % have been pregnant at least once. Most women do not perceive themselves to be at risk for STDs and HIV (23 %) despite the fact that 49.6 % of the participants reported a history of previous infection with a sexually transmitted disease. Over one-third of the women interviewed reported having more than one sexual partner during the past year.

Table 2. Selected Non-demographic Respondent Characteristics

	n *	(%)
Smoking status		
Smoker	875	(83.5)
Non-smoker	173	(16.5)
Parity		
Never pregnant	368	(35.1)
Ever pregnant	680	(64.9)
Use of Oral Contraceptives		
Current users	348	(39.6)
Non-users	531	(60.4)
Reason for Condom Use		
Fertility control	138	(23.0)
Disease protect.	107	(17.9)
Both	342	(57.1)
Past History of STD		
Previous STD	520	(49.6)
No history of STD	528	(50.4)
Frequency of Intercourse		
>3x/week	308	(31.1)
1-2x/week	339	(34.2)
1-4x/month	207	(20.9)
<1x/month	136	(13.7)
Perceived Self Risk		
At risk for STD	242	(23.5)
Not at risk	788	(76.5)
At risk for HIV	236	(23.3)
Not at risk	776	(76.7)
Number of Partners in Last Year		
1 partner	671	(64.0)
>1 partner	377	(36.0)

* Not all questions were answered by all correspondents (e.g. never users of condoms were not asked for the reason for condom use)

A comparison between Aboriginal and non-Aboriginal respondents is presented in Table 3. Only characteristics which are statistically significant are included.

Table 3. Comparison of Aboriginal and non-Aboriginal Respondents

		Aboriginal n=435	Non-Aboriginal n=613	P
No. of lifetime partners	1-2	14	28	0.0000
	3-4	18	20	
	5-9	24	27	
	10-19	15	12	
	>20	29	13	
No. partners last yr	1	59	68	0.0417
	2	17	15	
	3-10	15	11	
	>10	9	6	
STD risk		28	23	0.0018
Post sec. education		10	28	0.0000
Unemployed		64	25	0.0000
Ever pregnant		77	56	0.0000
OCP users		19	43	0.0000
Past history of STD		64	37	0.0000

Prevalence of Condom Use

Forty two percent of respondents reported never using condoms while only 12 % always use condoms. Table 6 is a presentation of the responses given by the 1048 women to the question "When you are having sex, how often do you use a condom ?".

Table 4 . Condom Use Among Respondents

	n=1048	(%)
Never	448	42.7
Sometimes	258	24.6
About half the time	63	6.0
Usually	153	14.6
Always	126	12.0

The 6% of respondents who use condoms about half of the time could have been included in either the regular users or those who do not use regularly. This small percentage was not found to influence the analysis significantly. The bivariate analyses were run including the 6% and excluding this group in the definition of condom users and no differences were found.

Determinants of Condom Use

Univariate analysis of condom use is represented in Tables 5, 6 and 7. Condom users are defined as those who reported using condoms at least fifty percent of the time. This definition will also be used for

bivariate and multivariate analysis of the determinants of condom use. The results of significance testing with Chi square values are presented in Tables 5 and 6. Table 7 is a summary of the statistically significant determinants of condom use in Table 5 and 6.

Table 5. Proportion of Condom Users among Respondents by Selected Demographic Characteristics

	n	%	X ²	P
Age (years)				
<20	268	46.3	44.06	0.00
20-29	513	31.8		
30-39	195	24.6		
40-49	61	9.8		
50+	11	0.9		
Ethnicity				
Non-Aboriginal	613	35.4	5.31	0.212
Aboriginal	435	28.7		
Marital Status				
Married	294	16.7	46.73	0.00
Non-married	754	38.9		
Educational Level				
Grade 1-12	830	31.8	1.17	0.279
Some post second.	218	35.8		
Employed in past year				
Employed	620	32.4	0.03	0.863
Unemployed	428	32.9		
Household Income				
<\$35,000	586	33.6	0.94	0.332
>\$35,000	458	30.8		

Table 6. Proportion of Condom Users by Selected Personal Characteristics

	n	%	X ²	P
Smoking status				
Smoker	875	33.1	0.71	0.39
Non-smoker	173	30.1		
Parity				
Never pregnant	368	41.6	19.07	0.00
Ever pregnant	680	27.8		
Use of Oral Contraceptives				
Current users	348	26.1	7.26	0.00
Non-users	531	34.8		
Reason for Condom Use				
Fertility control	138	44.2	12.70	0.00
Disease protection	107	51.4	23.15	0.00
Both	342	64.0		
Past History of STD				
Previous STD	520	30.2	2.25	0.13
No history of STD	528	35.0		
Frequency of Intercourse				
>3x/week	308	28.9	3.31	0.06
1-2x/week	339	26.5	7.69	0.00
1-4x/month	207	42.5	12.36	0.00
<1x/month	136	42.6		
Perceived Self Risk				
At risk for STD	242	43.4	18.38	0.00
Not at risk	788	29.1		
At risk for HIV	236	40.7	9.88	0.00
Not at risk	776	30.2		
Number of Partners in Last Year				
1 partner	671	25.9	34.65	0.00
>1 partner	377	44.6		

Table 7. Respondent Characteristics with Statistically Significant Influence on Condom Use

Characteristic	Condom Users (%) *
Age	
<20	46.3
20 - 29	31.8
30 - 39	24.6
40 - 49	10.0
50 +	10.0
Marital Status	
Married	16.7
Non married	38.9
Parity	
Never pregnant	41.6
Ever pregnant	27.8
OCP Use	
Current users	26.1
Non users	34.8
Reason for Condom Use	
Fertility control	44.2
Disease protection	51.4
Both	64.0
Frequency of Intercourse	
>3x / week	28.9
1 - 2x / week	26.5
1 - 4x/month	42.5
<1x / month	42.6
Perceived Self Risk	
At risk for STD	43.4
Not at risk	29.1
At risk for HIV	40.7
Not at risk	30.2
Number of Partners in Past Year	
1 partner	25.9
>1 partner	44.6

* Percentage of respondents in each category who are condom users

Condom Use - Bivariate Analysis

More detailed results of the bivariate analyses are presented in Tables 8 and 9. Condom use appears to decrease with increasing age. Only 23.1% of respondents under 20 years never use condoms while 90.9% of the eleven women over 50 never use condoms. The percentage of those always using condoms drops from 16.8% in women less than 20 to 10.9% in the 20 to 29 year age group, to 10.8% in the 30 to 39 year group, to 6.6% in the 40 to 49 year group. Twice as many non-Aboriginal women always use condoms than Aboriginal women (15.5 % vs 7.1%). Married women are less likely to use condoms than non-married women. Sixty four percent of married women never use condoms and only 7.5% always use condoms. Among non-married women, 34.4% never use condoms and 13.8% always use condoms. Three times as many non-married women usually use condoms as opposed to married women (18.2% vs 5.4%). There do not appear to be any noteworthy differences between those with post-secondary education and those who have achieved a Grade 12 or less. Employment status also shows little difference of note.

Table 8. Distribution of Condom Use by Selected Demographic Characteristics

	Never	Sometimes	50%	Usually	Always
Age					
<20	23.1	30.6	8.6	20.9	16.8
20-29	43.3	25.0	6.6	14.2	10.9
30-39	51.8	23.6	3.1	10.8	10.8
40-49	86.9	3.3	0.0	3.3	6.6
50+	90.9	0.0	0.0	9.1	0.0
Ethnicity					
Non-Aboriginal	42.3	22.3	6.0	13.9	15.5
Aboriginal	43.4	27.8	6.0	15.6	7.1
Marital Status					
Married	64.3	19.0	3.7	5.4	7.5
Single/sep/divorced	34.4	26.8	6.9	18.2	13.8
Education Level					
Grade 1-12	40.8	23.4	6.9	16.1	12.8
Some post-sec.	43.3	24.9	5.8	14.2	11.8
Employment in Past Year					
Employed	44.4	23.2	6.9	12.9	12.6
Unemployed	40.4	26.6	4.7	17.1	11.2
Household Income					
<\$35,000	42.9	23.2	6.7	15.0	12.2
>\$35,000	43.1	25.7	5.1	14.4	11.7

More non-smokers never use condoms (52.0% vs 40.9%) but more smokers use condoms sometimes (25.9% vs 17.9%). When these two categories are combined for those who are not regular users of condoms, there is little difference. Those women who have been pregnant are more likely to never use condoms (48.2 % vs 32.6%) and less likely to always use condoms (10.7% vs 14.4%). The use of oral contraceptives results in a lower percentage of women always and usually using condoms. The 448 women who never use condoms are not included in the analysis of the

reasons given for using condoms. There is a consistent pattern of increasing usage from those who use condoms for birth control to those who use condoms for protection against disease to those who use condoms for both reasons. Experience of a previous diagnosis of a sexually transmitted disease is not associated with increased consistent use of condoms. Only 9.8% of those with this history always use condoms compared to 14.2% with no previous history of a sexually transmitted disease.

Table 9. Other Characteristics by Condom Usage (%)

	Never	Sometimes	50%	Usually	Always
Smoking Status					
Smoker	40.9	25.9	6.2	15.2	11.8
Non-smoker	52.0	17.9	5.2	11.6	13.3
Parity					
Never pregnant	32.6	25.8	8.7	18.5	14.4
One or more preg.	48.2	24.0	4.6	12.5	10.7
Oral Contraceptive Use					
Current users	44.0	29.9	5.7	10.9	9.5
Non users	44.1	21.1	6.4	16.4	12.1
Reason for Condom Use					
Fertility control	0	55.8	10.1	14.5	19.6
Disease protect.	0	46.7	11.2	24.3	17.8
Both	0	36.0	10.2	30.7	23.1
Past History of STD					
Previous STD	41.7	28.1	5.6	14.8	9.8
No previous STD	43.8	21.2	6.4	14.4	14.2
Frequency of Intercourse					
>3x/week	44.2	26.9	5.5	14.0	9.4
1-2x/week	45.7	27.7	5.3	12.4	8.8
1-4x/month	36.2	21.3	5.8	19.8	16.9
<1x/month	26.8	20.6	7.4	16.9	21.0
Perceived Risk					
At risk for STD	24.8	31.8	9.5	23.6	10.3
Not at risk	48.4	22.6	4.8	11.4	12.8
At risk for HIV	28.4	30.9	10.2	18.6	11.9
Not at risk	46.9	22.9	4.8	13.0	12.4
Number of Partners in Last Year					
1 partner	51.9	22.2	4.5	10.3	11.2
>1 partner	26.5	28.9	8.8	22.3	13.5

Women who have sex more often are less likely to use condoms than those who have sex less frequently. Self perceived risk of infection

with a sexually transmitted disease results in increased use, however only 10.3% of those who believe they are at risk use condoms all the time. About twice as many of those perceived as not at risk never use condoms compared to those at risk. This pattern is mirrored by perceived HIV risk. Almost twice as many women with a single partner never use condoms compared to those with more than one partner in the past year. Those women who have more partners are more likely to use condoms usually or always.

Condom Use - Multivariate Analysis

With the outcome variable defined as being a condom user (50% of the time, usually and always) or not being a condom user, forward stepwise logistic regression analysis was performed against the explanatory variables for the bivariate analysis. Only five variables were found to significantly influence condom use when the other variables were controlled for in the model. The model chi-square was 54.07 with 5 df and probability of 0.0000. The model summary is presented in Table 10.

Table 10. Logistic Regression of Condom Use on Significant Respondent Characteristics

Variable	OR	95% CL
Non-users of oral contraceptives	1.00	
Present use of oral contraceptives	0.43	0.28-0.65
Intercourse > 3 times / week	1.00	
Intercourse less often	1.35	1.11-1.64
Aboriginal	1.00	
Non-aboriginal	1.85	1.21-2.84
No history of STD	1.00	
History of STD	0.57	0.38-0.86
One partner in past year	1.00	
More than one partner in past year	1.03	1.00-1.06

OR = Odds Ratio

95 % CL = 95 % Confidence Limit

Plots of the model residuals against each of the explanatory variables failed to suggest any deviation from the linear relationships described. Additional variables were created involving possible interactions between the twelve variables in the analysis. None were found to add the model explanation sufficiently to be included in the final model.

The multiple logistic regression analysis confirms that those

respondents who use oral contraceptives are less than half as likely to use condoms than those who do not. A past history of a sexually transmitted disease also indicates a significantly reduced likelihood of regular condom use. Non-aboriginal women are almost twice as likely to use condoms. Those having intercourse less often are more likely to be regular users and those with more than one partner are marginally more likely to use condoms.

Reasons for not using condoms

Table 11 is a tabulation of the frequency of responses for each of the reasons listed for not using condoms. Over half the respondents did not use condoms because they felt there was no need. Almost a quarter do not like condoms and 20% agreed that they did not need a condom with somebody they loved. Only 14.8% reported that their partner's refusal was the reason that they had not used condoms, with only 3.6% being scared to ask their partner to use condoms.

Table 11. Frequency of responses given for not using condoms (n= 922) *

Reasons	%yes	%no	%sometimes
No need for condoms	54.3	40.7	5.0
Condoms not reliable	5.7	90.5	6.8
Partner refuses	14.8	78.4	6.8
No condom available	14.5	77.5	8.0
Been drinking/taking drugs	8.4	87.5	4.1
Do not like condoms	23.4	74.6	2.0
Scared to ask partner to use	3.6	93.1	3.4
Never considered using condom	14.0	83.7	2.3
Cannot afford to buy condoms	2.8	95.6	1.6
No need with someone you love	20.6	77.2	2.2

* This question was not asked of the 126 respondents who reported always using condoms

Additional reasons proposed by respondents but not offered in the questionnaire are listed below.

- a) Allergy to condoms
- b) Partner does not like condoms
- c) Trying to get pregnant
- d) Getting "carried away" / spontaneity
- e) Don't use with regular partner but do with everyone else
- f) Know my cycle- when it is safe not to use condoms
- g) Condoms cause yeast infection

The reasons given for not using condoms when a condom is not used are then compared in Table 12 between the 446 who who never use condoms and the 279 women who are regarded as condom users. The

unavailability of condoms is the most common response among condom users (32.7%) while only 4.3% of never users answered affirmatively to this reason. Condom users also gave alcohol or drug use as a reason more frequently (17.1% vs 2.3%). Half as many condom users do not like condoms as never users (13.8% vs 26.1%). Never users felt strongly that condoms were not needed (76%) compared to 20.7% of condom users. Twice as many never users confirm that they see no need for a condom with someone you love compared to users (24.8% vs 10.6%).

Table 12. Reasons for not using condoms given by never users compared to those using condoms (n = 643) *

	Never Users n=446	Users n=217
No need for condoms	76	20.7
Condoms not reliable	5.6	3.7
Partner refuses	16.9	12.4
No condoms available	4.3	32.7
Been drinking/taking drugs	2.3	17.1
Do not like condoms	26.1	13.8
Scared to ask partner to use	2.9	3.2
Never considered using	22.5	4.6
Cannot afford to buy	1.6	5.1
No need with someone you love	24.8	10.6

* The 126 respondents who reported using condoms "always" were not asked about the reason for not using condoms. Only those responding to each of the ten reasons were included in this table.

Each of the demographic and behavioural characteristics are represented in Table 13 with the percentage of respondents in that category who agreed with each reason for not using condoms.

Table 13. Percentage of Respondents within Each Category Agreeing with Reasons for not Using Condoms

Reasons	Age Group				Ethnicity		Smoking		Marital Status	
	<20	20-29	30-39	40-49	Non Aboriginal	Aboriginal	Non smoker	Smoker	Married	Non married
No need for condoms	33.8 +	55.9	65.9	78.9	60.5 +	46.3	58.8	53.4	76.7 +	44.9
Condoms not reliable	7.7	4.8	6.8	1.8	5.2	6.5	4.6	6	6.3	5.5
Partner refuses	13.6	17	11.4	12.3	12.8	17.3	14.4	14.8	18.3 +	13.3
No condom available	24.3 +	12.4	12.5	1.8	15.1	13.7	7.8 *	15.8	4.8 +	18.6
Been drinking/taking drugs	14.0 *	7.4	6.3	1.8	5.9 +	11.5	5.9	8.8	2.6 +	10.8
Do not like condoms	29.4 *	23.1	19.9	15.8	25.5	20.8	22.2	23.7	24.5	23
Scared to ask partner to use	5	3.5	2.8	1.8	2.9	4.5	2.6	3.8	1.1 +	4.6
Never considered using	10.9 +	12.2	15.9	33.3	13	15.3	15.7	13.7	17.9	12.3
Cannot afford to buy	3.2	2.6	2.8	3.5	3.1	2.5	2.6	2.9	2.2	3.1
No need with someone you love	16.7	22.8	22.2	17.5	18.6	23.3	19.6	20.8	22.7 +	19.8

* = p < 0.05 + = p < 0.01

Table 13. Percentage of Respondents within Each Category Agreeing with Reasons for not Using Condoms

Reasons	Interco urse Frequency				Employment Status		Parity		STD History	
	3x/wk	1-2/wk	1-4/mth	<1 /mth	Unemployed	Employed	Ever preg	Never	Yes	No
No need for condoms	57.5 +	61.7	47.4	34.5	46.6 +	63.1	57.7	47.8	54.3	54.4
Condoms not reliable	5.4	6.2	6.9	3.7	7	4.8	6.1	5.1	5.1	6.4
Partner refuses	13.6	13.3	20.2	14.7	14.2	15.1	15.1	14.1	15.6	13.9
No condom available	16.1 *	12.7	12.1	19.3	15.2	14	12.5 *	18.5	13.5	15.6
Been drinking/taking drugs	8.2	7.1	8.1	13.8	10	7.2	7.6 *	9.9	10.5 +	6.2
Do not like condoms	23.9	27.9	20.2	22	24.5	22.7	24.5	21.4	25.6	21.1
Scared to ask partner to use	1.8 *	3.6	4	7.3	4.2	3.1	2.8 +	5.1	3.8	3.3
Never considered using	12.9	14.3	13.9	13.8	15.3	13.1	15.1	11.8	13.7	14.3
Cannot afford to buy	2.5	2.6	4	3.7	2.9	2.8	3.3	1.9	3	2.6
No need with someone you love	28.6 +	20.5	15	12	24.7	17.7	22.3 *	17.3	21.8	19.4

* = p < 0.05 + = p < 0.01

Table 13 (cont)

Reasons	Partners in Past Year					Lifetime Partners		Decision Maker		Education	
	One	> one	1 - 4	5-9	>10	Me	Partner	Both	Postsec	No	
No need for condoms	63 +	28.8	56.4	53.6	52.4	33.3	25.9	34.9	60.2	52.8	
Condoms not reliable	5.2	5.4	4.8	5.1	7.4	4.3 +	11.1	6.2	2.1 *	6.7	
Partner refuses	15.1 +	12.6	14.1	12.7	17	19.1	14.8	9	13.6	15	
No condoms available	10.2 +	29.6	13.6	13.1	16.7	24.1	7.4	25.6	13.6	14.8	
Been drinking/taking drugs	3.5 +	17.5	3.7 +	8.9	13.5	16.7 *	3.7	13.5	4.7	9.3	
Do not like condoms	24.7	26.1	20.8 +	21.6	28	15.5	22.2	23.9	22.5	23.7	
Scared to ask partner to use	2.2 +	6.3	4	3	3.5	4.9	3.7	3.8	3.1	3.7	
Never considered using	14.4	13.7	13.3	15.7	13.5	4.9	14	5.9	8.9 *	15.3	
Cannot afford to buy	2.0 +	6.4	1.9	2.1	4.5	4.3	0	4.2	3.1	2.7	
No need with someone you love	23	16.9	18.4 +	20.9	23.2	16.8	18.5	16.6	17.9	21.3	

* = p < 0.05 + = p < 0.01

Table 13 (cont)

Reasons	BCP Use		Reasons for Use			STD Risk		HIV Risk	
	Yes	No	Contracep	Disease	Both	Yes	No	Yes	No
No need for condoms	63.9 +	49.4	6.1 +	32.6	23.3	36.2 +	60.7	41.1 +	59.6
Condoms not reliable	5.1	6.1	9.7	3.4	5.3	6	5.7	4.3	6.2
Partner refuses	14.4	14.9	8.8 +	14.6	12.9	22.1 +	12.1	20.1 +	12.1
No condoms available	8.9 +	17.4	12.4 +	18	32.2	24.4 +	11.2	21.1 +	12.2
Been drinking/taking drugs	5.4 *	9.9	5.3 +	15.7	17.4	21.7 +	3.6	18.7 +	4.4
Do not like condoms	25.6	22.3	22.1	18	20.5	24.4	23.4	25.8	23.4
Scared to ask partner to use	2.2	3	0.0 +	9	4.5	9.2 +	1.7	7.2 +	2.4
Never considered using	11.5	14.5	1.8	12.4	5.7	11.1	14.8	10 *	15.5
Cannot afford to buy	2.6	3.2	0.9	4.5	5.3	5.1 *	1.9	4.8	2.2
No need with someone you love	20.8	21.6	14.2	20.4	15.5	13.9	22.7	16.8	22.1

* = p < 0.05 + = p < 0.01

CHAPTER FIVE

DISCUSSION

Introduction

Condom use with sexual intercourse is promoted by public health professionals as a means of reducing the risk of infection with sexually transmitted pathogens. While the appropriate restriction of sexual partners to mutually monogamous individuals who are free of infection remains the most effective method of preventing the spread of STDs including HIV (Bartlett, 1989), those entering into a new sexual relationship have no guarantee of either the disease-free status of their partners or the truly monogamous nature of that relationship. In addition, the norm among adolescents is the practice of serial monogamy, with frequent changes in partners not being unusual.

The past ten years has seen a dramatic shift in public awareness of sexually transmitted infections. The AIDS epidemic has resulted in televised commercials for condoms and a change in the accepted norm of what may or may not be discussed in public. Education programs promoting safer sex are taught in schools and universities. Women starting oral contraceptives at Mount Carmel Clinic are counselled on safer sex and given condoms at the initiation of BCPs. Patients diagnosed with a STD are interviewed as part of Manitoba Health contact tracing and a safer sex discussion is included in this process.

Little is known about the success of these efforts at changing the

behaviour of Canadians in general and amongst patients at Mount Carmel in particular. According to Canada's Health Promotion Survey (1990), Canadians report recent changes in their behaviour to reduce their risk. These include being more careful in selecting a partner (10 % of men, 6 % of women reporting this change), intercourse with one partner only (7 % of men, 5 % of women), and using condoms (7 % of men, 4 % of women). These changes are however of little value in determining the extent of ongoing high risk behaviour as we lack the knowledge about baseline sexual behaviour. This study does not measure change in risk taking but provides an indication of current practices amongst the target population.

Sample

The survey was extremely well received by the clinic patients. The 13.6 % absolute refusal rate compares very favourably with other questionnaires dealing with similar subject matter (Kost & Forrett, 1992). Population based studies in the United States have often chosen to ask the more sensitive questions only of those considered to be at high risk for fear of offending other respondents (Catania et al, 1992).

The clinic population is unique in composition. Mount Carmel is situated in the urban postal code area with the lowest per household income in Canada. In this respect it may be similar to other core area clinics in North America. There are, however, specific programs at the clinic which have attracted other patients on a regular basis. In particular, the reproductive health programs have resulted in women

from all areas of the city seeking care at the clinic. Forty four percent of patients live at addresses with postal codes whose mean household income is greater than \$35,000 per year. Many of these women first attend the clinic while in their teens for fertility control. They often continue to attend the clinic, if only for reproductive health issues. As eligibility for this study was dependent on undergoing a Pap test at Mount Carmel, many women from other areas of the city would be included in the study sample. These women would be comparable in some respects to those attending Planned Parenthood clinics in the United States, but because of the differences in funding between the two health care systems, such comparisons are difficult. None of the studies dealing with condom use published to date deal with populations combining the core area with the city wide attraction of patients to Mount Carmel.

Comparisons with U.S. studies are also difficult because of differences in the racial breakdown. Depending on the area of the Planned Parenthood clinic, the population may be predominantly white, African-American, or Hispanic, but rarely includes Aboriginal Americans. North American Indians have all but disappeared from U.S. cities as an identifiable group. They are not represented in significant numbers in any of the previously published U.S. studies. This study is unique partly because 40 % of the study population self-identified as members of the Aboriginal community.

Despite the fact that the clinic is in a particularly financially

deprived area, almost 60 % of respondents reported being employed in the past year. As this category includes any form of employment (full time, part time, or casual) it seems likely that the many respondents are employed either part time or on a casual basis. This would also be in keeping with the fact that 25 % of the sample is less than 20 years of age. Many of the teenagers attending for birth control are employed part-time while continuing with their schooling.

While the unique factors defining the Mount Carmel population prevent extrapolation of the results to the population in general, the results are of interest to this specific population.

Canadian studies for comparison are extremely limited. In their study, McDonald et al (1990) report on college students' behaviour. Only 20 % of this sample have some post secondary education. Those with post secondary education are no different to those with less formal education in terms of condom use (Table 7). However, only 10.9 % of the women in McDonald's sample were smokers while 83.5 % of Mount Carmel respondents report being smokers. Both of these figures differ from the national average for smoking among women in Canada (Stachenko, 1992). The remarkably high level of smokers in this study warrants further investigation.

The adolescent portion of the sample can be expected to be at high risk for infection with STDs and HIV due to multiple factors. Adolescents are known to experiment and participate in high risk behaviours as part of their development (Weisman, 1989). In addition, those living in the

core area may be more likely to initiate intercourse at a younger age. The younger one initiates sexual activity, the greater the number of partners one is likely to be exposed to over a number of years (cumulative risk). Adolescents are also more likely to experiment with substance use. Leland and Barth (1992) found that more than 50 % of California adolescents had sex when drunk or high. A recent review of advances in adolescent health (Adgar & De Angelis, 1994) listed alcohol, tobacco, and STDs as the major threats to the health of adolescents at this time. This places at least 25 % of the sample at high risk for STD/HIV transmission.

Forty one percent of the sample identified themselves as Aboriginal. This category includes treaty and non-treaty Indians. This percentage is in keeping with the general clinic population. The urbanisation process can be expected to influence different respondents to a varying extent depending on their circumstances. Many Aboriginal women have spent most of their lives on small isolated reserves. Traditional Aboriginal communities lack many of the facilities available in Winnipeg. The easy availability of alcohol and drugs are tempting to new comers who are looking for something different in the city without really knowing what it is they seek. These women are particularly vulnerable to exploitation and often lack the confidence to assert themselves. The recent reports of the high incidence of STDs in Aboriginal women in Manitoba (Jolly et al., 1995) suggest that Aboriginal women are at high risk of being infected with HIV. The reasons for not

using condoms (no need and drinking/taking drugs) which were given by Aboriginal women are of particular interest in the light of these findings.

Measurement of condom use

Presuming that condoms are 100 % effective when used correctly, use of condoms with every single act of intercourse should result in full protection of the users against infection. Even under optimum conditions success rates fall short of this goal. Expectation of correct use of condoms with every act of intercourse is in itself an unlikely goal. Closer questioning of respondents who claim to use condoms "always" often reveals the odd occasion when a condom was not used (Ku, Sonenstein, & Pleck, 1992). Use at last intercourse reflects no more than that one episode (Weisman, 1991). It may have represented an unusual circumstance or a particular circumstance under which condoms are consistently used. The same respondent may however never use condoms under different conditions. Most prostitutes involved with Prostitutes and Other Women for Equal Rights (POWER) in Winnipeg "always" use condoms with clients. Further questioning of the women (some of whom may well have been respondents in this survey) reveals that some have regular clients with whom they never use condoms. In addition, these prostitutes never use condoms with their boyfriends and/or pimps. Sexually transmitted infections remain a problem amongst prostitutes as most pimps have numerous sexual partners (Campbell Heinrich Research Associates, 1994) .

Weinstock et al (1993), Upchurch (1992), and Soskolne (1991)

differentiated between condom use with casual and steady partners. They found significantly higher rates of condom use with casual partners than with regular partners. The present study makes no such differentiation but a sense of the effect of the relationship on condom use can be gained from the reasons given for not using condoms (Table 12).

The 126 respondents in this study who report always using condoms is a small percentage of the sample. Respondents who report "usually" using condoms are included with those who always use condoms in the category of people who can be regarded as "regular condom users". These are individuals whose usual behaviour includes condom use. The combination of these two categories results in 26.6 % of the respondents being included. The six percent of the sample who report using condoms "half the time" represent a grey area. Analysis of the data with this six percent included in the "condom user" category and excluded from the category does not result in any significant changes. They have been included in this study as condom users.

Sheera and Abraham (1994) reviewed the measurement of condom use in 72 published studies dealing with HIV prevention. Ninety four different measures of condom use were identified. The wide variety of measures used is an indication of the lack of a standard measure in published studies making comparison extremely difficult.

The wording of the question about frequency of condom use in this study was developed after reviewing the literature and testing the question in pretests at the clinic. The question was refined based on the

feedback of the pretest respondents who indicated their preference of number and type of response options. The final question is very similar to many in the literature.

A major methodological problem in any study involving sexual behaviour is the need to rely on self-reported data. This may introduce several types of bias. Various factors may impact upon the respondents' recall. The desire to please the interviewer by providing appropriate answers may influence the respondents. Adolescents may wish to shock the interviewer by exaggerating the extent of their risky behaviour. Attempts to validate self-reported behaviour have however shown good inter-partner reliability (Upchurch et al., 1991).

Condom Use - Determinants

Unlike other methods of contraception, the use of condoms for either contraception or disease prevention requires a conscious effort with each act of intercourse. The decision to rely on this method is an initial step which needs to be followed by a series of actions. Each step may present barriers which condom users may find difficult to overcome. Numerous studies have found embarrassment at purchasing condoms to be a significant problem (Weisman et al., 1989; Upchurch et al., 1992). As condoms are a male controlled method of protection, for women the negotiation of condom use with their partners is a very real barrier (Weinstock et al., 1993). Women still play subservient roles within many sections of society and lack the power to influence their sexual partners. Communication around sexuality is fraught with social taboos. Both

men and women are often caught in socially dictated roles which interfere with direct, honest communication.

Thirty two percent of respondents are regular condom users despite the potential barriers to condom use. While the populations differ significantly from study to study, comparisons are still in order. The only national Canadian study which reports condom use is that of Balakrishnan (1985). This study was completed in 1984. At that time, when AIDS was believed to be an exclusively gay man's disease, only 9.1 % of Canadian women used condoms, primarily for fertility control. An indication of how the passage of time has influenced condom use is given by the work of De Bono et al. (1990). While the population attending the Student Health Service at a private university in the U.S. is quite different from the Mount Carmel population, the change over time is still of interest. Always or almost always condom use increased from 12 % in 1975 to 21 % in 1986 to 41 % in 1989. Hingson et al (1990) reported on changes in behaviour of respondents because of the fear of AIDS. In 1986 2 % of respondents had started using condoms because of AIDS while in 1988 19 % of respondents reported this change in behaviour. In 1988, 32 % of respondents were regular condom users while 18 % had unprotected sex with multiple partners. These changes are in keeping with the reported increase in public awareness and education about AIDS prevention.

The 1988 survey of first year college students across Canada reported 24.8 % of men and 15.6 % of women always using condoms with

17.1 % and 10.2 % respectively often using condoms. Thus 25.8 % of college women would fall into the category of condom users in this study. While college students could be expected to be more educated, more mature (many respondents in this study are too young to attend college) and less likely to take risks than adolescents, condom use dropped amongst those college students who had more partners. Thus those women who were more at risk due to their exposure to more partners were less likely to use condoms. Despite the relatively low incidence of HIV infection in Manitoba, it can be presumed that more of the present respondents would have been exposed to HIV prevention education than in 1988 and that the infection of public figures like Magic Johnson may influence subsequent behaviour.

Because 50 % of the respondents have a self-reported history of sexually transmitted disease and 40 % are current users of oral contraceptives, a significant portion of these would have been exposed to specific safer sex counselling at Mount Carmel Clinic. Despite these exposures, condom use by women at the clinic is no greater than expected when compared to published data. As no data on the rates of condom use prior to counselling are available, it is not possible to ascertain the effect of this counselling on condom use. Further discussion of these programs and their effect on condom use follows in the section on predictors of condom use.

A significantly greater percentage of the condom users have never been pregnant. Thus women who have been pregnant are less likely to

use condoms. This may be due to their being older or due to the fact that those with children are less likely to be exposed to numerous partners. They may also be taking oral contraceptives, a factor associated with decreased condom use. Alternatively, the nulliparity of condom users may be a result of condom use rather than the reverse. Condoms are an effective method of fertility control. Regular condom use will presumably result in ongoing nulliparity. The 40 % of the sample who use oral contraceptives are significantly less likely to be condom users. This is in keeping with the responses given to the question relating to the reason for condom use. Fifty seven percent of respondents who have used condoms (not only defined as regular condom users) claimed to use them for both fertility control and protection against STDs. Amongst the regular users this percentage was even higher at 65.4 %. Thus those who have dual motivation seem to be more likely to actually use condoms regularly. Women who use oral contraceptives have no need for condoms for fertility control. The only reason for these women to use condoms would be to prevent STDs. Many teenagers attending the clinic specifically to initiate taking oral contraceptives express the desire to stop using condoms as a part of their motivation to start using BCPs.

Those who have intercourse more often (once or more per week) are significantly less likely to use condoms. These women may use oral contraceptives due to their more regular sexual activity. They may, however, be exposed to more partners due to more frequent intercourse if not in a monogamous relationship. Respondents with more than one

partner in the past year are however more likely to be condom users than those with only one partner. Teenagers living at home with their parents frequently have intercourse less often due to decreased opportunity. As younger respondents use condoms more frequently, the increased use with less frequent intercourse may be partially due to this influence.

It is not surprising that more respondents who perceive themselves to be at risk for STDs and HIV use condoms more than those who do not perceive themselves at risk. Yet many of those who see themselves as not at risk use condoms regularly. It may well be that it is because they use condoms regularly that these respondents regard themselves to be free of risk. Further exploration of why people see themselves at risk should be included in further study of condom use in this population.

To many Manitobans, HIV disease remains a remote infection which they believe to be associated with high risk groups rather than high risk behaviour. Heterosexual spread of HIV in Manitoba remains relatively rare. AIDS is still associated with homosexuality and intravenous drug use and the prevalence remains low. While 23.3 % of respondents perceived themselves to be at risk for HIV this may well be a theoretical risk. Do they see themselves at risk because they do not use condoms or do they use condoms regularly because they perceive themselves to be at risk? Perceived self risk is, however, not an independent predictor of condom use in this population.

Younger women are consistently found to be more frequent condom users (Anderson et al., 1990; Catania et al., 1992; Hingson et

al.,1990; Potter & Anderson, 1993; Soskolne et al.,1991; Upchurch et al.,1992). The U S National Survey of Family Growth (Kost & Forrest,1992) and Catania's study (1992) are both in agreement with the finding that unmarried women are more frequently condom users as were the findings of Soskolne et al. (1991). Results of analysis of the National Survey of Family Growth are inconsistent with the above findings in terms of the effect of parity and that of post-secondary education on condom use. Women with at least one child were more likely to use condoms in their study while college educated women were also more likely to use condoms. Soskolne and colleagues (1991) also found that in women attending Planned Parenthood clinics in Pennsylvania, respondents with more than twelve years of formal education were more likely to use condoms.

Independent Predictors of Condom Use

Women currently using oral contraceptives are less than half as likely to be regular condom users as those not using oral contraceptives after controlling for the other variables. While those using oral contraceptives are protected against unwanted pregnancies, they may also be less likely to be risk takers. These women have consciously decided to take steps to reduce the risk of unwanted pregnancy. They may also be taking other steps (monogamous relationships, careful choice of partners) to prevent STDs, obviating the need for condoms. In contrast to this are the findings of MacDonald et al (1990). Women who reported more partners in their study used oral contraceptives more often,

condoms less often, and reported a higher incidence of STDs. Those college students were thus particularly concerned about unplanned pregnancy but not at all concerned about STDs. The same may be true for segments of the study population. The finding that a past history of infection with a STD is independently related to decreased condom use seems to suggest that the prevention of STDs is not a priority amongst women attending Mount Carmel.

It is of some concern that the two patient education programs at the clinic which specifically encourage condom use (initiation of oral contraceptives and diagnosis of an STD) are the two strongest independent predictors of less frequent condom use. Thus women who are presumed to have been counselled about safer sex practices by clinic nurses appear to be less likely to use condoms. A number of reasons may exist for this finding. First, the decision to take oral contraceptives is often based on the decision to trust one's partner, particularly in adolescents. Young women frequently report using condoms prior to initiating oral contraceptives. A combination of factors (trusting their partners to be monogamous, the 'hassle' of using a condom with every act of intercourse, and the belief that condoms reduce pleasure) (Hingson et al., 1990; MacDonald et al., 1990) prompts them to start oral contraceptives specifically to replace condoms. Once taking oral contraceptives, the use of condoms becomes superfluous in their eyes. Advising these women to continue with condom use while simultaneously providing them with the freedom of reliable birth control

may be confusing to many.

The patient education given at the time of initiating oral contraceptives was traditionally focused on the effective use of oral contraceptives. Issues such as the mechanics of the package, breakthrough bleeding, and missed pills were always the major concern of both the nurse-educator and patient. These issues remain the major interest of the patient. The new challenge facing the nurse is to ensure adequate knowledge and understanding of the oral contraceptive but simultaneously emphasise the need for ongoing condom use.

Patients who are diagnosed with an STD do not blame themselves. Personal experience with numerous patients has failed to reveal a single patient whose initial response is "I should have insisted on the use of a condom." The response is consistently uniform in blaming the partner as the source of the infection. While it is true that the partner is the source of the infection in many cases, and that use of a condom should be a joint responsibility, women are not ready at that time to hear that the use of condoms will prevent further infections. The failure of the clinic condom promotion program at that time may well be related to timing. Perhaps at the follow up visit, when a test of cure is performed, the patient may be ready to hear the message. The anger, disgust, fear and embarrassment that are often associated with the diagnosis are less likely an impediment to the education process.

In addition to the timing of the message, nurses at the clinic may need to adjust their counselling according to the stage of readiness for

change of the client. Five stages of change have been identified through which an individual must progress to acquire new behaviours (Grimsley, DiClemente, Prochaska, & Prochaska, 1995). Those in the precontemplative and contemplative stage require motivation. Those in the preparation or action stage require tailored action plans with the development of the appropriate social skills such as safer sex negotiation. The maintenance stage calls for relapse prevention. Assessment of the stage of readiness for change should provide the counsellor with an approach appropriate to that client's needs.

While it is true that should these women have been using condoms they would not have been diagnosed with a STD, (the chicken and egg argument - which precipitated which), the analysis refers to a past history of STD not present diagnosis. It would be hoped that an education program may reduce the high risk behaviour which led to the STD diagnosis.

Non-Aboriginal women are almost twice as likely to be condom users after controlling for other variables. Ethnicity was a significant predictor in various studies, however, with Caucasians being significantly more likely to use condoms than other groupings (African Americans or Hispanics) (Anderson et al., 1990; Hingson et al., 1990). The high prevalence of STDs amongst Aboriginal women may be a reflection of less condom use. Further investigation of this phenomenon and the reason for it is suggested in order to develop more appropriate education programming. Public Health messages aimed at reducing STDs and the

risk of HIV infection do not appear to be successfully reaching Aboriginal women at this time.

Respondents having intercourse less often are more likely to be condom users. This finding is independent of oral contraceptive use and number of partners in the past year. As being a regular condom user requires the repeated commitment to condom use with each act of intercourse, those having intercourse less often face an easier task. While others may aspire to more frequent condom use, they may not achieve this goal. Weinstock et al (1993) found that women tended to use condoms more frequently with casual partners (43%) than with 'steady' partners (6%). It may be that those having intercourse less often see themselves as being more discriminating about their sexual activities and thus being at lower risk. Weisman et al (1991) also found that women who had intercourse less than once per week were more likely to use condoms.

The odds ratio of being a condom user for somebody with more than one partner in the past year is 1.03. Although statistically significant, this increase in odds ratio is extremely small. Other studies have shown the same effect including Tanfer et al., (1993) and Potter and Anderson (1993). This presumably represents the recognition of the increased risk associated with having more partners resulting in increased condom use.

Many studies have shown the negative impact of alcohol and drug use on condom use. Although no specific questions linking condom use

with alcohol consumption at the time of intercourse were asked, the issue was raised as one of the possible reasons for not using condoms. Only 8.4 % of respondents agreed that this was the reason they did not use condoms. This appears to be contrary to the findings of Hingson et al (1990), Robertson & Plant (1988) and Stall (1986). This may be due to methodological differences. The reason given for not using condoms was one of a list of ten possible reasons offered. It relied on the respondent to identify the relationship between substance use and condom use, while other forms of questioning do not require this step. It is possible that those women in this study who do use alcohol and/or drugs associated with intercourse may not have used condoms for other reasons. This will be explored further in the following section.

Reasons for not using condoms

One of the most surprising findings in this study was the fact that only 14.8 % of respondents answering this question reported that their partner's refusal was the reason for not using condoms. In addition, only 3.6 % of those answering admitted to being fearful of asking their partners to use condoms. Much has been written about condoms being a male specific form of contraception and protection against disease (Hankins, 1990; Stein, 1990). As Stein states, "a key problem with the condom from the point of view of the women is that it calls upon the woman to assert dominance in the sexual act." The Baltimore Planned Parenthood study (Weisman et al., 1991) showed that independent predictors of condom use, after controlling for other variables, included

having a partner's support for condom use and having asked a partner to use condoms. Weisman et al (1993) had similar findings among those attending a STD clinic in San Francisco. It seems difficult to believe that the women attending the Mount Carmel Clinic are sufficiently liberated in their sexual interactions for this problem to have been solved. Far more likely is the possibility that this form of questioning has failed to reveal the underlying dynamic. This would be consistent with the findings with regard to alcohol/drug use.

The most common reason for not using condoms was that there is no need. While 54 % of the respondents agreed with this statement, 76 % of those who never use condoms agreed while only 20 % of condom users felt this way. Women who agree with this statement may be expected to be in monogamous relationships. They are presumably using an alternate form of contraception. Table 13 indicates however that almost 50 % of respondents who do not use OCPs believe there is no need for condoms. Thirty six percent of people who believe they are at risk of contracting a STD stated there was no need for condoms. The number of life time partners and a previous history of STD also did not affect responses to this statement.

There are some striking differences between condom users and those who never use condoms. The availability of condoms is important for 32 % of users but only 4.3 % of never users. Thus education geared at condom users needs to focus on being prepared for intercourse by having condoms available while for never users, this point would be less

relevant. Similarly, the use of alcohol and drugs is important to 17 % of users compared to 2 % of never users. Twenty six percent of never users do not like condoms. Education directed at this group needs to firstly focus on the need for condoms and then teach women how to make the use of condoms more pleasurable and thus more acceptable. It is distressing that 22 % of never users claim to have never considered condoms despite the extensive public and clinic specific education directed specifically at this end. This may however be due to their being in long term monogamous relationships.

The differences between never users and those who regularly use condoms suggest broad areas of education which may be relevant to each group. More specific and focussed education is however possible utilising the data from table 13. For example, younger Aboriginal women who have a history of a STD but have never been pregnant are more likely to not use condoms due to use of alcohol and/or drugs. The same population reports the unavailability of condoms as a reason for not using condoms.

The women who believe there is no need to use condoms are older, married, employed, and OCP users. They believe themselves to not be at risk for STDs/HIV and are more likely to have had only one partner in the past year.

The educational message relevant to these two groups of women is very different. The women in each group should be easily identifiable. It should be noted that women who reported always using condoms were

excluded from this part of the analysis. These women represent a different group to those in the logistic regression analysis who were condom users although overlap exists between the women in the two groups. Unlike the logistic regression where other variables are controlled for by the statistical analysis, these groupings may be confounded. Nevertheless these groups are easily defined in the clinical context and more focussed education may be more successful than the present approach.

CHAPTER SIX

CONCLUSIONS

Any conclusions drawn from this study must be based on the understanding that the findings are limited to the study population. This is a unique population which is not representative of either the general population, the inner city or the Aboriginal community. It is made up of various groups who differ both culturally and demographically. These findings are thus not generalizable to the general population.

The study population is at high risk for infection with sexually transmitted disease. The sample shows a very high level of collective experience with STDs, with almost 50% of respondents reporting a previous STD diagnosis. Despite this history, less than 25% of respondents perceive themselves to be at risk for future STDs. This may well be the case if past experience had changed the behaviour of respondents to reduce their risk. The data do not however support this position. Condom use in this study is consistent with that in other recently published North American studies. Although the characteristics of study populations vary, condom use is relatively consistent. This is partly due to the many factors influencing the decision to use condoms and the subsequent requirement for repeated action in using condoms regularly. For different groups of individuals the issues are very different.

This study has identified shortcomings in the programs at Mount Carmel clinic directed at preventing STDs. The present counselling given

to women who initiate birth control pills and those who are treated for STDs has failed to achieve acceptable condom use rates amongst these women. Each of these groups should be addressed in a different way.

Women with a past history of STD do not recognise that they are at risk for subsequent infections. They claimed to have "learned my lesson" often believing their choice of partners to be the problem. These women need to be educated to understand that every partner comes with a sexual history which cannot be judged or determined easily. The most reliable way of protecting themselves is with condom use.

The initiation of oral contraceptives is often precipitated by the desire to stop using condoms for fertility control. These young women often feel secure in their relationships and cannot conceive of the possibility of an end to their present relationship. The task is to bring these women to the understanding that serial monogamy is the norm for adolescents without destroying their faith in their relationships. The issue of casual sex has not been addressed separately in this study but other studies have identified this as a significant issue in sexual behaviour.

The questions pertaining to reasons for not using condoms do not appear to have been well received by the respondents. The response rate to these questions is lower than that of other questions.

Nevertheless, sub-groups of women with different reasons for not using condoms have been identified. These sub-groups provide the opportunity to develop specific education programs relevant to their

specific issues and needs. Aboriginal women are more likely to believe there is no need for condoms, more likely to have their partners refuse to use condoms, and are more likely to have used alcohol and/or drugs at the time of intercourse.

The availability of condoms is a barrier to younger women who are smokers and have never been married or pregnant and do not use OCPs. These women are aware that they are at risk for STDs. Making condoms more available to these women should become a priority for public health program developers.

Although alcohol and drug use was not identified by a large group of women as a reason to not use condoms, a distinct group of women for whom this is a problem can be identified.

The failure of this study to identify the need for negotiation skills for women to persuade their partners to use condoms appears to be methodological. Other studies have consistently found interpersonal skills and the ability to communicate effectively with partners to be significant predictors of condom use among women. This issue was addressed in the section dealing with reasons for not using condoms. As with alcohol and drug use, which has also been shown to have an important impact on condom use especially among adolescents, partner refusal and being scared to ask a partner were not identified by a large group of women as being valid reasons for not using condoms. It appears that the way in which these questions were phrased requires an added level of respondent understanding. Direct questioning of ability to

negotiate condom use with a partner, as used in other studies, may be a more appropriate measure of the relevance of this skill. None of the other studies reviewed used the type of question used in this study. A qualitative study is suggested to further explore this difference.

Different women are at different stages in the process of initiating condom use. Some have not accepted the need to use condoms. Others do not like to use them, or find them unavailable due to alcohol and/or drug use or unplanned intercourse. Education programs need to identify at which stage the target population (which may be a single individual) is in the process and the relevant issues need to be addressed based on this determination.

Recommendations for research

This study has raised questions which should be addressed by further research. Many of these questions are of a nature that requires qualitative research to adequately address these issues.

Amongst the issues to be explored are the reasons for the low rate of condom use amongst the Aboriginal community. A better understanding of this issue will help the leaders of this community devise community specific programs.

The perception of risk of infection is not well understood from this study and requires further clarification. Some may regard themselves as being at low risk because they are using condoms even though they may not use condoms consistently. Others may perceive themselves to be at high risk because of their participation in high risk activities; however

their risk is lowered by regular condom use.

The question with regard to the reasons given for not using condoms did not provide the clarification anticipated. Further exploration should provide guidance in the development of educational programming to promote consistent condom use. In particular, the ability and comfort level of women in negotiating condom use and the role that substance use plays in influencing condom use needs further investigation.

Policy recommendations

The educational programming at Mount Carmel Clinic should be modified to accommodate the study findings. Serious consideration should be given to moving the safer sex education from the initial STD visit to the subsequent visit for test of cure. At this time patients may be more receptive to the educational message. Information given should be based on the stage of readiness for change of each patient. Nurses may require more training in the assessment of the stages of readiness for change.

Specific peer counselling programs should be considered in an effort to make counselling more relevant to Aboriginal women. The clinic should investigate successful peer counselling models already developed.

The Aboriginal community needs to address the risk of sexually transmitted infection amongst urban Aboriginal women. Drop-in centres, the Children of the Earth School, and other sites frequented by Aboriginal women should be targeted for educational programming.

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Appendix

STUDY ID NO: _____

**Prevalence and Risk Factors for
Human Papilloma Virus Infection
in an Urban Population**

CLINIC FILE NO: _____

INTERVIEWER'S INITIALS _____

**Prevalence and Risk Factors for
Human Papilloma Virus Infection
in an Urban Population**

CLINIC FILE NO: _____

INTERVIEWER'S INITIALS _____

CONSENT FORM

Thank you very much for taking part in this study on Pap smears and virus infection of the genital organs. I would like to explain to you what we plan to do first. If you agree to take part, I would like you to sign a consent form.

This study will try to find out if women with abnormal Pap smears are more likely to have evidence of past infection with certain types of viruses. Women who have been recommended by their doctor at the clinic for a Pap smear check-up are asked to take part. When your doctor does the Pap smear, a second sample will be taken which will be sent to the laboratory for testing for viruses. We would also like to ask you to answer questions regarding yourself: personal data, smoking habits, past pregnancies, birth control methods, sexual habits and past infections. You may find some of these questions sensitive and personal, The whole interview will last about half an hour. If you do not wish to, you need not answer them. All information contained in this questionnaire will be kept strictly confidential.

This study is entirely voluntary. If you do not take part, it will not affect your obtaining care at the clinic here. Results of the Pap smear will be forwarded to your doctor. Any abnormal results will be promptly referred for immediate action.

If you have any further questions, please do not hesitate to ask the nurse. Thank you very much.

Participant

Witness

Date

Please answer these questions carefully and to the best of your ability. Some of these questions are of a personal and sensitive nature. You do not have to answer them if you do not wish to.

Code 8 or 88 if DON'T KNOW, 9 or 99 if REFUSED, and leave BLANK if the item is not applicable

Question	Variable	Columns
1 Identification No.	IDNUMBER	_____
2 Date of interview	DATEINTV	___/___/___
3 What is your date of birth?	BIRTHDAT	___/___/___ day month year
4 What are the first 3 digits of your postal code?	POSTCODE	_____

SOCIODEMOGRAPHIC INFORMATION

5 To which ethnic or cultural group do you belong?	ETHNOGRP	___
1 = Status/registered Indian		
2 = Non-status Indian		
3 = Metis		
4 = Inuit		
5 = Other Aboriginal/Native		
6 = Non-Native (specify _____)		

- 6 What is your marital status? MARISTAT _____
 1 = married/common law
 2 = single
 3 = separated/divorced
 4 = widowed
- 7 What is the highest grade of school you have completed? EDUCLEVL _____
 1 - 12 = actual grade completed
 15 = some post-secondary
- 8 Did you work or had a job in the past 12 months? EMPL12MN _____
 1 = yes, full-time
 2 = yes, part-time, irregularly
 3 = no, unemployed, laid-off
 If no, go to question 10
- 9 What kind of work did you do? OCCUPATN _____
 1 = professional/managerial
 2 = clerical/office/sales
 3 = blue-collar
 4 = homemaker
 5 = student
 6 = other _____
- 10 How long have you lived in Winnipeg? [in years; if < 1 year, code 00] CITYLIVE _____

11 Where did you live before moving to Winnipeg? PREVRESD _____

1 = always lived in Winnipeg

2 = an Indian Reserve

3 = other rural/remote community

4 = other town/city

SMOKING HABITS

12 Have you ever smoked cigarettes? EVERSMOK _____

1 = yes

2 = no

If no, go to Question 16

13 Do you smoke cigarettes now? NOWSMOKE _____

1 = yes, regularly

2 = yes, occasionally (not every day)

3 = no

If no, go to Question 15

14 On the average, how many cigarettes do you smoke in a day? CIGNODAY ____ _

Go to Question 16

15 How long ago did you quit smoking? WHENQUIT ____ _

00 = less than a year

xx = number of years

OBSTETRICAL HISTORY

- 16 Have you ever been pregnant? EVERPREG _____
 1 = yes
 2 = no
 If no go to Question 20.
- 17 How many times have you been pregnant? NUMPREGN _____
 [including livebirths, miscarriages, abortions,
 stillbirths]
- 18 How many babies were born alive? LIVEBORN _____
- 19 When did your last pregnancy end? [When LASTPREG 19 _____
 was your last baby born? When was last
 miscarriage or abortion?]
- 20 Are you having regular menstrual REGMENSE _____
 periods?
 1 = yes
 2 = no
 3 = post-menopausal
 If yes or no go to Question 22.
- 21 When did you stop having regular periods? STOPMENS 19 _____
 [If answer given in age or years ago, note
 here _____; convert to year
 later]

CONTRACEPTIVE PRACTICES

- 22 Have you ever taken birth control pills? EVERBCPS _____
 1 = yes
 2 = no
 If no go to Question 27.
- 23 How old were you when you took birth control pills for the first time? [in years] BCPSTART _____

- 24 Do you take birth control pills now? BCPNOW _____
 1 = yes
 2 = no
 If no go to Question 26.
- 25 How long have you taken them continuously? [in years] BCPDURAT _____

- 26 How long ago did you stop taking them? BCPSTOPD _____

 [Note here: ___ years ___ months
 code in nearest years, 00 if < 1 year]
- 27 When you are having sex, how often do you use a condom ? USECONDM _____
 1 = never
 2 = sometimes
 3 = about half of the time
 4 = most of the time
 5 = always
 If never, go to Question 30.

28 When a condom is used, is it for: WHYCONDM _____

1 = birth control

2 = protection against disease

3 = both

4 = other (Specify: _____)

29 Who usually decides whether a condom is used? WHOCONDM _____

1 = myself

2 = my partner

3 = both

30 When you are having sex and a condom is not used, what is the reason. I am going to read you some common reasons, for each one, you may say yes, no, or sometimes. [*Do not ask this question if answer to Question 27 is always*]

1 = yes

2 = no

3 = sometimes

(a) no need for condom	REASON1	_____
(b) condoms not reliable/do not work	REASON2	_____
(c) partner refuses	REASON3	_____
(d) no condom available	REASON4	_____
(e) been drinking/taking drugs	REASON5	_____
(f) do not like condoms	REASON6	_____
(g) scared to ask partner to use condoms	REASON7	_____
(h) never considered using condom	REASON8	_____
(i) cannot afford to buy condoms	REASON9	_____
(j) no need with somebody you love	REASON10	_____

- 31 Other than birth control pills and condoms, have you ever used other methods of birth control, for example an IUD or coil? USECOIL _____
- 1 = yes
- 2 = no
- If no, go to Question 34.
- 32 At what age was the IUD put inside you for the first time [in years] IUDSTART _____
- 33 At what age was the IUD removed? IUDSTOPD _____
- 34 Have you ever used a diaphragm for birth control? DIAPHRAM _____
- 1 = yes
- 2 = no
- If no, go to Question 37.
- 35 When you use a diaphragm, did you use it: DIAPHRFQ _____
- 1 = occasionally
- 2 = regularly
- 36 How long have you been using a diaphragm as a method of birth control? [in years] DIAPHDUR _____

37 Have you ever used foam or jelly as a method of birth control? USEFOAM _____

1 = yes

2 = no

If no, go to Question 40

38 When you use foam/jelly, did you use it: FOAMFREQ _____
1 = occasionally

2 = regularly

39 How long have you been using foam/jelly as a method of birth control? [in years] FOAMDURA _____

40 Have you ever had your tubes tied? TUBETIED _____
1 = yes

2 = no

If no, go to Question 42

41 How old were you when you had your tubes tied? TULGWHEN _____

PAST PAP SMEARS

42 How often have you had Pap smears? PAPSMFRQ _____
1 = this is the first time

2 = about once a year

3 = about once every 2 or 3 years

4 = very irregularly

If first time, Go to Question 46

43 How old were you when you had your first Pap smear? [in years] PAPIWHEN ___

44 Have you ever been told that you had an abnormal Pap smear? PAPABNRM ___

1 = yes

2 = no

45 When did you have your last Pap smear taken? LASPAPYR 19 ___

SEXUAL ACTIVITY

The following questions deal with more personal matters. Your answers will be kept strictly confidential. Just tell me if you are finding it too hard to answer these questions.

46 Have you ever been the victim of any kind of sexual abuse? SEXABUSE ___

1 = yes

2 = no

If no, go to Question 48

47 Were you a child or an adult when you were sexually abused? AGEABUSE ___

1 = child

2 = adult

3 = both

- | | | | |
|----|--|----------|-----|
| 48 | How old were you when you first had sexual intercourse? [in years] | FIRSTSEX | ___ |
| 49 | How many sexual partners have you had during your lifetime? | NSEXPART | ___ |
| 50 | How many sexual partners have you had in the past year? | SEXLASYR | ___ |
| 51 | How often on the average do you engage in sexual intercourse | SEXTIMES | ___ |
- 1 = 3 or more times a week
 2 = once or twice a week
 3 = 1 -4 times a month
 4 = less than once a month

GENITAL INFECTIONS

- 52 In the past, have you ever had a sexually transmitted disease? I shall read off some names and you can say yes or no:
- 1 = yes
 2 = no

- | | | |
|-----------------------|----------|-----|
| (a) Syphilis | PASTSYPH | ___ |
| (b) Gonorrhoea (clap) | PASTGONO | ___ |
| (c) Chlamydia | PASTCLAM | ___ |
| (d) genital ulcers | PASTULCR | ___ |

- 53 Do you think you may have had a sexually transmitted disease in the past but you are not sure of its name? NONAMEVD _____
- 1 = yes
- 2 = no
- 54 Have you ever noticed warts on your vagina? PASTWART _____
- 1 = yes
- 2 = no
- If no, go to Question 56.
- 55 How old were you when the warts first appeared? [in years] FIRSWART _____
- 56 Do you believe you are at risk for HIV/AIDS infection? HIVRISK _____
- 1 = yes
- 2 = no
- 57 Do you believe you are at risk for other sexually transmitted disease? STDRISK _____
- 1 = yes
- 2 = no

DIETARY HISTORY

Did you eat the following foods during the last month?

Food	No	Times/ month	Times /week	Times /day	Usual portion
58. Fortified cereal					cups
59. Carrots					cups
60. Sweet potatoes or pumpkin					cups
61. Spinach or other dark leafy green vegetables					cups
62. Winter squash (acorn, butternut)					cups
63. Oranges					no.
64. Orange juice					cups
65. Cranberry juice/cocktail					cups
66. Broccoli					cups
67. Brussels sprouts					cups
68. Grapefruit					no.
69. Grapefruit juice					cups

LABORATORY DATA

70. Pap smear _____
71. Chlamydia _____
72. Neisseria gonorrhoea _____
73. HPV _____