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Health Locus of Control and HIV:
A study of beliefs, attitudes, and high-risk behaviours among homosexual men attending a general medical clinic

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Health locus of control and HIV among homosexual men

ABSTRACT

Acquired immunodeficiency syndrome (AIDS) remains an epidemic illness with no known cure. Survival time after infection with the human immunodeficiency virus (HIV), has been lengthened considerably. Rates of new infection among the at-risk male homosexual populations have decreased. Prevention is possible through effective, targeted interventions. This study is an exploration of the role of health locus of control, an individual difference construct from the area of social learning theory, in the maintenance of health-oriented behaviours, co-risk indicative behaviours, and high-risk behaviours in a population of adult male homosexuals attending a general medical clinic. The findings result in distinctly different past histories and present patterns of homosexual behaviours among the two serostatus subpopulations. Low internal expectancy of control over health repeatedly relates in distinctive patterns with the areas of level of happiness, condom usage, and high-risk sexual behaviours. High internal expectancy of control relates significantly to knowledge-related variables. The physician plays a pivotal role as the source of useful information in this at-risk population. The study population as a whole reports accurate knowledge about HIV and AIDS. The men have reduced high-risk behaviours, increased safer sexual behaviours, and implemented the changes advocated. Serostatus differentiates for many high-risk behavioural patterns. There remains a small core of men among the study participants who continue to participate in high-risk sexual behaviours.

RÉSUMÉ

Il n'existe aucune thérapeutique médicale pour remédier à la pandémie du virus d'immunodéficience acquise (SIDA). L'espérance de vie des personnes séropositives (VIH) s'est considérablement accrue. Nous assistons à une baisse du taux de nouvelles infections parmi la principale population à risques: les homosexuels. La prévention semble efficace si les interventions sont ciblées. Cette recherche auprès de la population d'adultes homosexuels a pour objectif d'explorer le type de rapport à la réalité de santé, dans le maintien des comportements associés à la santé, des conduites à risques (liées à l'ignorance ou à haut-risque). Les résultats nous permettent de distinguer deux sous-populations. Elles possèdent chacune une organisation particulière sur le plan des comportements homosexuels et démontrent une persistance dans le temps. Un faible niveau d'intérioceptivité est associé à une organisation particulière des facteurs suivants: le degré d'orientation de plaisir, l'usage de condom et les comportements sexuels à risques élevés. Un haut niveau d'intérioceptivité est associé significativement à la connaissance des modes de transmission du virus. Pour cette population, le médecin assume un rôle important comme principale source d'information. La population étudiée possède une connaissance adéquate du VIH et du SIDA. Les hommes de ce groupe ont moins de comportements à risques élevés, ont des pratiques sexuelles plus sécuritaires et adoptent les conduites suggérées par le médecin. Le statut sérologique permet de différencier plusieurs types de comportements à risques élevés. Un faible nombre de participants à la recherche persiste à adopter des conduites sexuelles à risques élevés.

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CHAPTER I

HISTORICAL REVIEW of AIDS LITERATURE

In opening this historical review of the literature on the various aspects of Acquired Immune Deficiency Syndrome (AIDS), the following quotation sets the tone for this chapter.

> The biology and epidemiology of AIDS require a coordinated attack, involving research on vaccines and drugs, modification of human behaviour and education of populations to arrest the disease. (Earickson, 1990, p.951)

Acquired Immunodeficiency Syndrome (AIDS)

History and Etiology of the Epidemic

Acquired immunodeficiency syndrome (AIDS) is the epidemic of our time. "Far from being a purely medical phenomenon, HIV/AIDS has challenged long-held assumptions about illness, morality, and social responsibility" (Hamblin, Duckett, Somerville, Gilmore, & Zimmerman, 1990, p.1-1). AIDS presently is a disease with a clear etiology and known channels of transmission (Castro, Litson, White, Bush et al., 1988; Friedland, 1987b). The main channels of transmission - exchange of blood and body fluids, sexual activities, and perinatal events - were uncovered before the discovery of the etiologic agent (Friedland & Klein, 1987). AIDS is a preventable illness with no known cure. Prevention of

further sexual, parenteral, and perinatal transmission is dependent upon individual control and modification of high-risk sexual and/or drug abuse behavioural practices (Becker & Joseph, 1988; Hamblin et al., 1990; Mays, Albee, Jones, & Schneider, 1989). The psychosocial aspects of the epidemic have been targeted by the World Health Organization (WHO, 1990) as the major foci for impact on the epidemic. The major at-risk populations in the developed world continue to be homosexual/bisexual men and intravenous drug abusers.

Acquired Immunodeficiency Syndrome (AIDS) was first described in 1981 in the United States (Centers for Disease Control [CDC], 1981a; CDC, 1981b) when cases of unexplained pneumocystis carinii pneumonia and Kaposi's sarcoma among previously healthy young homosexual men were reported in New York City and San Francisco (Gottlieb, Schroff, Schanker, Weisman et al., 1981; Masur, Michelis, Greene, Onorato et al., 1981). The initial presenting constellation of immunosuppression, viral infections, and demyelinating disorders was called Gay Related Immune Disease (GRID) due to its exclusive appearance among homosexual and bisexual men (Britton, Marquardt, Koppel, Garvey, & Miller, 1982; Horowitz, Benson, Gottlieb, Davos, & Bentson, 1982; Miller, 1987a). AIDS was subsequently delineated as a distinct syndrome. The case definition was established by the Center for Disease Control (CDC) in Atlanta, the body which declared the existence of an epidemic in 1981.

"AIDS is a behavioural disease, and the main risk behaviours are well-documented: unprotected sexual intercourse with an infected individual and sharing contaminated needles and syringes with an infected person" (Adrien, Hankins, & Remis, 1989, p.8). From the earliest published reports, homosexual

men were the group delineated at highest risk of AIDS (Melbye, 1986). The main route of transmission in the male homosexual population is unprotected receptive anal intercourse. Potential cofactors to seroconversion are numerous (Kingsley, Kaslow, Rinaldo, Detre et al., 1987). Significant correlation is found with heavy alcohol use, concomitant drug use, and younger age, all of which are associated with increased numbers of sexual partners, anonymous sex, and high-risk sex (Penkower, Dew, Kingsley, Becker et al., 1991; Plant, 1990). The role of cofactors, in particular incidence of sexually transmitted diseases, in progression to frank illness must be noted (Bartholomew, Blattner, & Cleghorn, 1987; Ensoli, Lusso, Schachter, Josephs et al., 1989).

The route of heterosexual transmission through vaginal intercourse is established, with greater efficiency in the male-to-female direction, and through the underestimated route of heterosexual anal intercourse (Bolling & Voeller, 1987; Johnson, Petherick, Davidson, Brettle, et al., 1989; Voeller, 1990; Voeller, 1991). Bisexual men constitute a nexus of transmission from the homosexual to the heterosexual community (Winkelstein, Wiley, Padian, & Levy, 1986). Efficiency of heterosexual transmission is reported to be facilitated with severe immune deficiency in the later stages of HIV infection (Salahuddin, Sarin, & Blattner, 1987).

Heterosexual transmission has been extremely fast in developing countries. The male street prostitute has been only tentatively explored as a possible route of homosexual/heterosexual transmission (Morse, Simon, Osofsky, Balson, & Gaumier, 1991). Heterosexual anal intercourse has been reported as an

increased risk factor along with the number of exposures to the infected individual (Padian, Marquis, Francis, Anderson et al., 1987).

There has been no evidence of transmission through casual contact, even to household and family associates of persons with AIDS (Friedland, Salyzmen, Rogers, Kahl et al., 1986; Fischl, Dickinson, Scott, Klimes, Fletcher, & Parks, 1987). The most efficient means of transmission among homosexual men is unprotected anal intercourse, with other risk factors being higher number of multiple partners, rectal trauma, history of cofactor sexually transmitted diseases (Jeffries, Willoughby, Boyko, Schechter et al., 1985). One modality of transmission -- blood transfusion -- has been virtually eliminated in the developed world with the realization and utilization of screening and diagnostic tests (Popovic, Samgadharan, Read, & Gallo, 1984; Ward, Holmberg, Allen, Cohn et al., 1988).

The risk of transmission of AIDS can be substantially reduced by the following behavioural precautions: a) reduction in the number of partners, ideally maintaining one partner; b) avoidance of casual sexual encounters; c) utilization of a condom; and d) use of sterile needles for intravenous drug injection. Concurrent syphilitic infection and penile ulcers heighten the risk of HIV infection (Murphy, Fugueroa, Gibbs, Brathwaite et al., 1989), along with prior herpes simplex type-2 infection and anal warts (Holmberg, Stewart, & Gerber, 1988; Kiviat, Rompalo, Bowden, Galloway et al., 1990).

Dr. Jonathan Mann (1990), former director of the World Health Organization, divided the AIDS epidemic into three waves: first, the wave of HIV

infection; second, the epidemic of illness; and, third, the epidemic of economic, political, social, and cultural reactions to HIV and AIDS.

The global epidemiology of HIV infection is portrayed by three patterns. In pattern I, most of the developed world is incorporated, with the main routes of transmission being high-risk homosexual behaviours and intravenous drug behaviours. In pattern II, sub-Saharan Africa is portrayed, with the main routes of transmission being heterosexual behaviours, perinatal transfer, and blood transfusions. In pattern III, the remaining countries with more recent reports of AIDS incidence are portrayed and case numbers are still small (Piot, Laga, Ryder, Perriens et al., 1990). Frank illness in pattern I countries is mainly HIV-1 related whereas, in pattern II countries it is mainly HIV-2 related (Kong, Lee, Kappes, Parkin et al., 1988). The impact of AIDS on the developing world is predicted to be devastating. The lack of a conjoint, global effort to respond to the pandemic resembles responses to natural and technological disasters (Earickson, 1990).

The needs are poignantly defined in the following quotation about the African experience.

> ...whole affected communities will need to be approached as weakened families. It is questioned whether the health care system can adequately respond to the health requirements of the many when resources are drained, health care providers are overburdened, and primary health care is fragmented because of AIDS. The social dimension of health makes it imperative that policy and program measures to stop AIDS be a collective, balanced social and biomedical effort. (Ankrah, 1991, p.967)

Discovery of the etiologic agent responsible for AIDS has been surrounded by controversy around the original isolation of the virus. Report of the

viral agent was made almost concurrently at the Pasteur Institute in Paris (Barre-Sinoussi, Chermann, Rey, Nugeyre et al., 1983) and at the National Institutes of Health in the United States by Gallo and his colleagues (Gallo, Salahuddin, Popovic, Shearer et al., 1984). The virus was differentially named the lymphadenopathy-associated virus by the Paris research group and the human T-cell lymphotropic virus (HTLV-III) by the National Institutes of Mental Health (NIH) group. It was subsequently shown that these two retroviruses are essentially identical. The virus was then identified in factor concentrate for haemophilia treatment (Markova, Wilkie, Naji, & Forbes, 1990). The International Committee on Taxonomy of Viruses (1986) recommended the designation human immunodeficiency virus (HIV), the present universal designation. There remains periodic reports of controversy regarding HIV as the cause of AIDS (Blattner, Gallo, & Temin, 1988; Cooper, Gold, MacLean, Donovan et al., 1985; Duesberg, 1988).

The first case of AIDS in Canada was reported in March, 1982 (LCDC, 1982). The number of individuals diagnosed has increased at a rate of 2.5 times per year, until the end of the 1980s. Presently, the incidence rate in Quebec has levelled off, with overall cases currently doubling every three to four years. This can be compared with the doubling time at the end of the 1980s of every 11 months in homosexual men and every 16 months in females (Remis & Elmslie, 1988). The vast majority of the patients continue to be between 20 and 45 years of age (Remis & Archibald, 1988). AIDS is the number one killer among men in North America from the mid-20s to mid-40s (CDC, 1991). There are an estimated 12,000 people who are HIV-infected living in the province of Quebec (McGill

AIDS Center, 1991). Moss and co-authors (1988) indicated that when followed longitudinally, 75% of gay men who were HIV positive and asymptomatic develop symptoms within six years of their first positive test.

In Canada, the Federal Center for AIDS (FCA) coordinates all governmental AIDS-related programs. Cases of HIV/AIDS in Canada, reported to April 1, 1992, are presented in Table 1.

Table 1.

Cases of AIDS in Canada Reported until April, 1992

	Alive	**Known deaths**	**Total**
Adults/males	2234	3497	5731
Adults/females	113	202	315
Subtotal	2347	3699	6046
Children/males	14	21	35
Children/females	9	26	35
Subtotal	23	47	70
Total	2370	3746	6116

(LCDC, 1992)

The estimates in the United States by the CDC are that more than one million people will be infected by the year 2000 (CDC, 1990). WHO estimates for the year 1993 are a total of 500,000 to 3,000,000 AIDS cases worldwide(Samuels, Mann, &
Koop, 1988). Under-recognition and under-reporting are presumed as well as a lag time in reporting (WHO, 1991). Cases of AIDS in Canada until April,1992 are presented according to gender, risk group, age, and province of diagnosis in Tables 2, 3, and 4.

Projections for the Canadian AIDS epidemic are based on empirical models, the polynomial model advocated as "the best empirical fit for the epidemic curve" (Adrien, Hankins, & Remis, 1989, p.5). Based on this model, the projected cumulative total by the close of 1992 would be 11,000 AIDS cases. Backcalculation projections, using the logistic model, project 10072 cases at the close of 1992, and 11374 at the end of 1993 (LCDC, 1992). In Quebec, AIDS is for the most part a sexually transmitted disease, with 90% of reported cases directly or indirectly related to sexual transmission (Centre québécois de coordination sur le sida, March, 1991). The highest rate of heterosexual transmission in Canada is in the province of Quebec, resulting in grave concern about heterosexual spread and vertical transmission (Hankins & Lapointe, 1989). Preventive strategies specific to Quebec are definitely advocated (Adrien, 1989).

Infectivity, Modes of Transmission, and Control/Treatment of the Epidemic

Infection with the AIDS virus has serious consequences. Seroconversion or seropositivity -- the appearance of antibodies directed against the

Table 2.

Total Number of AIDS Cases in Canada Presented by Risk Factors

Risk factors	**Cases** (% of total)		**Known deaths** (% of cases)	
Homosexual/bisexual activity	4687	(82%)	2935	(63%)
Injection drug use	77	(1%)	40	(52%)
Both of the above	210	(4%)	114	(54%)
Recipient of blood	84	(1%)	63	(75%)
Recipient of blood products	118	(2%)	77	(65%)
Heterosexual activity	303	(6%)	183	(60%)
No identified risk factors	252	(4%)	85	(34%)
Total	5731	(100%)	3497	(61%)

(LCDC, 1992)

Table 3.

Total Number of AIDS Cases in Canada Presented by Age Group

Age group	Cases (% of total)		Known deaths (% of cases)	
15-19	19	(<1%)	9	(47%)
20-29	1072	(19%)	613	(57%)
30-39	2548	(44%)	1504	(59%)
40-49	1516	(26%)	957	(63%)
50 and over	575	(10%)	414	(72%)
Unknown	1	(<1%)	0	(0%)
Total	5731	(100%)	3497	(61%)

(LCDC, 1992)

Table 4.

Reported Cases of AIDS in Canada According to Province until April 1992

Province	Male	Female	Total (%)		Known deaths
Alberta	378	16	394	(6%)	133
British Columbia	1129	21	1150	(19%)	704
Manitoba	70	3	73	(1%)	47
New Brunswick	40	6	46	(<1%)	18
Newfoundland	21	4	25	(<1%)	12
Northwest Territories	3	0	3	(<1%)	0
Nova Scotia	86	8	94	(2%)	57
Ontario	2345	88	2433	(40%)	1775
Prince Edward Island	3	0	3	(<1%)	2
Quebec	1640	201	1841	(30%)	961
Saskatchewan	49	3	52	(1%)	36
Yukon	2	0	2	(<1%)	1
Total	5766	350	6116	(100%)	3746

Note. Cases are attributed to the province where onset of illness occured.

(LCDC, 1992)

human immunodeficiency virus in the serum of persons exposed to the virus -- predates immunologic changes (Weiss, Goedert, & Sarngadharan, 1985). An infected individual may remain infected for long periods of time, assumedly indefinitely, and in a majority of cases can be shown to be viremic and potentially infectious to others (Kabbash & Gilmore, 1986). The virus infects the body's lymphocytes or white blood cells resulting in extreme immunological deficiency and susceptibility (Wainberg & Mills, 1985).

AIDS is diagnosed with the appearance of opportunistic infections when no explanation other than the suppressed immune system is available (Institute of Medicine, 1986; Green & Miller, 1986) or with the presentation of AIDS dementia complex (Bridge, 1988; Navia, Jordan, & Price, 1986; Navia & Price, 1987), a disputedly increasing symptomatic presentation. At an early stage in the course of infection, HIV is transferred to the brain and the central nervous system (Bridge, Mirsky, & Goodwin, 1988). In 1986, once AIDS was diagnosed, life expectancy was sharply curtailed, with approximately 55% expected to die within the first year (Remis & Laverdière, 1986). In 1988, the mean life expectancy following AIDS diagnosis in the United States and England was about a year. At that time, presentation with Kaposi's sarcoma was indicative of the most favourable survival rates (Anderson & May, 1988).

> In the...years since identification of HIV as the etiologic agent of AIDS, we have experienced the development of effective, specific antiretroviral therapy, effective chemoprophylaxis for some opportunistic complications of HIV infection, and the demonstration at a population level that those interventions are working....Current therapy significantly slows, but does not reverse, the progress of the disease. Obtaining access

> to drug therapy, as well as to basic health and social services, is a continuing problem for many individuals throughout the world....While 2-year survival after AIDS has increased dramatically, 5-year survival remains low...mortality, while slowed, remains high. The accomplishments achieved with zidovudine and pneumocystis prophylaxis should serve as incentives to push for even better therapies and their more just distribution to people living with HIV. (Chaisson, 1990, p.435)

Epidemiological studies lay the groundwork for the development of a model of the natural history of the disease which constitutes the necessary framework for prevention and treatment. A model of the natural history of illness has been developed and applied to AIDS (Blattner, 1991; Brookmeyer, 1990; Curran, Morgan, & Hardy, 1985).

Psychosocial and emotional elements are implicated in the etiology of AIDS (Cohen, 1988). Psychosocial correlates, ranging from personality variables to social support correlates to stressors, are crucial to understanding the multifaceted nature of the immunosuppressive illness of AIDS with implications for indicators of disease progression, survival time, and for their relationship to immune function (Capitanio & Lerch, 1991; Livingston, 1988; Temoshok, 1988; Wallace & Watson, 1990).

Indicators of High-Risk Behaviour Change

Research on risk behaviours presents a multitude of problems. Early studies of risk factors for AIDS among homosexual men were history of syphilis, lifetime history of large numbers of multiple partners (>1000), fisting, and using bath-houses as the source of sexual partners. Passive anal intercourse did not

statistically differentiate increased risk level for AIDS (Darrow, Jaffe, & Curran, 1983). However, in 1987, Darrow and Rutherford stated that "[T]he public health message of our study and of others is very clear: Don't engage in unprotected sexual intercourse with anyone infected with HIV" (p.92). The authors concluded that number of partners, receptive anal intercourse, and trauma or bleeding in the anorectal area were each associated with infectivity. These findings were corroborated with prospective studies of homosexual men at the four centers of the Multicenter AIDS Cohort Study, with receptive anal intercourse as the main route of infection and condoms not providing complete protection (Detels, English, Visscher, Jacobson et al., 1989).

Calculation of the risk associated with each behaviour is a difficult task. Certainly, the strongest relationship to HIV infection amongst the homosexual sexual-risk behaviours is with unprotected anal intercourse (Kingsley, Detels, Kaslow, Polk et al., 1987a; Mayer, Ayotte, Groopman, Stoddard, Samgadharan, & Gallo, 1986), levels of which activity tend to covary with the gradient for AIDS in the particular homosexual population (Chmiel, Detels, Kaslow, van Raden, Kingsley, & Brookmeyer, 1987; Martin, Garcia, & Beatrice, 1989; Winkelstein, Lyman, Padian, Grant et al., 1987). Winkelstein and co-authors (1987) reported number of partners and douching as contributors to risk of infection in a cohort of 1,034 men in the San Francisco area. The risk level rose directly with the number of partners during the two years prior to data collection; from 18% for zero to one partners, to 32% for two to nine partners, to 71% for over fifty partners.

The rates of rectal gonorrhoea have been reported as steadily decreasing during the 1980s, implying substantial reductions in high-risk sexual behaviours

among homosexual men (Cane, Weller, Johnson et al., 1987; Handsfield, 1985; Judson, 1983; Landrum, Beck-Sague, & Kraus, 1988). However, there has been a slow but steady rise in 1988 and 1989, indicating increased frequency of unsafe behaviours (Handsfield & Schwebke, 1990; Tomlinson, French, Harris, & Mercey, 1991). The data were collected from the county incorporating Seattle, Washington, a city of comparable size to Montreal. "It is plausible that declining STD rates, apparently low incidence of HIV infection, and the availability of zidovudine treatment for early HIV infection have resulted in complacency about safer sex guidelines in some homosexual or bisexual men" (Handsfield & Schwebke, 1990, p.214).

In a large-scale retrospective study of homosexual men (N=909), psychosocial predictors of behaviour change were found to be accurate knowledge regarding HIV and AIDS, perceived risk of contracting AIDS, and perceived self-efficacy to change high-risk behaviours. Association with the homosexual community was not found to be a predictor variable. A possible negative interaction was found between perceived self-efficacy and reported risk of AIDS (Emmons, Joseph, Kessler, Wortman, & Montgomery, 1986).

A large sample (N=526) of mainly white, well-educated homosexual men in three cities in the United States with low prevalence rates (Seattle, Tampa, and Mobile) was studied for the psychological factors that predict AIDS high-risk and AIDS precautionary behaviour. The questionnaires were administered anonymously as men entered targeted gay bars in the three cities that are major metropolitan areas with moderate AIDS prevalence (8-23 cases per 100,000), representative of much of the AIDS incidence outside the original AIDS

epicentres of New York and San Francisco. Data from the three cities were pooled as MANOVA revealed no significant intercity differences. More than one-third of the respondents reported unprotected anal intercourse in the previous three months. The men who reported participation in unprotected anal intercourse with multiple partners were younger, less knowledgeable, reported less peer norm support of risk reduction, had more friends with illness, and perceived themselves at higher risk for AIDS.

The men who did not participate in high-risk anal sex perceived peer norm support for it, attributed safety to their own behaviour, and were less likely to attribute risk to external sources. These men reported fewer sex partners, had increased knowledge levels, and were older. Factual knowledge about AIDS-risk had been fairly well disseminated to the respondents.

> Gay males who did not engage in unprotected anal intercourse were more likely to consider safer behaviour an accepted norm within their social network; more likely to attribute safety to their own precautionary behaviour; and less likely to attribute AIDS risk to external factors such as chance, luck, or fate....these men had fewer sexual partners, estimated their own risk level in greater concordance with their actual behaviour, and were older than men who engaged in unprotected anal intercourse....It also suggests that primary prevention campaigns that convey risk precautionary behaviour as an accepted peer norm or interventions that directly modify social norms to encourage health promotion and discourage continued high-risk practices may now be especially important...the need to address personal attributions concerning risk and to emphasize internal control and personal behaviour choice. (Kelly, St. Lawrence, Brasfield, Lemke et al., 1990, p.119)

The psychological processes appear to differ for symptomatic men with AIDS-Related Complex (ARC) and persons with AIDS (PWAs). The relationship of health behaviour changes with self-attribution of responsibility differs for the two groups, with a direct relationship found for the PWAs, in San Francisco, in 1984-1985 (Moulton, Sweet, Temoshok, & Mandel, 1987).

Data on sexual behaviours among homosexual men prior to the appearance of AIDS would provide background for the changes in high-risk sexual behaviours. The sexual practices of 4,910 homosexual and bisexual men from Chicago, Denver, Los Angeles, San Francisco, and St. Louis were compiled based on studies of hepatitis-B infection during 1978 and 1979. Participants who are white had higher rates of multiple partners and of oral/genital intercourse than black and Hispanic participants. Rates of anal intercourse in all data collection centres were comparable, with the San Francisco men reporting higher rates of receptive anal intercourse with multiple partners. A small group of the San Francisco men reduced insertive anal intercourse rates and receptive anal intercourse without ejaculation rates. Medical and behavioural data predating the onset of the epidemic is key to prevention and intervention efforts (Doll, Judson, Ostrow, O'Malley et al., 1990).

A cohort of healthy male sexual partners of HIV-infected men were investigated in a prospective study in Toronto for the purposes of identification of risk factors for HIV infection. In a sample collected between July, 1984, and July, 1985, of 246 men, number of sexual partners was not associated with HIV seropositivity. However, receptive and insertive anal intercourse with the identified partner, and activities which resulted in anorectal trauma were found to

be strongly associated with progression to seropositivity. Interaction effects were found which implied that reduction is required in both activities in order to reduce the risk of HIV. Oral-anal and oral-genital activities were not found to be associated with risk level for seropositivity, however, history of syphilis was associated (Coates, Calzavara, Read, Fanning et al., 1988).

In a cohort of men in San Francisco, in which antibody-positive homosexual men (n=187) were compared with antibody-negative neighbourhood controls, number of sexual partners was concluded as strongly associated with AIDS risk, the risk effectively doubling with every 20-30 partners. Receptive anal intercourse was the major mode of HIV transmission. Prior history of parasitic infections and sexually transmitted diseases (e.g., giardiasis and syphilis) were found to be associated with risk level. Nitrite use (i.e., poppers) was somewhat associated with elevated risk. The authors suggest that nitrite use, as well as STD history, produces temporary immunosuppression which facilitates infection. Or the cofactors may indicate membership in a subculture of homosexual men who engage in extensive receptive, traumatic anal sex, accompanied by nitrite use (Moss, Osmond, Bachetti, Chermann, Barre-Sinoussi, & Carlson, 1987). These findings are supportive of those of Goedert and co-authors (1984) who reported receptive anal intercourse and multiple partners as the key risk indicators, apparently working synergistically.

Prospective studies have supported the role of STD cofactors with genital herpes preceding seroconversion among homosexual men, placing them at higher risk for HIV-infection and, possibly, HIV-infectivity (Holmberg, Stewart, Gerber, 1988; Piot & Laga, 1989; Stamm, Handsfeld, Rompalo, Asley,

Roberts, & Corey, 1988). Further support is derived from the high rate of genital ulceration in Africa co-occurring with the high rate of HIV heterosexual transmission (Belec, Georges, Brogan, Steenman, Courbot, & Martin, 1989).

A cohort of male homosexuals in the San Francisco area was identified based on participation five years prior in a study of hepatitis-B. Sixty-seven percent of the men had seroconverted (n=240), whereas 33% (n=119) had not. Higher levels of sexual activity were highly associated with seroconversion: receptive anal intercourse with nonsteady partners and multiple partners. Nonsteady partners were defined as relationships of two days or less. Bleeding during sexual intercourse may increase risk level.

Younger men were more likely to have seroconverted. High levels of insertive anal intercourse and insertive fisting were associated with seroconversion. The authors concluded that the 20% of study participants who were injecting drugs and sharing needles (rate of 60% of them) were sharing with other homosexual intravenous drug users (Darrow, Echenberg, Jaffe, O'Malley et al., 1987). The potential for sexual transmission of the HIV infection may be increased around the time of the beginning of the actual illness of AIDS (Osmond, Bachetti, Chaisson, Kelly et al., 1988). A novel line of research exploring consistently varying mood changes and performance changes after infection with a flu or cold virus, even after the primary symptoms have disappeared, may be useful in understanding the behavioural changes among some of the men (Smith, Tyrrell, Barrow, Higgins et al., 1992).

Strategies for the Maintenance of Behaviour Change

Health maintenance in the area of HIV serostatus is clearly a life and death issue for this population which has been exposed to the physical deterioration, mental debilitation, and death of friends and lovers in the homosexual community (Kelly, St. Lawrence, Brasfield, Lemke, Amidei, & Roffman, 1990).

Change in high-risk sexual practices becomes increasingly critical as the incidence increases the possibility that each homosexual partner may be HIV seropositive (Baumann & Siegel, 1987). Changes in high-risk sexual behaviours have been reported in studies of homosexual communities in New York City and in San Francisco, epicentres of the epidemic. The Montreal homosexual population must be described in order to plan effective interventions.

Incidence of HIV-Infection

The statistics have changed with progress in the clinical management of pneumocystis pneumonia and antiretroviral treatment. Currently, life expectancy has been prolonged substantially (Redfield & Burke, 1988). Depending on pretherapy clinical medical conditions (Creagh-Kirk, Doi, Andrews, Nusinoff-Lehrman et al., 1988), treatment with Azudothymidine (AZT), commonly known as Zidovudine, has extended survival time of people with AIDS, delayed the onset of symptoms in asymptomatic, seropositive individuals, and resulted in measurable psychological improvement to the point of "AIDS deficit" of reported cases among urban white homosexual and bisexual men (Coodley, 1990; Fischl, Richman, Causey, Grieco et al., 1989; Fischl, Richman, Grieco, Gottlieb et al., 1987; Gail, Rosenberg, & Goedert, 1990; Gail, Pluda, Rabkin, Biggar et al., 1991; Lemp, Payne, Neal, Temelso, & Rutherford, 1990; Munoz, 1989; Rosenberg,

Gail, Schrager, Vermund et al., 1991; Taylor, Kuo, & Detels, 1991; Schmitt, Bigley, & McKinnis, 1988).

Trials were conducted with men who were pre-AIDS and ARC in the American Multicenter AIDS Cohort Study suggesting that men who were in the asymptomatic, clinically silent period were being undertreated. Trials were conducted in the Canadian Multicenter Azidothymidine Trial with early asymptomatic HIV-infected men to establish the efficacy of AZT use (Child, Mantaner, Tsoukas, Fanning et al., 1991; Graham, Zeger, Kuo, Jacobson et al., 1991). AZT therapy is complicated by toxicity and by the appearance of AZT-resistant strains of HIV-1 and of non-Hodgkins lymphoma (Larder, Darby, & Richman, 1989; Pluda, Yarchoan, Jaffe, Feuerstein et al., 1990; Rooke, Tremblay, Soudeyns, DeStephano et al., 1991). The management of AIDS is more and more resembling that of other patients with chronic illness, especially with the potential for synergistic therapeutic interventions (Wainberg, Dascal, & Mendelson, 1991).

In Canada, HIV-antibody testing is available to all, at no cost to the individual being tested. The standards established for HIV testing meet the prerequisites recommended by the World Health Organization. The recommended components are informed consent, pretest and posttest counselling, and confidentiality. The role of Canadian public health in HIV-testing and reporting continues to be debated (Canadian Public Health Association [CPHA], 1991). Perry and Markowitz (1988) provide a model for counselling for HIV-testing which incorporates follow-up care. The psychosocial issues surrounding HIV-testing must be fully addressed (Buckingham, 1987; Dilley, 1989). Provincial HIV-testing facilities were formed in 1985. Seropositivity is reportable in seven provinces. There is no mandatory testing (Figure 1).

Figure 1

Reportability and Contact Tracing of HIV and AIDS According to Province

	Alberta	**British Columbia**	**Manitoba**	**New Brunswick**
Reporting HIV	Non-nominal	No reporting requirement	Non-nominal	Nominal
Reporting AIDS	Non-nominal	Non-nominal	Nominal	Nominal
Contact tracing HIV	No contact tracing requirement	Patient>> physician or public health	No contact tracing requirement,	Physician>> public health
Contact tracing AIDS	No contact tracing requirement	Patient>> physician or public health	Physician/ client>> public health	Physician>> public health
	Newfoundland	**Northwest Territories**	**Nova Scotia**	**Ontario**
Reporting HIV	Nominal	Nominal	Non-nominal	Pooled data anonymous at 24 sites
Reporting AIDS	Nominal	Nominal	Non-nominal	Non-nominal, may be nominal at some health units
Contact tracing HIV	Public health>> physician	Public health>> physician	Physician>> public health	Public health>> physician
Contact tracing AIDS	Public health>> physician	Public health>> physician	Physician>> public health	Public health>> physician
	Prince Edward Island	**Quebec**	**Saskatchewan**	**Yukon**
Reporting HIV	Non-nominal	No reporting requirement	Nominal	No reporting requirements, soon will be nominal
Reporting AIDS	Non-nominal	Non-nominal	Nominal	Nominal
Contact tracing HIV	Physician>> public health	No contact tracing requirement	Physician>> public health	Public health>> physician
Contact tracing AIDS	Physician>> public health	No contact tracing requirement	Physician>> public health	Public health>> physician

Individuals infected with the virus, commonly known as seropositive or HIV carriers, become susceptible to a broad array of physical complaints. An unknown percentage who test positive for the human immunodeficiency virus will develop the full-blown illness, AIDS. Reports to date indicate it may vary from 10% to 30% to almost 100% , with cofactors strongly implicated as early as 1986 (Drew) in the progression to illness but not necessarily distinguishing between at-risk populations of homosexual and haemophiliac men (Drew, 1986; Jason, Lui, Ragni, Hessol, & Darrow, 1989). Lifestyle variables are implicated in exposure to HIV infection (Boyko, Schechter, Craib, Constance et al., 1986).

The present thinking tends towards certainty of AIDS or AIDS-dementia following HIV seropositive identification, and of considering AIDS as a terminal illness (Brook, 1989). Numerous parallel risk factors co-exist for syphilis and for AIDS, such that syphilis is presently viewed as a cofactor for AIDS (Simonsen, Cameron, & Gakinya, 1988) and by some as a prelude to an HIV epidemic in the heterosexual population (Andrus, Fleming, Harger, Yan Chin et al., 1990). Upon post-mortem examination, the encephalitis in homosexual men is neuropathologically distinct (Lantos, McLaughlin, Scholtz, Berry, & Tighe, 1989), providing further support of the role of cofactors.

AIDS is presently a notifiable disease in Canada's ten provinces and two territories. Responding to HIV/AIDS in Canada (1990) is a compendium of the federal and provincial laws, governmental bodies, and community associations. The Laboratory Center for Disease Control (LCDC) monitors the epidemic in Canada. The vast majority of the AIDS cases are in the provinces of Ontario, Quebec, and British Columbia. The Standing Committee on AIDS of the National

Health and Welfare, in 1986, recommended that AIDS be a reportable disease in all provinces and consideration be given to mandatory reporting (Gostin & Curran, 1987). The reportability of seropositivity and of AIDS, and the legalities of contact tracing are defined at the provincial level. The reporting of AIDS is non-nominal in Quebec. Surveillance presently is conducted with the utilisation of date of birth and hospital identification number. In Ontario, surveillance is nominal.

The human immunodeficiency virus causes immunosuppression (Fauci, 1988) and central nervous system (CNS) damage (Price, Sidtis, & Rosenblum, 1988). Controversy abounds on the cognitive/ affective sequelae of seropositivity upon asymptomatic carriers (Franzblau, Letz, Hershman, Mason, Wallace, & Bekesi, 1991; Levy & Bredesen, 1988). Cognitive function changes characterised by flatness of affect and withdrawal, by cognitive impairment, and/or by vegetative symptoms are reported following immunological decline (Goethe, Mitchell, & Marshall, Brey et al., 1989; Selnes, McArthur, Miller et al. 1989; Snider, Simpson, Nielson, Gold, Metroka, & Posner, 1983), and are disputed by others as not increasingly evident in asymptomatic, seropositive individuals (WHO report, 1988a).

Once central nervous system disease occurs, projected survival time is significantly diminished (Wilson et al., 1989). The neuropathogenic effects of HIV result in a wide array of emotional, intellectual, psychiatric and neuro-otological disorders with increasing evidence of early subclinical involvement (Hausler, Vibert, Koralnik, & Hirschel, 1991; Nurberg, Prudic, Fiori,

Freedman, 1984; Hoffman, 1984; Kermani, Drob, & Alpert, 1984), and behavioural presentations (Perry, 1990).

Depression is reported in association with HIV-related symptoms, with responsivity to pharmacological and psychotherapeutic interventions (Ostrow, Monjan, Joseph, VanRaden et al., 1989). Sullivan and co-authors (Sullivan, Carra, Musgrave, Rabinowitz, Cornes, & Johnson, 1992) report the efficacious use of pharmacotherapy in combination with psychotherapy in a man with AIDS. The response of the presenting depression was purportedly excellent despite a rapidly deteriorating physical condition.

The presentation for initial diagnosis with AIDS-related dementia is rare, but such is not the case with organic mental changes. The healthier symptomatic seropositive men exhibit functional disorders; the more ill and immunologically assaulted PWAs tend to display organic disorders. "Psychological research should continue to delineate both predisposing and protective social and psychological factors for psychiatric disorder among sufferers in varying communities and countries" (King, 1990, p.154). The role of psychoneuroimmunology - the effect of behavioural factors upon HIV-infection and progression to illness mediated by the immune system - is important (Mulder & Antoni, 1992).

Available research mapping the prevalence of psychiatric disorders among HIV-infected adults is scarce. Neuropsychiatric dysfunction is a recognised part of the gamut of HIV diseases, with clinical deterioration occurring at latter stages in the illness (Bialer, Wallack, & Snyder, 1991; Price, Brew, Sidtis, Rosenblum, Scheck, & Cleary, 1988).

The incidence of AIDS Dementia Complex is placed at 5-10% of the symptomatic population. Treatment with AZT can prevent the milder forms of cognitive impairment associated with HIV-infection and possibly reverse some of the mental deficits, but not the distress of HIV-1 dementia complex (Egan, 1992; Perry, 1990; Tross, Price, Navia, Thaler et al, 1988). A possible advance in technology of Magnetic Resonance Imagery (MRI)-guided technology followed by stereotaxic brain biopsy of focal lesions may detect early signs of HIV encephalitis and may provide relief of neurological symptoms in AIDS patients (Kodama, Numaguchi, Gellad, & Sadato, 1991; Levy, Breit, Russell, & Dal Canto, 1991).

Prevention and Intervention

The principal means of prevention are educational interventions to change high-risk behaviours (Mason, Noble, Lindsay, Kolbe et al., 1988; Turner, McLaughlin, & Schrum, 1988). AIDS education campaigns have developed in phases. The first phase relied upon aversion and fear as motivators. High-risk grouping was emphasized. Educational materials relied upon fear and extreme sense of vulnerability with the projection of frightening images. The second phase consisted of supportive, behavioural change strategies incorporating social support and positive reinforcement. The health-protective role of social support has been integrated theoretically and practically (Cohen & McKay, 1984; Cohen & Syme, 1985; Coyne & Holroyd, 1982; Gore, 1981; Gottlieb, 1983; Nerenz & Leventhal, 1983). Community as well as individual responsibility were used as motivators for lifetime behavioural changes (Sabatier, 1989). Comprehensive

education programs in the general population need to aim at fear reduction (Kappel, Vogt, Brozicevic, & Kutzo, 1989).

Community-based response to the AIDS epidemic began in New York City where half the American cases of Gay Related Immune Deficiency (GRID), as AIDS was first called, were reported. The activist homosexual men of New York formed the Gay Men's Health Crisis (GMHC), the model for numerous homosexual community organizations. The early experiences of AIDS among homosexual men were poignantly described by Randy Shilts (1987):

> The gay men of Manhattan were panic-stricken and there was nowhere else to turn...Half of the GRID cases in the country were in New York City, and you barely heard a whisper about it from the mayor or the health officials. Gays were going to have to establish their own services or be left to die in shame, fear, and isolation. (p.120, 150)

Community responses which have been effective are those that have accomplished their goals:

> -By adopting a non-judgmental attitude toward the target groups served. The role of community groups is to stop the spread of HIV and to support the sick, not to judge people or to change their values.
> -By understanding why so many people are afraid of AIDS and devising education strategies that, as well as providing information, also address the causes of the fear. Knowledge cannot be separated from attitudes and deeply rooted feelings.
> -By knowing the communities being served and involving them in the implementation of programs designed for them.
> -By targeting specific audiences in education and prevention programs.

> -By diversifying funding and remembering that time devoted to fundraising is not a distraction from "real" work, but an intervention in saving human lives.
> -By developing strategies to transform knowledge about AIDS into a change in attitudes toward what is regarded as sexually satisfying.
> -By ensuring that those providing support to the ill and worried receive support in turn.
> -By persevering and remembering who we are ultimately working for. (Clausson, 1989, p.s20)
>
> Self-help groups of homosexual men recognized early on that sole reliance on negative symbolism - with its potential for encouraging the stigmatization of certain groups - was insufficiently motivating. AIDS outreach workers in different parts of the world report that the motivations which influence HIV-related behaviour are bound up with issues of respect and self-esteem. (Sabatier, 1989, p.S10)

Interventions - preventive and supportive - have proven successful when targeted for the specific population and incorporate sociocultural and epidemiological diversity (Francis, Anderson, Gorman, Fenstersheib et al., 1989; Hall, Wilder, Bodenroeder, & Hess, 1990; Kirscht, 1983; Temoshok, Sweet, & Zich, 1987). There is increasing discussion in the literature about the targeting of behaviours for intervention, rather than ethnic, racial, or sexual-preference groups, all of which tend to foster stigmatization, defensiveness, and discrimination (Ceballos-Capitaine, Szapocznik, Blaney, Morgan, Millon, & Eisdorfer, 1990; Hernandez & Smith, 1991; Kegeles, Adler, & Irwin, 1988; Wyatt, 1991). AIDS education interventions must address attitudes, knowledge, decision-making strategies, intentions, and health promotion behaviours. "HIV-transmission has more to do with sexual practice than sexual orientation" (Lorian, 1988, p.1111).

Effective interventions will depend upon a pooling of resources of community groups, teachers, the media, public health care providers, health care professionals, the media, and trained peers in a multidisciplinary approach. Public health has a multifaceted role, viz; surveillance and research; provision of services; advocacy of the ill; campaign against discrimination; primary prevention and intervention strategies; public policy development; counselling; partner notification; and protection of the at-risk, uninfected (Gemmill, 1989).

The innovative methods of the community organizations need to be incorporated into the planned interventions. There remains a paucity of research evaluations of the community organization interventions (Kelly & Murphy,1991). In Montreal, there are five different HIV/AIDS community groups - AIDS Community Care Montreal, Comite SIDA Aide Montreal, Groupe Haitien pour la prevention du SIDA, Montreal AIDS Resource Committee (MARC/ARMS - voluntarily disbanded in 1988), Montreal PWA Coalition, and Nazareth House. The San Francisco model has resulted in dramatic behavioural changes which have been sustained, unusual for public health interventions. The community-level intervention programs employed multifaceted programs that disseminated information, created motivation and a sense of vulnerability, provided skill training, and induced a modification of norms. Outreach included the media and the entire gamut of community level locales (McKusick, Conant, & Coates, 1985).

Behaviour-change intervention programs must respond to the needs of the community groups. In one of the earlier attempts at group interventions, stress-reduction training - incorporating the techniques of systematic relaxation, stress-

management skills, and high-risk behavioural change - resulted in reduced numbers of partners at short-term followup. There was no impact on the practice of unsafe sex. The study investigated immune function levels, one of the first to measure behavioural change and lymphocyte level. There was no discernible difference between the experimental group members and the waiting list controls in lymphocyte numbers or function (Coates, McKusick, Kuno, & Stites, 1989). Group interventions incorporating cognitive-behavioural and skills-training (i.e., self-management, assertiveness, and problem-solving skills) have proven successful in the reduction of targeted high-risk behaviours (Kelly & St. Lawrence, 1991).

Risk reduction behaviours must be supported with an infrastructure to prevent relapse of high-risk behaviours (Coates, 1990; Stall & Ekstrand, 1989). The community level intervention incorporates clinical interventions, health care institutions and providers, mass media, and outreach strategies, tailoring the components for the target community. Catania, Kegeles, and Coates (1990) proposed a model of AIDS Risk Reduction (ARRM) with three steps. The steps are definition of associated behaviour as problematic, the decision to change, and action.

Reaction of At-Risk Communities

Individual interviews were conducted in the Pittsburgh area of thirteen men who seroconverted after participating in an HIV educational program about the circumstances that placed them at risk. Six of the men had been infected by partners they believed to be seronegative, four men attributed their high-risk encounters to drug and alcohol use and/or psychological problems, and one to

condom breakage. Two of the men's circumstances of seroconversion could not be delineated. Most of the men had practised safer sex for a limited time and had, subsequently, reverted to high-risk behaviours. Strong emotional reactions to the partner were cited as a motivator for relapse (Silvestre, Lyter, Valdisseri, Huggins, & Rinaldo, 1989). Studies such as this one which have been conducted in cities which are comparable in size and in incidence to Montreal are most relevant.

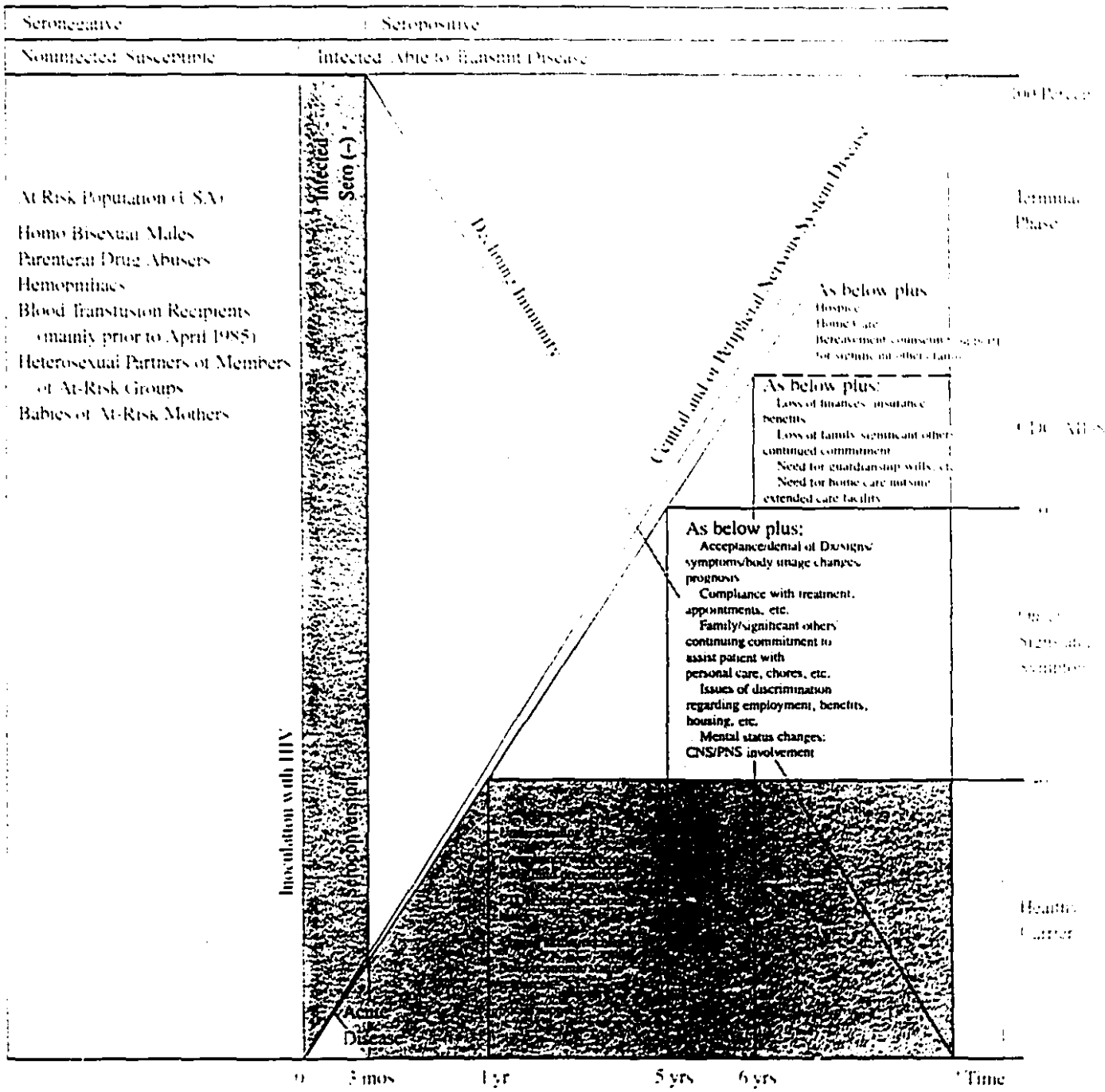
Brendstrup and Schmidt (1990) conducted qualitative research in Denmark aimed at description of homosexual men and bisexual men who had not been tested for HIV status. The men who were participants in high-risk sexual practices were difficult to recruit. The authors reported on ten men, six of whom reported safe sexual behaviours mainly with steady relationships and four reported sexual risk behaviours. The men did not wish to be tested for fear of the resultant stress and the lack of curative treatment. The four men who reported high-risk behaviours viewed the condom as a barrier to pleasure and intimacy and reported a history of traumatic events. All the men were equally knowledgeable about HIV, AIDS, and high-risk behaviours.

The total picture is summed up that "[a]mong gay men, there is a need to quickly refocus attention on maintaining long-term change and to reach many populations and individuals that have not yet effected consistent, meaningful risk behaviour change" (Kelly & Murphy, 1991, p.256).

The emotional experiences of the HIV-antibody positive men as they progress along the trajectory of HIV disease from serostatus notification through asymptomatic to symptomatic periods to the diagnosis of AIDS, and of their

Figure 2

Psychosocial Concerns Encountered over the Natural History of Human Immunodeficiency Virus (HIV) Disease



(Plotkin & Domanski, 1987, p. 49)

significant others and of formal and informal caregivers, are critical to the development of sensitive, effective interventions, in particular in a multidisciplinary, biopsychosocial approach (Abrams, 1988; Anonymous, 1991; McHugh & Vallis, 1985; Weiss, 1988). Psychosocial concerns encountered over the natural history of HIV disease are presented in Figure 2.

The need for the availability of counselling and emotional support groups evolves from this literature (Atkins, O'Rowe & Amenta, 1991; Cleary, Rogers, Singer, Avorn et al., 1986; Cleary, Singer, Rogers, Avorn, et al., 1988; Maj, 1991; Myers, 1990; Sanders, 1989; Slim, 1988; Viney, Henry, Walker, & Crooks, 1989; Wolf, Balson, Dralle, Gaumer et al., 1991). Coates and Greenblatt (1989) defined nine principles of community level interventions (see Appendix A).

One effective model of support groups developed at the New York Blood Center includes three individual counselling sessions prior to group participation. The groups emphasize group cohesion with low confrontation. The entire intervention program is viewed as a continuum ending with the mobilization and linking of outside resources. The authors indicate the strong need that evolved for the support of clinicians (Levy, Tendler, VanDevanter, & Cleary, 1990). The Interagency Council in Edmonton is a model of a successful multisectoral, multistrategy integrative approach, composed equally of lay and professional people (Soskolne & Robson, 1989).

The highest risk groups with a prevalence rate of 50% to 80% are haemophiliacs receiving clotting factors, needle-sharing drug abusers, and sexually active gay men (Jacobsen, Perry, & Hirsch, 1990). The first symptoms of what was later identified as AIDS were described in patients with haemophilia in

the United States in 1981 and the virus was identified in blood concentrates by 1982 (Levine, 1984; Levy, Mitra, & Mozen, 1984; Chorba & Evatt, 1987), thus identifying patients with haemophilia as a high-risk group early in the epidemic. In the United States, the drug-abusing population with AIDS contains 50% black, 25% Spanish-speaking, and 20% Caucasian (Faltz & Madover, 1986). More than half the women with AIDS in the developed world are present or past drug-abusers. Risk reduction is occurring in the drug-abusing populations in the drug-taking behaviours (DesJarlais, Wish, Friedman, Stoneburner et al., 1987; Becker & Joseph, 1988; Kall & Olin, 1990; Valdiserri, Hartl, & Chambliss, 1988) as opposed to the sexual high-risk behaviours (Hart, Sonnex, Petherick, Johnson, Feinman, & Adler, 1989; Lewis, Watters, & Case, 1990; Saxon, Calsyn, Whittaker, & Freeman, 1991; Valdiserri, Hartl, & Chambliss, 1988).

Condom use among 211 intravenous drug users in New York City was reported by 32% of the participants. Use was associated with personal and partner acceptance of condom use, and enrolment in a methadone treatment program. There is a dire need for communication and assertiveness skills in the drug-abusing population. The study population subjects were all enrolled in a methadone maintenance program, which is reflective at most of 15% of the New York City IVDUs (Magura, Shapiro, Siddigi, & Lipton, 1990). Programs are being implemented and evaluated for transmitting the necessary skills for changes in high-risk behaviours. Behavioural change in the high-risk sexual areas in this population requires careful and innovative planning (McCoy, Dodds, & Nolan, 1990).

Research studies of the psychological and social pathways of HIV infection and AIDS (Joseph, Montgomery, Emmons, Kessler et al., 1987a; Ostrow, Emmons, Altman, Joseph, Phair, & Chmiel, 1985) have demonstrated profound behavioural changes correlated with psychosocial interventions in male homosexual and bisexual populations in North American epicenters of the epidemic and outside them - San Francisco, Chicago, Denver, and Seattle (Becker & Joseph, 1988; Catania, Coates, Stall, Bye et al., 1991; Christ, Siegel, & Moynihan, 1988; Ekstrand & Coates, 1988; Joseph, Montgomery, Emmons, Kirscht et al., 1987b; Judson, Cohn, & Douglas, 1989; McKusick, Coates, Wiley, Morin, & Stall, 1987; McKusick, Horstman, & Coates, 1985; McKusick, Wiley, Coates, Stall et al., 1985; O'Reilly, Higgins, Galavottio, Sheridan, Wood, & Cohn, 1989; Stall, Coates, & Hoff, 1988; Stevens, Taylor, de Cordoba, Zang, & Rubinstein, 1990; Winkelstein, Wiley, Padian, Samuel et al., 1988). The rates of change vary with many factors including the geographic area (Coates, Stall, Catania, & Kegeles, 1988).

Cofactors as Indicators of Change

"Gonorrhoea is one of the most common diseases acquired by homosexual men....it serves as a reasonable surrogate index" (Weller, Hindley, Adler, & Meldrum, 1984, p.1041) . The changes are corroborated by decline in rates of rectal gonorrhea among homosexual/bisexual men in early reports in London, England, in Amsterdam, and in Denver (Judson, 1983; van Griensven, de Vroome, Goudsmit, & Coutinho, 1989; Weller, Hindley, Adler, & Meldrum, 1984) and among white Anglo-American men attending sexually transmitted disease clinics in New York City and San Francisco (Evans, Rutherford, &

Armory, 1988; New York City AIDS Task Force, 1988). The rates of rectal gonorrhoea may indicate oral-genital contact; however, most cases of rectal gonorrhoea are indicative of high-risk sexual behaviour (Young, Moyes, McKenna, & McMillan, 1991).

The variability in reduction rates of high-risk sexual behaviours among homosexual men is dramatic. Risk reduction in the San Francisco-Bay area has been of major proportions with annual seroconversion rates at between zero and 4% (Martin, 1987). Despite dramatic changes there have been recent recurrences of elevated incidence levels (Cameron & Playfair, 1991). However, men in areas with lower prevalence rates are reporting very different rates, with 25% of the homosexual men participating in research in Texas and Boston reporting participation in unprotected anal intercourse despite accurate knowledge of prevention modalities. The main predictor of adoption of safer sex behaviours was the original level of high-risk sexual behaviours. Positive HIV-antibody test results impacted mainly on levels of insertive anal intercourse (Calabrese, Harris, Easley, & Proffitt, 1986; Johnson & McGrath, 1987; McCusker, Stoddard, Mayer, Zapka, Morissen, & Saltzman, 1988). Among the men who participated in the Vancouver cohort study, one-third of those who tested seronegative and almost 30% of those who tested seropositive reported sporadic condom use with one-time or nonsteady partners (Schechter, Craib, Willoughby, Douglas et al., 1988; Willoughby, Schechter, Douglas, Craib et al., 1989).

The efficacy of condoms in preventing the spread of HIV is still being debated (van de Perre, Jacobs, & Spreche-Goldberger, 1987; Feldblum & Fortney, 1988). A small percentage of the men report consistent condom use. Condom

breakage must be incorporated into efficacy studies of condoms (Detels, Vischer, Jacobson, Kingsley et al., 1990; Golombek, Sketchley, & Rust, 1989). "While the use of condoms is unlikely to be harmful, there is the potential for harm if their use is substituted for abstinence, monogamy, or good judgment....Even a highly effective prophylactic measure is ineffective if not used, and many factors influence the use of contraceptives as a means of avoiding disease" (Feldblum & Fortney, 1988, p.53).

Data, based on 1384 homosexual and bisexual men recruited at the Pittsburgh site of the prospective MACS study collected from May, 1986, through May, 1987, indicated that 69% responded that they had participated in anal intercourse during the six months prior to interview time.

Rates of condom use during anal intercourse:

	Insertive	Receptive
Always	23%	21%
Sometimes	32%	28%
Never	45%	50%

The complexity of the obtained patterns was further enhanced with the findings that the variables associated with condom use were peer norm of condom acceptability, recent history of multiple partners, and concurrent drug/alcohol use during sex. Knowledge of serostatus was not significantly associated with condom

use, with a slightly elevated trend. The vast majority of the participants were engaged in a peer-led, group educational session prior to results notification. Among both serostatus groups, there were men who persisted in high-risk sexual behaviours. Condom breakage was reported by 9-15% of the men. Although condom use had increased dramatically, it certainly was far from all-inclusive for the majority of the men (Valdiserri, Lyter, Leviton, Callahan, Kingsley, & Rinaldo, 1988).

A prospective study of AIDS seroprevalence in England followed a cohort of 930 men. All the men were interviewed.

Rates of condom use during month prior to data collection:

	Insertive Anal Intercourse, N=270:
Always	38.9%
Never	49.6%
Sometimes	11.5%
	Receptive Anal Intercourse, N=254:
Always	42.5%
Never	45.7%
Sometimes	11.8%

The men in the epicenter of London were more likely to use condoms. The youngest men - under 21 - were most likely to use condoms consistently and the older men - over 39 - to never use condoms. Relationship status was the best

predictor of condom use, wherein unprotected anal sex is reported at a much higher rate in monogamous relationships. Knowledge of positive serostatus in this study was associated with elevated condom use for insertive anal intercourse only. The men were asked the seriousness with which they view safer sex. The self-reported measure was significantly associated with condom use. The authors emphasize the need for long-term condom use in all relationships, especially due to the purported lengthening of the asymptomatic seropositive or carrier status to as long as ten years (Longini, Clark, Byers, Ward et al., 1989; Weatherburn, Hunt, Davies, Coxon, & McManus, 1991).

The determining factors which influence condom use during oral and anal sex are significantly different. The attitude of viewing condoms as a responsibility and reporting comfort with their use was significantly associated with consistent condom use during anal sex among 152 homosexual and bisexual men in Australia who were recruited in 1986 (Ross, 1988a). The role of intention for behavioural change related to condom usage has been related to the theoretical framework of the theory of reasoned action (Ajzen & Fishbein, 1980; Jemmott & Jemmott, 1991; Jemmott & Locke, 1984).

In a study of condom use among homosexual and heterosexual men in New South Wales, condom use was reported as frequent among the homosexual men only. The recruitment settings for the homosexual and heterosexual men were very diverse, placing into question the comparability of the samples. The intention to use condoms was related to favourable attitudes towards their use. Reported condom use was directly related to intention, and to favourable attitudes. Among the sexually active homosexual men, condom-specific assertiveness was

directly related to social assertiveness; the reverse was true of the sexually active heterosexual men. Assertiveness was related to intention for both populations (Treffke, Tiggemann, & Ross, 1992).

Comparison of the behaviour patterns of 290 sexually active, mainly white and well-educated, homosexual men in three cities with varying AIDS-prevalence rates (Atlanta, Birmingham, and Topeka) resulted in some disturbing results. The homosexual men in the high AIDS prevalence city had elevated accurate knowledge levels. Their sexual practices included significantly lower rates of unprotected anal intercourse and higher rates of sexual practices of a low-risk nature (i.e., mutual masturbation, body rubbing). The men in the low-prevalence area reported fewer numbers of partners with higher levels of unprotected anal intercourse. There was no difference in level of condom use (St. Lawrence, Hood, Brasfield, & Kelly, 1989).

A cohort of 508 mainly white, well-educated homosexual men in the San Francisco area recruited in 1983-1984 were followed for changes in high-risk sexual practices. At the time of recruitment, essentially 50% of the men who were not in a steady relationship and 71% of those in a monogamous relationship reported unprotected anal intercourse. The men reported participation rates of 12% and 27%, respectively, in 1988. A steady relationship was associated with increased levels of unprotected anal intercourse.

Predictors of continued participation in unprotected anal sex were the younger men who reported anal intercourse as their favourite sexual activity. The men who knew of positive serostatus were less likely to report participation in high-risk activity in 1988. Age was found to be a decisive variable with the

highest rate of participation in unprotected anal intercourse with multiple partners among the younger men (35 and under). They reported it as their favourite activity, described themselves as having low self-efficacy to change sexual behaviour, and furthermore reported high-risk sexual practices as an accepted peer norm. In addition, they were less knowledgeable and less depressed. There was a dramatic increase in protected anal sex and in celibacy. "Risk reduction programs may need to eroticize alternative sexual practices, promote skills that increase self-efficacy, modify social norms supporting high-risk behaviour, and encourage antibody testing so that seropositive individuals are further reinforced to reduce sexual behaviours likely to infect others with HIV" (McKusick, Coates, Morin, Pollack, & Hoff, 1990, p.981).

In a similarly prospective study of homosexual men in the San Francisco area, comparably mostly white and well-educated, the dramatic rates of risk reduction were maintained during the twelve months prior to the interview in 1988. Initial data collection was conducted in 1984. Measures included HIV status, HIV-related symptoms, alcohol consumption, cigarette smoking, number of partners, psychosocial measures of loneliness, depression, and social support. History of past sexual behaviours was a strong predictor of present behaviours. Younger men were more likely to engage in unprotected anal sex, whereas those who had friends or lovers with AIDS during the earlier time period were more likely to have reduced participation. "The finding that younger gay men seem to be having more difficulty changing their behaviour could be due to a variety of factors, such as greater impulsivity, having less social support for safe sex practices, feeling uncomfortable obtaining or using condoms, perceptions of

invulnerability, or having poor 'sex negotiating skills'"(Ekstrand & Coates, 1990, p.976). These findings lend strong support to earlier findings of the strong association between combined drug use with sex and high-risk sexual behaviours and the need for targeting interventions for this population (Stall, McKusick, Wiley, Coates, & Ostrow, 1986).

In a longitudinal study of asymptomatic sexually active homosexual men (N=278) in the Boston area, the strongest predictor of high-risk sexual behaviours was initial level of unsafe behaviour. Notification of positive serostatus was associated with safer insertive anal intercourse. There was an association of elevated alcohol use with safer receptive anal sex, a finding the authors view with caution and reported contradictory results from analyses of subsequent alcohol and drug-use questions later in the course of the study. Health beliefs that were weakly associated with safer sexual behaviours were perceived susceptibility and belief in the effectiveness of medical interventions. Safer sex was lower among men in steady or monogamous relationships. The men may view the reduction of partners to one steady partner as more feasible than the reduction of high-risk sexual practices. The HIV status of the partner was not reported in these data. The cohort consisted of well-educated, knowledgeable men (McCusker, Stoddard, Zapka, Zorn, & Mayer, 1989).

Although condom/spermicide use is efficacious in the reduction of HIV transmission (Feldblum & Fortney, 1988), consistent condom use is not being reported for high-risk behaviours. Additional strategies for long-term behavioural changes must target behavioural changes in high-risk practices and multiplicity of partners (Henry & Osterholm, 1988).

"Clearly, a window of opportunity for new HIV infection still exists among self-identified samples of gay men, despite the profound behavioral risk reductions that have occurred since the onset of the AIDS epidemic and despite widespread understanding of health education guidelines for the prevention of infection" (Stall, Coates, & Hoff, 1988, p.864). The growing benefits of early treatment (Levine & Bayer, 1989) and the recognition of the unique characteristics of AIDS require policies that are most inclusive of at-risk individuals (Brandt, 1990).

Role of Alcohol and Drug Abuse

The high prevalence of alcohol use among homosexual men (proposed rate of 30%) is viewed by some researchers as a risk factor or cofactor to AIDS. Alcohol functions as an immunosuppressive agent. Progressive alcoholism may result in a confounding effect of Korsakoff's syndrome with AIDS-dementia complex (Molgaard, Nakamura, Hovell, & Elder, 1988). Chronically high levels of alcohol consumption definitively damage the immune system , while simultaneously disinhibiting the drinker and resulting in an association with high-risk sexual behaviours (Ostrow, 1986). The studies indicate that the latter is the main effect of alcohol, the potentiating of elevated levels of participation in high-risk sexual behaviours (Martin, 1990). The role of alcohol-induced immunosuppression in the development of AIDS and infectious diseases is still being debated (Pillai & Watson, 1990; Seminara, Pawlowski, & Watson, 1990).

The role of alcohol and drug use in immunocompression and pathogenesis of AIDS was not supported in data from the Muticenter AIDS Cohort Study. The use of psychoactive drugs and alcohol was not found to consistently correlate with

HIV progression (Kaslow, Blackwelder, Ostrow, Yerg et al., 1989), but was reported to be correlated with a higher incidence of seropositivity and immunosuppression (Badgley,1990). Steady cigarette smoking is suggested as a possible cofactor due to its immunosuppressive effects and possible link to pneumocystis pneumonia, a mostly unexplored and disputed association (Berger, 1988).

John Martin, in 1990, in a study of 604 male homosexuals in the New York City area, found a significant association between drug use and sex, both receptive and insertive. The men were mostly white, college-educated, Manhattan residents, with a mean age of 38. These results replicate those of Stall, McKusick, Wiley, Coates, and Ostrow who found, in a sample of homosexual men, a strong relationship between alcohol or other drugs and high-risk sexual activity in the San Francisco-Bay area. The men who combined sex with drug use were the most likely to have participated in high-risk sexual activity during the year prior to data collection (N=655).

In the same geographic area, a survey of 4000 households yielded results from 844 with a strong association between heavy alcohol use and high-risk sexual practices among homosexual men and heterosexual women (Leigh, 1990; Trocki & Leigh, 1990). The link between high-risk sex and drug use has diminished over time, having been stronger earlier in the epidemic. Decline in drug use is followed by significant reduction in unprotected anal intercourse. Inhaled nitrite, marijuana, and cocaine use were found to be significant predictors of high-risk anal intercourse through 1987, in the New York City sample (Martin, 1990).

Intervention Programs and Evaluation

There still exists a dearth of research on the effectiveness of various prevention and intervention programs and of the most cost-efficient means to service the HIV-infected populations (Clemenhagen, 1989; Leviton & Valdiserri, 1990; Rugg, O'Reilly, & Galavotti, 1990; Turner, Miller, & Moses, 1989). Thomas Coates (1990) presents a strong case for the need of evaluation studies and intervention research among homosexual and bisexual men outside the epicenters of the epidemic, ethnic minorities, young homosexuals, women of colour, and persons over 50. The role of early intervention programs is becoming more prominent with the availability of early markers for illness and of efficacious clinical interventions (Arno, Shenson, Siegel, Franks, & Lee, 1989).

Studies that provide clear descriptors of the natural history of HIV infection, medical and psychosocial manifestations, and transmissibility (Kaslow, Ostrow, Detels, Phairs, Polk, and Rinaldo, 1987; Lifson, Rutherford, & Jaffe, 1988; Ostrow, Joseph, Monjan, Kessler et al., 1986) in the target populations are basic prerequisites to effective prevention and impactful intervention programs. A full survey was conducted following these guidelines among Montreal residents of Haitian origin during 1987-88 (Adrien, Boivin, Tousignant, & Hankins, 1990).

"...AIDS prevention will never be completely effective unless 100% of sexually active people engage in low-risk sexual behaviours. Thus, the essential conclusion from all the studies to date is that effective AIDS education programs must target attitude and behavioural change" (Svenson & Varnhagen, 1990). Attitudes that reflect personal responsibility in chronic illness, as opposed to adopting a victim perspective, empower patients. The levels of personal

responsibility range from overwhelmed, hopeless, and helpless, to accepting full responsibility for illness as a fact of life (Anderson & Genthner, 1990). Discrepancies exist between the prevention education programs delivered in the homosexual and heterosexual communities (Herold, Fisher, Smith, Yarber, 1990).

> Our study demonstrated a predictive relationship between health values and beliefs and clinical improvement. **It appears that an inner directed or internal orientation is vital for the successful utilization of self care and self help approaches in health.** Further research is needed to investigate the relationship between changes in health values and beliefs, the causation and prognosis of disease and the maintenance of positive health. (McLean & Pietroni, 1990, p.595)

Even today, it is still true that in spite of extraordinarily rapid scientific progress to date, AIDS remains an epidemic disease whose cure remains elusive (Landesman, Ginzburg, & Weiss, 1985). "Public education must be enhanced and supported, since the prevention of transmission is the only means of control currently available" (LCDC, 1988b). Accurate information has been significantly better disseminated, particularly amongst university students with conflicting associations with changes in sexual practices (Bowd, 1987; Ishii-Kuntz, Whitbeck, & Simon, 1990; King, Beasley, Warren, Hankins, Robertson, & Radford, 1989; Price, Desmond, Hallinan, & Griffin, 1988; Svenson & Varnhagen, 1990; Wenzel, 1990; Varnhagen, Svenson, Godin, Johnson, & Salmon, 1991).

And, yet, social science research remains poorly funded and underutilised (Marsden, 1988). The severity of the disease, the lack of curative treatment, and the targeting of socially stigmatised groups has engendered public fear, often

expressed as anger and discrimination. Discrimination, whether active or passively accepted, contributes to the fear and confusion surrounding AIDS (Earickson, 1990). "AIDS has formed the focus of a backlash which critics of the 'permissive society' have been quick to latch on to" (Spears, Abrams, Sheeran, Abraham, & Marks, 1991, p.38).

Attitudes and Stereotyping

People fear the sufferers of the illness, often leading to rejection and blaming of the ill (Friedland, 1987b). This may be accounted for by a dogmatic "just world view" or the psychological threat of personal vunerability and/or of homophobia (Connors & Heaven, 1990). While scientific progress is astounding, social stigmatization of high-risk groups and overwhelming societal denial and fright continue (Frolkis, 1986; Gould, 1987; St. Lawrence, Kelly, Owen, Hogan, & Wilson, 1988).

The stereotyping and negative stigmatization of AIDS sufferers have added to the issues surrounding their mental health, whether homosexual men (Krajeski, 1984; Thompson, West, & Woodhouse, 1985) or intravenous drug abusers (Richards, 1988). The impact of stressful life events is amplified by stigmatization and can work synergistically with life change events as predictors of emotional dysfunction among homosexual and bisexual men (Ross, 1990).

Much of the earlier panic (Ostrow & Gayle, 1986; Ward & Papadakis, 1987), evident even in the medical literature (Seale, 1987), has been replaced by more balanced, humane views (Boyd, 1987; Cominos, Gottschang, & Scrimshaw, 1989; Friedland, 1988). Yet, discrimination against HIV-infected

individuals and persons infected with AIDS is very much in practice (Johnson, 1989).

Responsible mental health professionals must take a leadership role in the epidemic of "AFRAIDS," in stemming the AIDS-panic - so inflamed by the media - and in fighting discrimination and stigmatisation as adopted by the World Health Organization (Cassen, 1985; Deuchar, 1984; Hahn, 1991; Kielwasser, 1991; Morin & Batchelor, 1984; O'Brien & Hassayeh, 1986; Ostrow, 1989; WHO, 1988b). Knowledge about AIDS is limited even among the health-care-provider community, particularly outside urban areas. Unsound information is commonly presented in combination with negative and moralistic attitudes towards patients with AIDS (Churchill, 1990; Kerr & Horrocks, 1990; Sontag, 1989).

The AIDS epidemic has presented challenges and provoked strong emotional responses from many segments of the population, ranging from the infected to moralists to economists to ethicists to health care providers (Dreuilhe, 1988) . "The cumulative individual experiences of denial and anxiety about AIDS are reflected in society's response to the disease....Psychiatrists can help decrease the stigmatization of people with AIDS by understanding and buildi idges between individual and group anxiety, and individual and group responses. It is the creation of a social 'healing context' that must be the foundation of treatment of AIDS-related anxiety" (Fullilove, 1989, p.8).

The AIDS epidemic has been repeatedly compared to the syphilis epidemic of the sixteenth century (Brandt, 1988; Last, 1988; Ostrow, 1987; Yankauer, 1988) in its arousal of fear and stigmatization of the ill (Larsen, Reed,

& Hoffman, 1980; Kelly, St. Lawrence, Smith, Hood, & Cook, 1987). The epidemic is the greatest challenge to the public health system since the cure of syphilis (Gemmill, 1989). The most common comparison is with the syphilis epidemic of the 1930s and 1940s when public health policy established partner notification (Parran, 1937) as a successful control element (Brandt, 1987). Supporters (Potterat, Spencer, Woodhouse, & Muth, 1989; Toomey, Cahill, Blount, Havlak, & Cates, 1988) and detractors (Osborn, 1988; Rutherford & Woo, 1988) have argued the efficacy of partner notification for control of the present epidemic of AIDS.

Brandt (1990) advised extreme care in generalising to the HIV epidemic, always attempting to meet the ethical obligations of persons at-risk and infected with HIV. The ethical principles are those that guide clinical practice: autonomy, confidentiality, beneficence, nonmalificence, and justice (Beauchamp & Childress, 1983). "...the emphasis must be on policies likely to be optimally inclusive, that draw individuals to the institutions of medicine and public health where desirable services, counselling and treatment may be provided. Not to recognize the very particular properties of this epidemic will lead to policies which are unlikely to have a positive effect" (Brandt, 1990, p. 7).

The volumes of information and publications about AIDS is reflected even in disputes in the literature over the space devoted to AIDS-related publications (Kubin, 1989; Lock, 1989) and in the underfunding (Rogers,1989) or overfunding (Adler, 1987) of AIDS research and health services. The following pages are an attempt to review and present the key relevant literature.

Dilemma of HIV-Antibody Testing

There are several key questions related to the HIV testing process:

1) Does notification of positive results lead infected individuals to limit or cease behaviours associated with HIV transmission?

2) Does notification of negative results motivate at-risk individuals to better protect themselves against infection?

3) What distinguishes individuals who seek antibody testing?

4) Does being informed of a potentially life-threatening infection result in significant and prolonged emotional distress? (Jacobsen, Perry, & Hirsch, 1990)

5) What are the adverse psychological and social consequences of knowledge of serostatus? (Coates, Stall, Kegeles, Lo et al., 1988; Sheridan & Sheridan, 1988)

6) What are the benefits and harms of voluntary testing? (Lo, Steinbrook, Cooke,Coates, Walters, & Hulley, 1989)

In a large cohort study conducted in 1985 at the Pittsburgh site of the MACS study, 1,251 homosexual/bisexual men accepted to be tested for HIV-antibody status. The men who accepted and declined testing did not differ on demographic variables. The men who declined testing (n=188) either did not believe the test was predictive of AIDS or were concerned about the stressors of a seropositive result. The men who did not respond (n=608) were demographically distinct, being younger, belonging to minority groups, and less well-educated (Lyter, Valdiserri, Kingsley, Amoroso, & Rinaldo, 1987).

In a study of 207 asymptomatic adults (male and female) who voluntarily sought serologic testing in New York City, many of the participants reported high lifetime rates of mood disorder and nonalcohol substance abuse. More than half

the population were homosexual or bisexual men, mostly white and well-educated. The population was one at increased risk of depression and nonintravenous drug abuse. The authors question the possible role of diagnosable DSM-III-R categories in differentiating the predictability of people who will seroconvert or in the seroconversion itself (Perry, Jacobsberg, Fishman, Frances, Bobo, & Jacobsberg, 1990).

Coates, Morin, and McKusick (1987) conducted a longitudinal study of homosexual men in San Francisco comparing reported risk behaviours before and after antibody testing. Reductions in high-risk behaviours were reported, but it is unclear as to the link of the reduction to notification of results.

In a parallel study in San Francisco of largely white, well-educated homosexual men - attending a sexually transmitted disease clinic who had been enrolled in a study of hepatitis-B - in their mid-30s, there was a clear pattern of slow change toward safer sexual behaviours between 1983-1984 and 1986-1987. The change was irrespective of knowledge of serostatus. The men who did not learn their serostatus and those who were knowingly seropositive had comparable levels of elevated anxiety at follow-up. The greatest change was in unprotected receptive anal intercourse, and the least change was in unprotected insertive anal intercourse. The men continued high-risk sexual practices at a greater rate with their steady partners. The authors speculate that men who continue participation in unprotected anal intercourse may be declining to be interviewed. There is a small group of men who continue engaging in high-risk sexual behaviours (Doll, O'Malley, Pershing, Darrow, Hessol, & Lifson, 1990; Prieur, 1990)

McCusker and co-authors (1988), in a longitudinal study of a population of homosexual men in Boston, compared the behavioural changes of the men who chose to know the results of antibody testing with those who chose not to be notified of test results. Significant declines of high-risk sexual behaviours were reported within a one-year period, but the reductions were not associated with antibody status knowledge. The authors indicate that the motivations for changes in high-risk sexual behaviours differ in the two groups, although substantial changes are reported in both groups.

The two approaches were combined at the Chicago MACS site (Ostrow, Joseph, Kessler, Soucy et al.,1989). All groups of study participants reported reductions in risk behaviours with no conclusive association between degree of reported change and antibody-status knowledge. Fox, Odaka, Brookmeyer, and Polk (1987) investigated changes in high-risk sexual behaviours among homosexual men in the Baltimore-Washington area as part of the MACS study and found significant reported declines in high-risk sexual behaviours with an interaction effect between notification status and antibody status.

An interaction effect of antibody status and notification status was, therefore, concluded. Notified seropositive men reduced high-risk sexual behaviours more than seropositive men who did not accept test results and more than untested individuals. Notification of negative results impacted on specific risk behaviours more than untested individuals (Coates, Morin, & McKusick, 1987), but at the same rate as seronegative men who chose not to know test results (McCusker, Stoddard, Zapka, Zorn, & Mayer, 1988) and at a lesser rate than unnotified individuals (Fox, Odaka, Brookmeyer, & Polk, 1987). Prior to

notification of antibody test results, a thorough review of past risk behaviours must be completed as significant changes may have been made prior to arrival for testing. Changes subsequent to antibody-testing notification may then be difficult to detect.

Among a sample of 502 homosexual men from four different areas interviewed in England, it was found there was no impact of knowledge of seropositivity upon unprotected anal sex. The men had all voluntarily sought HIV-antibody testing. The men who had never been tested reported the lowest rates of high-risk anal sex. The importance of HIV testing correlates directly with the benefits of early medical intervention, which must be matched with effective counselling (Dawson, Fitzpatrick, McLean, Hart, & Boulton, 1991; Moulton, Stempel, Bacchetti, Temoshok, & Moss, 1991).

Martin, Dean, Garcia, and Hall (1989) focused on the relationship of personal bereavement, loss, and the threat to the self of AIDS with knowledge of positive serostatus. The authors found an increase in PTSD-like symptoms and a decrease in depressive symptoms in their study population from 1985 to 1987. Ross (1990) also found PTSD-like symptoms in a cohort of 80 homosexual and bisexual men in Sydney, Australia. Major crises that do present following a positive diagnosis are reported as occurring within a week and, generally, present in relation to identity and self-esteem. There was a small group of men in the Australian sample who adopt high-risk sexual behaviours following a positive diagnosis (Ross & Rosser, 1988).

In the Martin, Dean, Garcia and Hall study, there was no association between unprotected anal intercourse and knowledge of positive serostatus.

Partner status was the only reported variable found to be a strong and consistent predictor of the high-risk behaviour of unprotected anal intercourse (Martin, Dean, & Garcia, 1989).

Individuals, without reference to sexual orientation, who test seropositive following blood donation have reported in support groups that they experience feeling alienated and isolated from their peer group and from society, and feeling loss of self-esteem and control (VanDevanter, Grisaffi, Steilen, Scarola et al., 1987).

Role of Counselling and HIV Serostatus

The present protocol of informed consent and pre- and posttest counselling is supported as beneficial in prevention of mental disorder (Keidan, Franklin, & Pinching, 1988; O'Dowd, 1988) and may be contributive to high-risk behavioural reduction. In a study of the waste bloods of 350 psychiatric inpatients in the Payne Whitney Clinic, it was found that 7% were HIV-antibody positive. Patients were discharged untested, and 77 patients with recorded high-risk behaviours were discharged for the most part untested and without attempted counselling (Sacks, Dermatis, Looser-Ott, Burton, & Perry, 1992).

Ross and Rosser (1988), based on the Australian experience, recommended that the counsellor present written information on the meaning of a positive serostatus in conjunction with a positive result and a possible referral to an AIDS counselling service or a close follow-up appointment. The dynamics of the counselling encounter must incorporate the serostatus of the counsellor and the client (McKusick, 1988).

An interesting paradigm in San Antonio utilised the services of volunteer psychologists in their private offices for counselling following HIV-testing. The counselling was restricted to one visit, with reported benefits to the participant psychologists. The program was established upon the initiative of a gay community organization (Gaines, 1988).

Miller and Riccio (1990) claim that the majority of psychiatric symptomatology in HIV-infected individuals relates to knowledge of infection and are, therefore, mainly adjustment reactions and transitory. The authors distinguish between the psychological reactions to HIV-infection and the presentations of central nervous system involvement in AIDS, e.g., "acute confusional states and chronic impairment leading to dementia" (Miller & Riccio, 1990, p. 381).

The psychological responses of a cohort of 218 asymptomatic, self-selected adults (homosexual, heterosexual, male, female, and intravenous drug users) in New York City to confidential HIV-antibody testing with pretest and posttest counselling in a private physician's office showed decreases in anxiety and depression scores. The notified seronegatives displayed immediate reduction in anxiety as compared with pretest levels. The notified seropositives reported nonsignificant anxiety elevations immediately following notification and decreased anxiety and depression levels 10 weeks post-notification. Two-thirds of the seropositives were trained in stress-prevention techniques. There was no long term followup and all the participants were asymptomatic throughout the study (Perry, Jacobsberg, Fishman, Weiler, Gold, & Frances, 1990). Patients at

increased risk of psychological morbidity require targeted psychosocial interventions (Watson, 1983).

Coping. Coping with stressful life events and/or adaptation to chronic illnesses, in particular the extensive literature related to illness behaviour and to the psychosocial correlates of cancer and its treatment, constitute important relevance for this literature review (Ben-Sira1, 1984; Beutel, 1985; Cassel, 1976; Cassileth, Lusk, Miller, Brown, & Miller, 1985; Dworkin, 1991; Mechanic, 1974; Meyerowitz, 1980; Pearlin & Schooler, 1978; Taylor, 1983; Thoits, 1982). There exist mediating psychological variables between the stressful life event(s) and the response patterns of adaptation or alternatively, hopelessness and despair (Cohen, 1988; Holroyd & Lazarus, 1982; Lazarus, 1980; Lazarus & Folkman, 1984; Lazarus, Cohen, Folkman, Kanner, & Schaefer, 1980; Schmale & Iker, 1966). The role of explanatory style as a mediating variable in response to illness indicates that a pessimistic explanatory style - attributing illness to internal, stable, and global causes - relates to passive coping behaviours (Lin & Peterson, 1990).

Beliefs in personal control among patients with chronic illnesses including those diagnosed with AIDS are adaptive, reducing the levels of anxiety and depression (Felton & Hinrichson, 1984; Taylor, 1983; Taylor, Helgeson, Reed, & Skokan, 1991). The theory of learned helplessness of depression was originally posited as a response-outcome expectancy theory (Maier & Seligman, 1976). The theory has evolved to incorporate cognitive mediating attributional styles of causality incorporating internal/external, stable/unstable, and global/specific causes. Attributional styles influence the degree of learned helplessness and expectations of future helplessness (Abramson, Seligman, & Teasdale, 1978;

Garber & Seligman, 1980; Miller & Norman, 1979; Seligman, Abramson, Semmel, & von Baeyer, 1979).

The major adaptive challenges of HIV-antibody positive men have been identified as dealing with the possibility of a shortened life span, dealing with others' reactions to a stigmatised lifestyle, and developing health-maintenance approaches (Cerrato, 1991; Siegel & Krauss, 1991). Persons with AIDS, in one ethnographic study, attempted to re-establish control over their lives, one approach being through the control of illness-related knowledge (Weitz, 1989).

Anxiety tends to foster maladaptive psychological coping mechanisms, including emotion-focused coping and lowered self-efficacy. The role and benefits of denial and of various coping styles and their interrelationship among men who are HIV-antibody positive are being explored in a growing literature on the subject (Earl, Martindale, & Cohn, 1991-92).

Self-efficacy theory. Self-efficacy theory posits the role of perceived self-efficacy in behaviour change. Perceived self-efficacy is a cognitive mediating variable which impacts upon choice of coping activities and the strength of those activities. "Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences" (Bandura, 1977b, p. 174).

Efficacy expectations differ in magnitude, generality, and strength. Efficacy expectations are distinct from performance and provide independent predictors of coping efforts. "In the social learning analysis, choice behaviour and effort expenditure are governed in part by percepts of self-efficacy...." (Bandura, 1977a, p.203). Efficacy and outcome expectations are distinct from

each other. Once the prerequisite abilities and the needed incentives are in place, efficacy expectations become the key determinants of coping behaviours. Perceived self-efficacy is learned through direct, symbolic, and vicarious modalities (Bandura, 1986).

The role of perceived self-efficacy and coping behaviours has been explored in various settings, including chronic pain, terminal illness, and AIDS (Devins, Binik, Gorman, Dattel et al., 1982; Bandura, 1990; Jensen & Karoly, 1991; Jensen, Turner, & Romano, 1991).

Davey, Hampton, Farrell, and Davidson (1992) differentiate between anxiety and worrying. In a series of three studies with undergraduate and graduate students of both genders, they concluded that worrying and anxiety are separate constructs. As opposed to being the cognitive manifestation of anxiety, worrying is associated with proactive problem-focused coping and information-seeking. The study, though not conclusive, does suggest that worrying as a construct exists on a continuum from adaptive to pathological. The authors state that viewing events as threats is not detrimental when the individual views him\herself as having the coping abilities to deal with the threatening events, concepts that relate this study to self-efficacy theory. In a study of young heterosexual adults (N=188) raised levels of worry were statistically significant predictors of reduction in high-risk sexual behaviours, with consistent differences along the lines of gender (Cochran & Peplau, 1991).

The initial psychological reaction of shock to a diagnosis of HIV-infection is the normative reported response to the diagnosis of a life-threatening illness (Mandel, 1986). The psychological sequelae generally respond to sensitive

counselling (Holland & Tross, 1985; Miller, 1989; Miller, 1987b; Miller & Green, 1985; Miller & Bor, 1989; Tross & Hirsch, 1988), abating within three to four months. The prior psychological health of the individual is an important indicator of adjustment and reestablishment of psychological equilibrium (Atkinson, Grant, Kennedy, Richman, Spector, & McCutchan, 1988; Catalan, 1988; King, 1989b).

The literature on the experience of HIV testing is growing and ranges from the personal anecdotal experience to a cohort study (McCann & Wadsworth, 1991). The study conducted by McCann and Wadsworth collected data from homosexual men in London, England. There were reported improvements in sensitivity and communication of results. The authors delineated the facilitative and communicative skills needed in the HIV-posttest counselling as necessary to doctors throughout their careers and the gap in their ability to communicate unpleasant and complicated messages. Physicians' lack of knowledge about HIV and AIDS and their discomfort with sexually-related issues are negatively associated with their level of counselling the general population and at-risk patients for HIV prevention (Council on Scientific Affairs, 1990; Ferguson, Stapleton, & Helms, 1991; Fredman, Rabin, Bowman, Bandemer et al., 1989; Gerbert, Maguire, & Coates, 1990). Recommendations on the role of the physician were outlined by the Canadian Medical Association in a discussion paper, "Physicians, Ethics, and AIDS" (1989).

Sweden, a country with the highest per million HIV-antibody testing rate in Europe, reports a steady decline in seropositivity rates since 1985. Mannson (1990) speculates that the rate may reflect increasing nonparticipation in HIV

testing on the part of the country's homosexuals. The men report insensitivity on the part of health professionals with long delays in notification of results and lack of emotional or psychological support on the part of the physician relaying the results. The author reflects upon the difficulties experienced by medical personnel in transmitting information which undermines their omnipotence, and states the necessity of the involvement of mental health personnel in the process of programmes and policy-making. In a national survey in the United States, physicians (regardless of physician characteristics) responded with equivalent perceived responsibility for treatment of HIV-antibody positive patients. However, the perceived responsibility data did not match the patterns of actual involvement which varied with the medical setting, specialty, and age of the practitioner (Rizzo, Marder, & Willke, 1990).

Studies of suicide rates in North America find that suicide is more common among AIDS patients during the first six months following diagnosis, among those who have lost partners to AIDS, among homosexual men who are alcohol-dependent and among those AIDS patients with cognitive impairment as the illness progresses (Flavin, Franklin, & Frances, 1986; Glass, 1988; Marzuk, Tierney, Tardiff, Gross et al., 1988). Higher suicide rates occur in chronic, debilitating, and terminal illness patients. AIDS sufferers are further burdened by societal stigmatization, discrimination, and frequent withdrawal of support. More recent research disputes these data finding lower suicide rates among patients with AIDS than among HIV-positive pre-AIDS patients,whether symptomatic or asymptomatic. The progressive illness and organicity may interact to enhance denial in the patient with AIDS (McKegney & O'Dowd, 1992).

In a study of HIV-infected homosexual men (N=63) in the Dayton, Ohio area, Kurdek and Siesky (1990) compared symptomatic and asymptomatic seropositive men - with a seronegative control group - on their psychological adjustment. Active coping strategies, lack of avoidant strategies, and satisfying social support networks increased significantly the amount of variance and the sense of positive psychological well-being (Kurdek & Siesky, 1990; Namir, Wolcott, Fawzy, & Alumbaugh, 1987; Wolcott, Namir, Fawzy, & Gottlieb, 1986; Zich & Temoshok, 1987). Symptomatic men presented the worst health profile with high death anxiety, increased use of avoidant coping strategies, and dissatisfaction with social support, whereas asymptomatic men presented the more problematic psychological adjustment profile. There was no apparent adjustment in the Kurdek and Siesky study for time since diagnosis or appearance of symptomatology.

In a Vancouver-based study of the coping strategies of 89 mainly white and well-educated seropositive men, Nicholson and Long (1990) found that longer time since diagnosis is negatively associated with action-focused or proactive coping. Avoidance coping or emotion-focused coping is associated with negative mood states. A strong association was found between worrying about health and proactive coping.

An intervention study with 104 male homosexual participants in a medium-sized American city (Jackson, Mississippi) employed a multifaceted approach. Testing was not incorporated into the protocol. The goal was to reduce high-risk sexual behaviours. Multiple measures-- pre- and post-intervention, included self-report surveys, AIDS Knowledge tests, sexual assertiveness role

plays, and standardised anxiety, depression, and locus of control scales. The men completed risk-behaviour monitoring records during the course of the intervention. The intervention was in a group format of 12 sessions conducted by clinical psychologists and project coordinators. The sessions incorporated AIDS-risk education, behavioural self-management related to high-risk behaviours and cofactor behaviours, assertion training, and development of relationship and social support networking skills. Significant changes were obtained in the experimental group for unprotected anal intercourse, condom usage, and anal/digital activity. The lowered risk level was maintained at eight-month followup. There was not significant change in oral/anal activities, oral intercourse, nor number of partners. There was no effect of the standardised measures. The results were analyzed using multivariate analyses of covariance. All participants rated their satisfaction with the intervention very highly (Kelly, St. Lawrence, Hood, & Brasfield, 1989a).

Impact of the Epidemic and of an AIDS Diagnosis

Martin, Dean, Garcia, and Hall (1989) studied the impact of the AIDS epidemic on the gay community in New York City and the concomitant changes in high-risk sexual and drug-use behaviours and mental health. This study measured Health Locus of Control with the Multidimensional Health Locus of Control Scale (MHLCS).

The difficulties presented by the "worried well" patients who are seronegative with low-risk history and high anxiety have been thoroughly reviewed in the literature (Forstein, 1984; King, 1989a; Miller, Green, Farmer, & Carroll, 1985; Todd, 1989). The most helpful approach consists of cognitive therapy combined with education (Miller, Acton, & Hedge, 1988), with some

reporting of the efficacy of paradoxical intervention (Salt, Miller, Perry, & Bor, 1989).

In a Canadian study of psychosocial stressors and mental health among 65 homosexual and bisexual men (in Calgary) who were HIV-infected, Chuang, Devins, Hunsley, and Gill (1989) concluded that those pre-AIDS along the HIV continuum, whether symptomatic or not, were significantly more stressed than those with AIDS. "...different psychosocial issues and adaptive demands emerge over the course of the illness....Therefore psychotherapeutic interventions should be extended to patients across the full spectrum of HIV disease...(and) the critical issues may differ across clinical milestones" (Chuang, Devins, Hunsley, & Gill 1989, p. 879).

Hope among HIV-infected homosexual men in large American urban areas has been positively associated with perceived social support and negatively associated with presenting depressive symptomatology (Rabkin, Williams, Neugebauer, Remien, & Goetz, 1990; Zich & Temoshok, 1987). The extensive networks of support of volunteer and self-help groups, social agencies, and community mental health settings provide a buffer to the psychosocial stressors of AIDS according to Chuang and co-authors (1989). Mental health personnel must deal with cultivating therapeutic alliances in order to foster effective counselling and psychotherapeutic interventions (Brown, 1990; Faugier, 1990; Macks & Turner, 1986; Widen, 1989). The range of possible community mental health interventions is broad and varied ranging from training of mental health providers to community education, to outreach, to consultative services, to intervention programs. An AIDS specialist in each community mental health setting would

enable the center to be more effective in its programs and its outreach (Knox, 1989).

> At a systems level, the consensus is that health care resources, not to mention mental health resources, are dangerously inadequate to meet the present and anticipated needs of HIV infected patients....At the clinical level, several training and research issues prevail. Mental health professionals are in short supply and are largely untrained in assessment, in intervention techniques, and in basic knowledge about HIV disease....little research has been generated toward systematic comparison of intervention efficacy for use with HIV-infected persons. (Sheridan, Coates, Chesney, Beck, & Morokoff, 1989, pp. 763-764)

Related literature on HIV-infected haemophiliac patients adds to the background knowledge. In a study of patients with haemophilia, Wilkie, Markova, Naji, and Forbes (1990) concluded that the needs and issues of HIV-positive patients differed significantly from those of HIV-negative patients. The authors concluded that sicker patients who were more overburdened with illness-related difficulties were not seriously concerned about HIV/AIDS, viewing it as another problem in an overwhelming existence. This supposition could be applied to the drug-abusing population as well (McKeganey, 1989). Haemophilia patients' "'beliefs of others' perceptions of HIV and AIDS are associated with (a) their perceptions of risk for themselves and others and (b) with behavioural change to prevent spread of HIV" (Markova, Wilkie, Naji, & Forbes, 1990, p. 73).

Studies of chronic illness sufferers can contribute to research and understanding of AIDS. "No axiomatic definition exists for chronic diseases, but these diseases are well described by their attributes: long latency, protracted

clinical course, uncertain etiology and no definitive cure" (Rothenberg & Koplan, 1990, p. 267). Relapse rates have been shown to relate to noncompliance in patients with chronic pain (Turk & Rudy, 1991). Controversy exists over the role of psychological and social factors in the relapse rates and survival time among patients with cancer (Fox, 1978; Fox, 1983; Vaillant, 1979). Their role in the initiation of illness is unclear; however, following diagnosis the biology of the disease predominates and determines the course of the illness (Cassileth, Lusk, Miller, Brown, & Miller, 1985).

> There are numerous cultural and historical changes which have contributed to the present emergence of self care--the rise in chronic disease morbidity in the past two decades with the resulting shift from cure to care, an increasing awareness of the effect of lifestyle on many chronic diseases, the increasing difficulty of 'high technology' medicine to deal with long term chronic illness alongside the increasing exploration of 'alternatives' to the philosophical assumptions of traditional Western medicine. (McLean & Pietroni, 1990, p.595)
>
> Major depression is the most common clinical problem seen in primary care. This affective illness is most prevalent in patients with chronic medical illness. Major depression has been frequently associated with high medical care utilization, chronic medical symptom amplification, increased functional disability, poor compliance, and increased morbidity and mortality. Due to somatic presentation and a tendency to not screen for depression in the medically ill, depression frequently is not accurately diagnosed by primary care physicians, leading to prolonged patient suffering and risk of iatrogenic injury. (Katon & Sullivan, 1990, p.9)

Caution in Communicating Results of Testing

In a large epidemiological study, patients with one or more chronic medical illnesses had a 41% increase of displaying any psychiatric disorder (Wells, Golding, & Burnham, 1988). Double-blind, placebo-controlled studies have clearly shown the effective use of antidepressant medications in primary care patients, chronic pain patients, and patients with comorbidity of chronic medical illness and depression (Katon & Sullivan, 1990).

The construct of compression of morbidity which is most attractive to public health advocates hypothesizes the reduction of the period of morbidity by increasing age of onset with adult life expectancy remaining constant (Fries, 1990). The hypothesis of the compression of morbidity presents a very real contribution by providing the conceptual framework for increased emphasis on quality of life.

> The concept of living with and dying with (rather than 'dying from') disease, and the policy goal of delaying disability, both point to what may be the more significant aspect of chronic disease in the 1990s: the toll of suffering and the burden of dysfunction ascribable to chronic conditions....The current focus on the burden of disease, with its personal, social, and economic ramifications, will likely improve surveillance. (Rothenberg & Koplan, 1990, p. 273)

Biblace and Walsh (1990) have attacked the vague use of terminology in the literature on psychology and AIDS, in particular the November, 1988, special edition of the American Psychologist. The authors pinpoint the terms "education", "information giving", "communication" - to which the term "counselling" should be added (personal opinion) - as unacceptable and concealing of theoretical

differences. The authors oppose the "public health approach" which relies upon demographic variables of groups to determine the relevancy of information for information-giving. Understanding is then presumed with the recipient viewed as a passive receiver of information.

Bibace and Walsh propose a clinical-developmental approach incorporating the role of cognitive developmental conceptualisations of health and illness (Jordan & O'Grady, 1982). The assumption is that in any interaction between oneself and another understanding requires the "expert" to determine "where the other person is coming from" (Bibace & Walsh, 1981). Stoeckle and Barsky (1980) posit the need in the clinical situation to address the cognitive constructions of illness of the patient.

> 'Telling' a person, that is giving information, is not sufficient....The 'expert' must take into account the psychological processes that lead to a person's conceptions of illness...there is evidence that many adults rely on immature thinking with respect to any illness...the necessity to address these conceptions in the clinical situation. ...That is, that adults, like children, rely on (similarly) diverse psychological processes that are related to cognitive development...results in distinctively diverse ways of thinking about a disease, its cause, and treatment...empirically demonstrated to be the product of qualitatively different psychological processes, differences that are considered to be coherent within some developmental approaches to cognition ....Education and prevention programs should take into account the different psychological processes [e.g., concrete thinking, magical thinking, abstract thinking] that give rise to such misinformation. (Bibace & Walsh, 1990, p. 406)
>
> Thus, providing the same information to individuals who rely on such divergent psychological processes with respect to their reasoning

> about AIDS or any other illness is, from this perspective, an insufficient approach. The danger that we have noted in our clinical and educational activity is that the individuals will not assimilate the information given by the experts in the way in which the latter intend the information to be understood. The information, according to our perspective, must be tailored to these systematic differences in cognitive maturity-differences that play a large part in determining 'where that person is coming from' and the meaning they will attribute to the information that is presented. (Biblace & Walsh, 1990, p.406)

Greater emotion-focused coping behaviours are related to poorer adjustment and more depressed symptoms, whereas problem-focused coping behaviours are not. The relationship between depression, self-blame, and emotion- versus problem-focued coping behaviours in populations of chronically ill patients with varied medical diagnoses is disputed (Bombardier, D'Amico, & Jordan, 1990; Coyne, Aldwin, & Lazarus, 1981). The sample in this study was predominantly female.

Psychosocial Dimensions of the AIDS Epidemic

The 1989 International Conference on AIDS, held in Montreal, had psychosocial issues and AIDS as its main theme. Psychosocial approaches have taken the forefront in prevention and control of the AIDS epidemic (Allen & Curran, 1988; Coates, Temoshok, & Mandel, 1984; Selwyn, 1986). Effective public health interventions must contain treatment and counselling components (Francis et al., 1989). The United States Public Health Service published clear guidelines for psychosocial preventive approaches (CDC, March 14, 1986).

> Behaviour change and prevention are the best and only means of curtailing the continued spread of HIV infection....Our success in preventing new HIV infections through the 1990s will depend on how well we learn from, adapt, and expand upon the prevention lessons of the first decade of AIDS. (Kelly & Murphy, 1991, p.251)

Psychotherapists and counsellors can play key roles in helping clients develop coping strategies, reduce perceptions and distortions, learn problem-solving techniques, and raise personal efficacy related to seropositivity and illness (Perry & Markowitz, 1986). In 1989, it was reported that 75% of APA-approved graduate programs in clinical and counselling psychology do not deal with AIDS at any point in their curriculum. Less than half offer any training in human sexuality (Campos, Brasfield, & Kelly, 1989). Understanding and delineation of the attitudes towards safer sex can direct counselling efforts, resulting in effective, empathic, culturally-sensitive interventions (Ross, 1988b; Kaminsky, Kurtines, Hervis, Blaney, Millon, & Szapocznik, 1990; Mittag, 1991). Studies of help-seeking behaviours conclude that formal help-seeking behaviours for sexual and nonsexual problems in non-random North American samples run at a rate of 27% at the most, and are fairly restricted to upper income levels. Most help-seeking occurs through informal networks (Catania, Pollack, McDermott, Qualls, & Cole, 1990). Modalities that are the most efficient routes for interventions need to be defined.

CHAPTER II

THEORETICAL RATIONALE OF THE STUDY

The following section provides a review of the theoretical background of the locus of control construct, social learning theory, and a review of the development of the construct incorporating relevant literature.

Theory of Social Learning and Locus of Control

Social learning theory will be reviewed as background to the major foci of this study: health locus of control and its relationship to high-risk behaviours and health-maintenance in the study population of homosexual men. The role of health locus of control in the study population will be described, specifically in relation to focal behaviours of health-maintenance and risk-reduction. Health locus of control will be described in relation to health/illness behaviours in the realm of AIDS. Health locus of control is a goal-specific derivative of locus of control - an individual difference construct expounded by social learning theorists.

Social Learning Theory

Social learning theory is a theory of personality developed from clinical experience and from research with human subjects in complex social situations. Rotter (1966) posited the construct of locus of control from clinical experience

and research. The construct differentiated between those clients who changed their behaviour -- transferred their sense of mastery from one situation to the next -- from those clients who did not, rather continuing to view each situation as an isolated event. Locus of control, the generalized, stable expectancy of the ability to control the available reinforcers, was the explanatory mediating variable (Lefcourt, 1966).

Social Learning and Clinical Psychology (1954) is the classic text of social learning theory. In the words of Rotter and Hochreich (1975, pp. 113-114), social learning theory is a:

> well-systematized theory, based on a model of human learning and placing great emphasis on social motivation.Its basic constructs of behaviour potential, expectancy, and reinforcement value integrate two major orientations in psychology, the cognitive approach, and the stimulus-response or reinforcement approach. The theory was developed in such a way that all its constructs could be measured and the validity of its assumptions and hypotheses could be assessed. The content part of the theory, which specifies the parameters of individual differences and classifies situations, is only partially developed.

Social learning theory evolved as an explicit attempt at systematization of the study of personality, employing operational constructs. In reaction to the limitations of psychodynamic and of behaviouristic theories of development, social learning theory meshed the internal and external world of the person. The unit of investigation in social learning theory is the interaction of the individual and his meaningful environment, a relevant theoretical paradigm for this study. A process theory built upon the major assumption that psychological behaviour is

learned, social learning theory uses as its motivational basis the empirical law of effect (Thorndike, 1913). Tolman (1932) incorporated the role of expectations that behavior will produce specific outcomes into learning. Social learning theorists, thus, incorporated cognitive theory in the central role placement of subjectively held hypotheses or expectancies in the process of learning or behavioural acquisition.

Social learning theory assumes a historical perspective as well as the unity of personality. The historical perspective concludes that present behaviours are influenced by past experiences and that learned behaviours are modifiable. Personality has unity: experiences and interactions with the environment influence each other. Personality is both stable and constantly changing, the influence of past experiences and present interactions. Motivation is goal-directed.

The motivational basis, the Empirical Law of Effect, provides the key concept of reinforcement, positive as well as negative. Reinforcement is any action or event which affects the individual's movement toward a goal. Positive reinforcement is any action or event that increases the likelihood that a particular behaviour will occur again under similar circumstances. Negative reinforcement, the corollary, is any action or event that decreases the likelihood that a particular behaviour will occur again under similar circumstances.

Social learning theory expanded the law of effect incorporating the critical role of cognition as a mediating variable. The individual's perception of a causal relationship between his\her actions and the reinforcement(s) - the expectancy that one's behaviour will effectuate the reward or reinforcement - is pivotal to social learning theory. The strength of the reinforcer must be calculated into the

equation. Rotter (1964) and his colleagues (David & Phares, 1967; Rotter, Chance, & Phares, 1972) presented experimental evidence of differential learning and significantly different information-seeking behaviours depending upon the source of the reward.

The major constructs of social learning theory are operationalised, as follows, behaviour potential (BP); expectancy (E); reinforcement value (RV); and situation (S). Behaviour potential (BP) is the potential for any given behaviour to occur in a particular situation or situations in relation to a specific reinforcement or set of reinforcements. The expectancy (E) construct is the probability held by the individual that a specific reinforcement or set of reinforcements will occur as a result of a particular behaviour on his part in a specified situation or situations. The reinforcement value (RV) is the individual's degree of preference for a given reinforcement to occur. The psychological situation (S) is composed of individual differences, the subjective reaction and meaning based on past experiences.

The expectancy variable is determined by previous experiences. Expectancies are, therefore, subjective and vary in generality. Generalized expectancies range across a variety of situations. Some important generalized expectancies are of problem-solving skills, of interpersonal trust, and of internal vs. external control of reinforcement. This variable is critical in the present study and is elaborated in the next section.

The reinforcement value variable, on the other hand, displays some degree of consistency. Reinforcements tend to occur in sequences, i.e., the occurrence of one reinforcement has expected consequences for future reinforcements. Future reinforcements contribute to the value of the present reinforcement. Health is

presumed to be a major positive reinforcer. In the present study population, the assumed strength of health as a positive reinforcer is made more evident by its synonymity with life. The assumed positive reinforcement value of health - as defined by seronegativity in this study - would further the expectancy of control.

The detailed constructs are all measurable along the specificity/generality continuum. All four variables are necessary in order to make a prediction about an individual's behaviour, with the heaviest weight placed on situation. Social learning theory concludes that any significant new experience or set of experiences will result in behavioural change.

Theory of Locus of Control

Internal\external locus of control is a theoretically-based expectancy construct derived from social learning theory, which was first studied under experimental conditions and generated significant research and applications. The internal-external control construct is a "generalized expectancy to perceive reinforcement as contingent upon one's own behaviours [internal control] or as the result of forces beyond one's control and due to chance, fate, or powerful others [external control]" (Levenson, 1981,p.15). The first locus of control scale was the James-Phares Locus of Control Scale, a 60-item Likert scale. The James-Phares Locus of Control Scale evolved from two dissertations completed at Ohio State University and served as the base for the well-known Rotter I-E Scale. Julian Rotter, Shephard Liverant, Melvin Seeman, Douglas Crowne, and a group of Ohio State University graduate students generated a theoretically derived instrument with discriminable subscales for control expectancies in different goal areas, e.g., achievement, social recognition, and love.

In 1966, Julian Rotter developed a forced-choice scale for adults which became the instrument of choice in most of the research conducted on the individual differences in the expectancy of locus of control. The Internal-External Locus of Control Scale (I-E Scale) was used to investigate the locus of control variable as a predictor of social action for change in black adults (Gore & Rotter, 1963; Strickland, 1965), of weight loss (Tobias & MacDonald, 1977), of health-related behaviours (Strickland, 1978), and of behavioural control through suggestion and through the use of verbal conditioning (Getter, 1966; Phares, 1965; Strickland, 1970).

Internals were more likely to be social activists, to be resistive to subtle suggestion and verbal conditioning, to be effective "experimenters" in changing social attitudes (Phares, 1965), to successfully self-modify a range of self-selected behaviours (Schallow, 1975), and to display significantly more information-seeking behaviours in a skill situation (David & Phares, 1967). Phares concluded that the construct of locus of control was a most effective predictor in situations that are not highly structured. In less structured situations, individuals bring their own experiences and expectancies.

Locus of control, as a construct, has withstood the test of time. The relevant research literature proliferated rapidly (Lefcourt, 1982; Lefcourt, 1981; Lefcourt, 1966; Rotter, 1966a; Rotter 1966b; Throop & MacDonald, 1971). Researchers continue to assess individual differences in the generalized tendency to view events in terms of personal control. These reliable, valid individual differences in the expectancy variable form the personality construct of locus of control.

Rotter (1960, 1966) ultimately advocated the refinement and goal-specification of locus of control measures. The Intellectual Achievement Responsibility Questionnaire represented the first goal-specific locus of control instrument (Crandall, Katkovsky, & Crandall, 1965). Other examples of goal-specific locus of control measures are ones developed for weight, and for recurrent headaches (Martin, Holroyd, & Penzien, 1990). In the population with recurrent headaches, level of medication use, depression, and choice of self-regulation treatment were associated respectively with chance, powerful others, and internal locus of control orientations. Locus of control has been related to levels of death anxiety, including the terminally ill and their caretakers (Hayslip, Luhr, & Beyerlein, 1991-92; Hayslip & Stewart-Bussey, 1986-87; Hayslip & Walling, 1985-86; Lonetto & Templer, 1986).

The Health Locus of Control Scale (HLCS) is a goal-specific instrument particular to the area of health. The HLCS is the instrument of choice in this study of expectancy of control over the reinforcer of health, patterns of high-risk and health-maintenance behaviours in the situation of the AIDS epidemic in a male homosexual study population in Montreal.

The Health Locus of Control

There has been extensive research exploring the relationship of the expectancy-based locus of control beliefs to health- and illness-related behaviours. The first published study was conducted with a population of hospitalized tuberculosis patients (Seeman & Evans, 1962). The researchers used an early, unpublished version of the Rotter I-E Scale, relating knowledge of one's condition to internal locus of control beliefs. In a similar approach, Ducette and colleagues

(Ducette & Wolk, 1972; Lowery & Ducette, 1976) investigated a cohort of newly diagnosed diabetics and of long-term diabetics. Ducette also explored the relationship of locus of control to health-maintenance and health-compliance behaviours. An adaptation of the measure was used in a study of the predictability of health complaints among male adolescents in West Germany. The researchers reported that health complaints were predictable based on an external locus of control, anxiety, and loneliness. Loneliness was the predictor of external locus of control, amount of social interactions, and level of risk behaviours of alcohol and cigarettes (Schwarzer, Jerusalem, & Kleine, 1990).

Dabbs and Kirscht published the earliest work of a health-specific scale in 1971. They constructed their own scale utilising a motivational approach with undergraduate university students. Kirscht (1972) stated that it is "necessary to refine further measures of control" (p. 235). Wallston and Wallston (1978) responded to this lacuna. Their original research was conducted with a population of newly diagnosed diabetic patients and their families. The Wallstons viewed the demand for active involvement of the diabetic patient as congruent with an internal locus of control orientation. They advocated and constructed a situation-specific measure of expectancy of control over health, the HLCS. In 1976, Wallston, Wallston, Kaplan, and Maides published the HLCS. The HLCS contains 11 items in a 6-point Likert format.

The Likert categories have undergone substantial academic and research debate. Likert (1932) introduced the method of summated ratings for attitude scales, as a response to the laboriousness of the Thurstone judgment-based method. The original Likert method was presented as a 5-point response scale.

The method of summated ratings has retained its broadbased usage (Andrulis, 1977; Oppenheim, 1966), with the five to seven scale steps reported to be most efficacious (Johnson & Dixon, 1984).

"...[I]n contemporary usage 'Likert item' generally refers to a question with the adverb-verb combinations SA, A, D, AD (or something of the sort) as precoded response categories which are provided for the respondent" (Duncan & Stenbeck, 1987).

Reiss (1967) supported the six Likert categories. "In research it is still advisable to use the six-way choice after each question, for without such an elaborate choice some respondents feel that they are not able to elaborate fully their beliefs in [the] area. Such a concession to respondent satisfaction is a small price to pay for cooperation." (Reiss, 1967, pp. 220-221).

Albaum, Golden, Murphy, and Strandskov (1987) further supported this categorization, viewing the common research approach of a one-stage, five-category Likert scale as confounding the cognitive or directional and the affective or intensity dimensions of attitudes. The result is an under-reporting of extreme positions. Albaum and co-authors displayed evidence for this approach supported in multi-country research wherein a two-stage format generated a higher proportion of extreme responses. Respondents first indicated agree, disagree, or neither and, then, the strength of their response.

Suggestion of a modified one-stage Likert scale so as not to lose quality of data with the lengthening of a two-stage scale "substitutes the 'specific' attitudes slightly agree and slightly disagree for the 'generic' attitudes agree and disagree...as a compromise for the researcher to detect the extreme responses.

Indeed, there are no data available on the issue that more extreme positions are in fact more accurate in expressing 'true' attitudes" (Albaum & Murphy, 1988, pp. 501-2). Extremism in responses has been related to cognitive ability (Hazelwood, 1989).

In a study using a population of undergraduate psychology students (84 females; 44 males), Wyatt and Meyers (1987) found that Likert-type response scales which used less totally absolute endpoints resulted in more evenly distributed response usage and greater variability. The findings do support Rotter's (1972) conclusion that scales with more nearly absolute endpoints strongly disagree/strongly agree - tend to result in responses heavily piled on the endpoints (Rotter & Barton, 1970; Toner, 1986; van Ijzendoorn, 1984). They lend support for the construct of psychological width of such nearly absolute endpoint scales or of a U-shaped curve of the intensity of attitudes (Bendig, 1955; Guttman & Suchman, 1947)

"Although the four response scales yielded similar mean scores on total test performance, numerical comparability does not imply scale comparability....Choosing a scale for a particular application must take into account what needs to be measured" (Wyatt & Meyers, 1987, pp. 33-34). Research on scale labels has found no consistent differences (Dixon, Bobo, & Stevick, 1984; Huck & Jacko, 1974), thus leaving situation-specific connotation as the determining factor in this area. Cognitive ability has been shown to be correlated to the number of unanswered questionnaire items (Stone, Stone, & Gueutal, 1990).

The HLCS measures the individual's perception of control over health-related contingencies. Item analysis was used to derive the 11 items from a larger pool of statements in a developmental sample of undergraduate university students. Concurrent validity was established with the Rotter I-E Scale, resulting in a .33 correlation ($p<.01$). The internal reliability of the scale was established at .72. The HLCS was evaluated for social desirability bias and evidenced a -.01 correlation with the Marlow-Crowne Social Desirability Scale. The HLCS was reported to be related to health status and health change, and correlated with the Health Consciousness Scale (Gould, 1990).

Initially, scoring of the HLCS was parallel to other measures of locus of control. High scores were indicative of agreement with external control factors as determinants of health. The mean score of the original sample population was 35.57, with a standard deviation of 6.22. Scores above the median placed the individual as health-external. Scores below the median placed the individual as health-internal. The scale displayed a shared variance with the Rotter I-E Scale of 10%. Wallston and Wallston concluded from the shared variance that the HLCS is a generalized expectancy measure with sufficient discriminant validity to be a goal-specific measure of health. Normative data on the HLCS have been established in various populations.

The construction of the HLCS was based on a theoretically unidimensional conception of health locus of control. Subsequently, lower internal consistency scores were found. Factor analysis of the scale was conducted. Two subscales were found: HLC-I with five items describing internal expectancy of control and HLC-E with six items describing external expectancy

of control. Alpha reliability of the HLC-I factor was higher than that for the total 11-item scale. Alpha reliability of the HLC-E factor was similar to that of the total scale. Correlation between the two subscales was zero (Wallston & Wallston, 1981). Conceptualization shifted from unidimensionality to positioning internal beliefs as orthogonal to external beliefs. This conceptual shift is pivotal.

Relevant Literature and Health-Related Scales

The HLCS has been used in diverse research settings investigating health conditions and health behaviours. The scale has repeatedly been an instrument of choice. In the published literature, adherers to exercise programs were found to be highly internal (Dishman, Ickes, & Morgan, 1980) and chronic haemodialysis patients were highly external (Sproles, 1977). The practice of preventive health behaviours correlated with internality (McCusker & Morrow, 1979; Toner & Manuck, 1979). Chronic disease correlated with externality (Sproles, 1977; Wallston & McLeod, 1979). Lower socioeconomic status was directly related to externality (Key, 1975; Olbrisch, 1975).

The role of internal/external locus of control in the treatment and relapse of alcoholic men during or after treatment is being disputed. The measures used vary from the Rotter I/E Scale to alcohol-specific measures. In one study of 81 male subjects, external locus of control based on the Rotter Scale was found to be a predictor of relapse (Johnson, Nora, Tan, & Bustos, 1991).

Agoraphobic individuals internalize health locus of control less and externalize health locus of control to chance more (Adler & Price, 1985; Brodbeck & Michelson, 1987). Anxiety in panic disorder in agoraphobic inpatients based on an integrated behavioural-psychodynamic model of the

development of panic disorder is attributed to external locus of control (Hoffart & Martinsen, 1990b). The role of external locus of control in phobic anxiety has been researched extensively (Hoffart & Martinsen, 1990a; Emmelkamp & Cohen-Kettenis, 1975).

Wallston, Wallston, and DeVellis (1978) developed a three-subscale health locus of control scale called the Multidimensional Health Locus of Control Scale (MHLCS). The three scales were modeled upon the tripartite division of Levenson: internal, powerful others, and chance. The published literature, which incorporated the MHLCS in related studies is reviewed, as well as factorial analysis supportive of and contra-indicative of the MHLCS.

Hoffart and Martinsen (1990a) utilised the MHLCS in a large, nonclinical population in Norway (N=1500) in 1986, and concluded that the measure correlated significantly with health-related behaviours. The MHLCS has been used for investigation of the relationship of Type A behaviours and health locus of control in an undergraduate student population, displaying a modest correlation with health behaviour and self-care (Perloff, Yarnold, & Feltzer, 1988) and no correlation in a general adult population (n=17 males, 87 females) (Leikin,1990). There was no correlation found between the subscales of the MHLCS and the reported helpfulness of prayer among cardiac patients one day prior to surgery (Saudia, Kinney, Brown, & Young-Ward, 1991).

The MHLCS has been used quite extensively in exploring the role of health locus of control in self-care in a healthy, general population (McLean & Pietroni, 1990; Murray & Corney, 1989) and in a population with chronic illness (de Weerdt, Visser, Kok, & van der Veen, 1990; Keller, 1988). Levin (1983)

defines self-care as activities in which individuals engage in order to promote and restore health, to prevent disease and contain illness, including self-medication, diet, and exercise. The results of a self-care intervention program in a general practice setting suggest the necessity of a predominantly internal control of health reinforcers for successful utilization and maintenance of self-care practices following presenting complaints of anxiety, tension, and stress.

De Weerdt and his colleagues (1990) researched active self-care behaviour in 558 insulin-treated diabetic patients. The de Weerdt study, conducted in The Netherlands, concluded that attitude was the most important element in active self-care. Positive attitude was correlated to level of knowledge and low level of externality on the powerful others Multidimensional Health Locus of Control Scale. The authors concluded that level of knowledge and health locus of control must be impacted upon in order to institute active self-care behaviour in an insulin-treated diabetic population.

De Weerdt and his colleagues developed distinctly different general profiles for the active and nonactive insulin-treated diabetic patients.

> Active patients generally have a lower score on the powerful others health locus of control scale, which coincides with a higher level of knowledge of diabetes, a lower age, a higher social status, and a higher educational level. They perceive more personal advantages in active self-care, while they are not bothered by the opinions of important persons in their social environment. Nonactive patients generally have higher scores on the powerful others health locus of control scale, which coincides with a lower level of knowledge of diabetes, a higher age and a lower social status. For the level of active self-care behaviour, the opinion of the

> social environment is more important than their personal attitude.
> (de Weerdt, Visser, Kok, & van der Veen, 1990, p.614)

De Weerdt and co-authors concluded that attitude is the best predictor variable of self-care behaviour in insulin-treated diabetics. Their attitude is responsive to education. The form of guidance and education must be matched with the patient's profile for health locus of control. Less externally oriented patients participate actively in their own therapy and prefer democratic cooperation over strong guidance, with the corollary extant for highly externally oriented patients. As well, the authors stressed in their conclusions the importance of educating the active caretakers who form the social environment of the patient.

Experimentally designed research has employed the health-specific locus of control scales as dependent (Flowers & Booraem,1989) and as independent measures. The MHLCS was employed as a research instrument in several studies of homosexual men, the populations ranging from successful and affluent (Rabkin, Williams, Neugebauer, Remien, & Goetz, 1990) to lower socioeconomic class HIV-infected (Martin, Dean, & Garcia, 1989) in New York City, and a general population of homosexual men (Kelly, St. Lawrence, & Brasfield, 1990).

The HLCS was the research instrument measuring locus of control in a study of HIV-infected homosexual men (N=63) in Dayton, Ohio (Kurdek & Siesky, 1990). Symptomatic and asymptomatic HIV-infected men were compared in terms of psychological adjustment. Active coping strategies, lack of avoidant strategies, and satisfying social support networks significantly increased the amount of reported variance (Kurdek & Siesky, 1990; Namir et al., 1987; Wolcott et al., 1986; Zich & Temoshok, 1987).

An adapted form of the Health Locus of Control Scale was administered in a large cohort of male homosexuals in three American cities with low seroprevalence rates. The researchers adapted nine items to address locus of control in terms of AIDS. They, then, drew conclusions about internal, chance, and powerful others loci of control with the use of multivariate analysis. They concluded that men who did not engage in high-risk anal sexual behaviours were more internal, and less external in terms of powerful others and chance (Kelly, St. Lawrence, Brasfield, Lemke et al., 1990). The HLCS has only two factors, and the research instrument was not validated nor standardised. In addition, the methods of data analyses can be questioned.

The results of a large-scale study of men with chronic pain displayed a clustering of health locus of control scores found to be related to age. Among the younger male patients (M = 38.6 years), health locus of control tended to be more strongly internal with a shift to chance and powerful others and lower internal scores among the older men (M = 46.4 years) (Buckelew, Shutty, Hewett, Landon, Morrow, & Frank, 1990). Research consistently supports the conclusions that patients with higher performance [functional ability; activities of daily living] adapt better to chronic illness (Brown, Rawlinson, & Hilles, 1981; Felton, Revenson, 1984; Keller, 1990).

Bombardier and co-authors (1989) concluded that individuals who have a "powerful others" locus of control respond to chronic illness with emotionally-based behaviours and may require assistance from the health care providers to deal appropriately with the chronicity. "Individuals who have high scores on dysfunction for daily living respond with palliative coping strategies and may

require assistance or support in goal-setting for definitive therapy" (Keller, 1990, p.100).

The cumulative body of research contains contradictory reports regarding the definitive properties of the MHLCS, which Wallston, Wallston, and DeVellis (1978) presented as multidimensional and as more internally reliable than the HLCS. Support for the three a priori subscales via factor analysis of the MHLCS and for construct validity was found in a sample of 181 Veterans Administration medical outpatients (Marshall, Collins, & Crooks, 1990), in a sample of 86 hospitalised medical patients (Hartke & Kunce, 1982), and in a study sample of chronic pain patients attending a comprehensive pain rehabilitation program (Buckelew et al., 1990).

Winefield (1982), O'Looney and Barrett (1983), Coelho (1985), and Umlauf and Frank (1986) concluded that serious problems exist with the construct validity of the scale. Cooper and Fraboni(1990) reported a lack of alternate-form reliability on the MHLCS. Recent research examining the health locus of control construct has increasingly employed the HLCS, the instrument of choice in this study. A quotation from Wallston and Wallston (1982) summarises the key elements.

> Research must take into account actual situational potential for control, patients' perceptions and expectancies of health care provider. Only by studying the complex interaction of these factors will we be able to predict health behaviour and thus intervene effectively to enhance health. (p. 91)

CHAPTER III

IMPORTANCE OF THE STUDY

AIDS Research

This section will address the ethical requirements and the critical need for research in the psychosocial correlates of high-risk behaviours among homosexual men.

Ethical Considerations

Acquired immunodeficiency syndrome has engendered a host of poignant and complex ethical issues (Altman, 1985; Ginzberg & Gostin, 1986; Last, 1989; Last, 1991; Relman, 1985; Rosner, 1987), requiring the use of established ethical principles and the development of situation-specific innovative concepts (Cook, 1987; Kelly, 1987; Kanoti, 1988; Sundstrom, 1991). The principle of confidentiality, a key principle in the ethics of human research and treatment, becomes ever more critical in AIDS research.

The published literature on confidentiality and AIDS focuses on the issue of confidentiality of diagnosis of the person with AIDS in relation to medical care personnel (Arnold, 1987; Fisk & Riley, 1987; Levine, 1987; Wakeley, 1987), as well as to significant others in the patient's life (Mitchell & Smith, 1987). In the

words of Kelly, "the protection of confidentiality with respect to AIDS victims and potential victims requires special vigilance" (1987, p. 337).

The notion of informed consent is crucial to the conduct of ethical research with human subjects. "The ethical principle of autonomy implies that health care is given in a noncoercive setting, that there is informed consent regarding any... experimental and/or treatment procedure, that there is full disclosure to the patient concerning his or her condition" (Ostrow & Gayle, 1986, p. 286). Informed consent presumes free will and voluntary participation.

The American Psychological Association has established guidelines for human research (APA, 1973). The proposed study conforms to these guidelines for human research. Written informed consent is more complex in AIDS research due to the critical need for confidentiality about HIV testing (Landesman, Ginzburg, & Weiss, 1985; Shere, 1988) and to AIDS treatment (Boyd, 1987; Dilley, Shelp, & Batki, 1986). AIDS researchers have addressed these issues in a workable manner with the professional reading the consent form to the patient, discussing the proposed study, and signing as the patient's representative upon patient consent (Henkins, personal communication, 1988).

Critical Need for Research

The critical need for research is expressed repeatedly in the literature.

> The role of psychiatry and psychology in formal clinical assessment and management of people with HIV infection is growing, and requires that all mental health professionals develop their skills of identification of HIV disease and its associated psychiatric and psychosocial phenomena....HIV will remain with us for our lifetime, and we have an obligation to ensure that all mental health professionals are fit

> professionally to meet this challenge....Like all our patients, we can show creativity, determination, patience, and above all, courage, if we have the discipline to do so. (Miller & Riccio, 1990, p. 386)

AIDS represents a new infection and fulfils the criteria of an epidemic (Willoughby, 1987; McLaughlin, 1989). The crucial importance of the disease relates to its high case-fatality rate, lack of cure and complexities of vaccine development (Fauci & Fischinger, 1988; Nixon, Huet, Rothbard, Kieny et al., 1990), lengthy and indeterminate incubation period varying according to age, geographic location, route of infectivity, and risk-group membership (Biggar, 1990; Goedert, Kessler, Aledort, Biggar et al., 1989; Karlsson, Bratt, von Krogh, Morfeldt-Manson, Bottiger, & Sandstrom, 1991; Lui, Darrow, & Rutherford, 1988; Lui, Lawrence, Morgan, Peterman, Haverkos, & Bregman, 1986; Medley, Anderson, Cox, & Billard, 1987; Medley, Billard, Cox, & Anderson, 1988; Peterman, Stoneburner, Allen, Jaffe, & Curran, 1988). The healthy appearance of infected carriers, the chronicity of the carrier-state among infected individuals as infective to others, and the significant risk of infected persons for developing the full-blown disease syndrome further emphasize the magnitude of importance of this epidemic (Gemmill, 1989; Imperato,1987).

Epidemiological data are prerequisite for effective preventive efforts, intervention programs, and meaningful clinical trials of drugs. Seroprevalence studies are necessary (Hankins & La Pointe, 1989). "The main hope for preventing a heterosexual epidemic in developed countries, given the failure to prevent extensive spread in the male homosexual and intravenous drug using populations, remains education and publicity" (Anderson & May, 1988, p.518).

Rationale of this Study

This study will add to our understanding of the contributors to behavioural change and to health maintenance. The role of health locus of control in these critical high-risk areas will be statistically and meaningfully explored.

"Nonexperimental research studies ... are highly significant, theoretically and practically" (Kerlinger, 1979, p.121). Descriptive studies are necessary background for intervention planning and for beneficial health care provision. Health care providers need to differentiate among subpopulations of homosexual men dealing with HIV-serostatus and HIV-illnesses. Effective counselling and quality health care are dependent on knowledge of the population and the routes to behaviour change.

The present study contributes to the necessary substrates of effective AIDS interventions - attitudes, knowledge, health-promotion behaviours, and decision-making strategies (Herold, Fisher, Smith, & Yarber, 1990). Effective interventions depend upon the pooling of cross-disciplinary resources (Gemmill, 1989). This study is a prerequisite to impactful psychosocial interventions in this high-risk population in Montreal. The difficult challenges of the terrifying epidemic of AIDS have engendered discussion, debate, and controversy. The spectre of AIDS presents a multitude of compounding associated problems. Lifelong infectivity, the healthy appearance of infectious carriers, sex - a powerful human drive, an anxiety-laden and taboo area - as the primary mode of transmission, and the primary appearance of the illness among marginal and discriminated segments of society have created highly politicized and contentious

responses. "It is possible that HIV is the most insidious enemy the human race has ever faced" (Gemmill, 1989).

The Canadian experience of AIDS is articulately presented by David Walters (1989), who says,

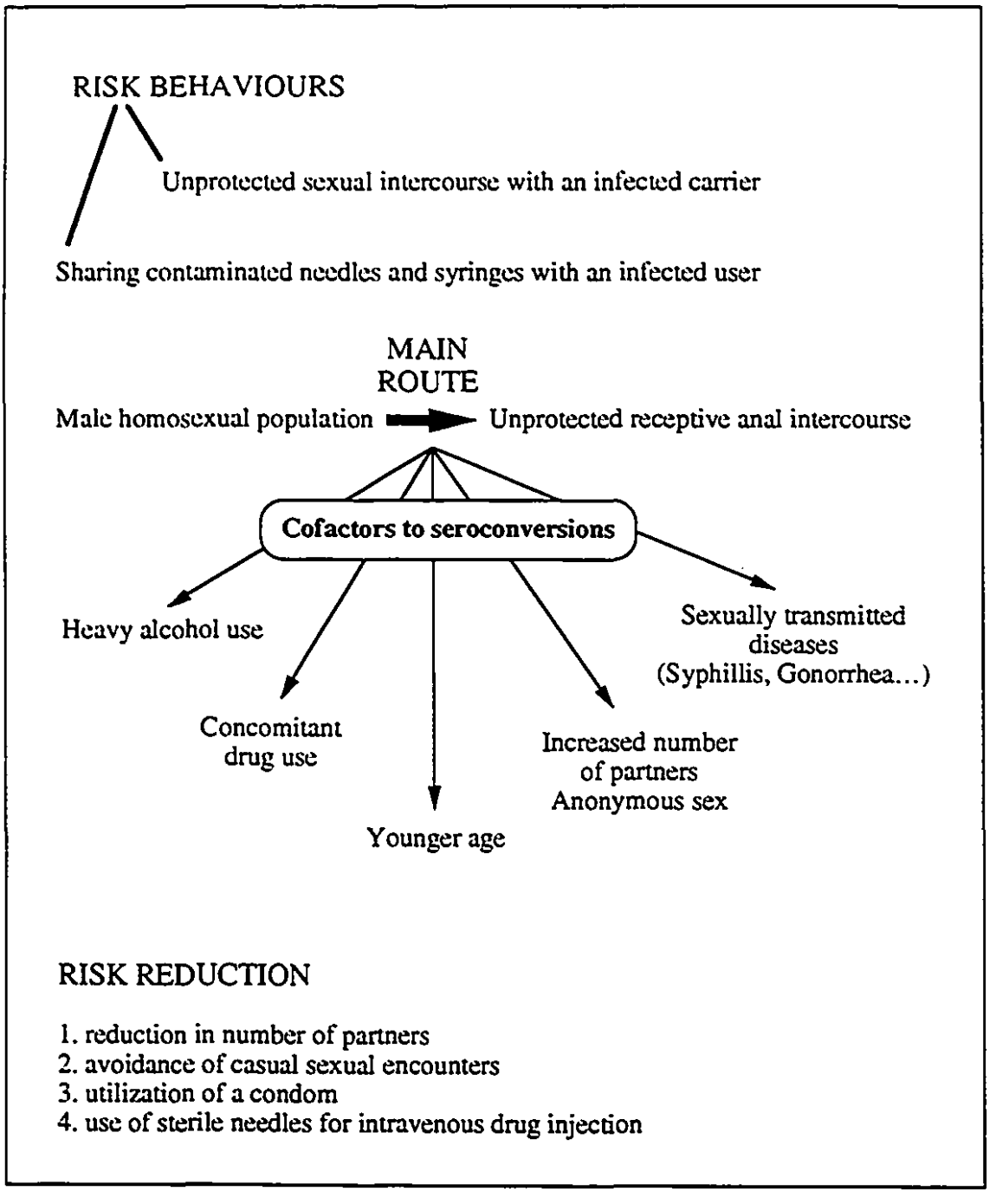
> While we live in an age of incredible technological capacity to research the molecular basis of disease and to communicate written copies of our thoughts instantaneously around the world, the basic objective of educating and supporting each other towards more healthy behaviours and creating the infrastructure and programs required remains a difficult challenge. (p. s3)
>
> The full management of AIDS ... requires an integration of disease treatment and preventing strategies....The challenges to provide the necessary biomedical and behavioural advances and a culture of healthier lifestyles must be incorporated in an integrated framework of the public health approach. (Walters, 1989a, p.s7)

Public health policy has traditionally responded to epidemic illnesses with mandated controls in order to contain infectivity. HIV seropositivity and AIDS do not fit the categorisations of control available for implementation (Clayton, 1989). Thus, prevention and containment of the epidemic are dependent on behavioural scientists for effective interventions for behavioural change. The norms and values, baseline behaviours, and sociodemographic features of the population must be described in order to plan and implement interventions. This study provides the necessary substrata for intervention planning.

The reviewed literature in the areas of HIV/AIDS, social learning theory, and health locus of control lead to the formulation of specific key focal areas that will be investigated (see figure 3)..

Figure 3

HIV Infectivity: High Risk Behaviours, Cofactors and Risk Reduction Behaviours



1. The major risk activity of the male homosexual population is unprotected anal intercourse. Age and previous experience with unprotected anal intercourse are predictors of continued and relapsed return to this high-risk activity. The reported level of and changes in unprotected anal intercourse will be explored in the present study.

2. High-risk behaviours and the history and curve of reported changes are evaluated in the study population in correlation with beliefs about the expectancy of control over health-related reinforcements. The high-risk behaviours are unprotected anal sex, multiple sexual partners, inconsistent or nonexistent use of condom, and needle sharing during intravenous drug use.

3. Partner status - one-time, repeat, and/or primary - impacts upon participation in high-risk sexual activities. Multiplicity of anonymous and/ or one-time partners tends to be reported in conjunction with high-risk sexual behaviours.

4. The role of stigmatisation, homophobia and marginalisation in this at-risk population's response to the required high-risk behavioural changes are explored through feelings about self and about one's homosexuality.

5. The role of internal health locus of control is explored. Highly internal men are expected to have greater knowledge, be more involved in preventive health care behaviours, seek out participation in self-care decision-making. Chronic illness is related to lowered internal locus of control.

6. The role of a social support network and its values has been shown to be influential. It would be explored through openness about one's homosexuality and the extent of socialisation derived from within the homosexual community.

7. The coping behaviours implemented - whether emotion-focused or action-focused - are examined. Emotion-focused coping has been linked to powerful others external locus of control and is less effective in prevention of and effective coping with illness.

8. The role of sex in this population can be viewed variably, from reinforcer to addiction. The strength of sex when viewed as a reinforcer would be important for determining the interaction of locus of control and changes in high-risk behaviours. The role of the particular situation would be influential, as well as the partner status and the locale of the sexual interchange.

The unit of investigation in social learning theory is the interaction of the individual with his meaningful environment. Sex is a powerful interface at this juncture.

Limitations of the Present Study

The study was conducted on a population of homosexual men attending two general medical clinics in Montreal. The men have presented for medical appointments and were therefore a self-selected group. The study population was a convenience sample, not a random sample of homosexual men in Montreal. The study results cannot be generalized to the general homosexual population in Montreal. The population is at most representative of homosexual men attending certain general medical clinics in Montreal.

The present study is a descriptive study. No conclusions can be drawn about causation. All analyses and conclusions must be of a descriptive nature. The analyses will provide direction for further research and for intervention studies.

There are no data on the men who refused to participate. The reports of the demographic characteristics of dropouts from studies of homosexual male populations range from no reported differences from the participants to higher rates of seropositivity and HIV-related symptomatology, higher levels of depression, and homosexual awareness at an early age (Ekstrand & Coates, 1990).

The method of data gathering is a self-report questionnaire. The questionnaire can be found in Appendix B. All items concerning sexual behaviours are subject to recall error. The foci of the questionnaire are emotionally-charged areas and would be influenced by biased recall. The Montreal homosexual population has been exposed to information and education campaigns which may have influenced responses to questions in this area of sexual-risk behaviours. There is no possibility to retest the population nor to determine its representativeness of the male homosexual population in Montreal.

It is important to note that the analyses of the data could be subject to experiment-wise error due to the large number of tabulations. The possible influence of response bias must be considered (Guilford, 1967; Catania, Gibson, Marin, Coates, & Greenblatt, 1990).

The variables reported by the respondents are both continuous and discrete. The analyses are, therefore, restricted to analysis with descriptive statistics of chi-squares. Areas of exploration that are not available through the present questionnaire and which would provide relevant information for a more total picture are: the view of the opinions of others; the general view of condom usage; powerful others locus of control; health profile; exposure to AIDS in close

friends and/or lovers; psychological adjustment profile - PTSD and depression; level of thinking (i.e., cognitive level) when viewing illness.

Research Questions and Hypotheses

The focus of the present study and the predicted hypothesized patterns in the study population are based on social learning theory, on the published research literature, and on the crucial value-weight placed on serostatus in this population which has been well exposed to the devastating sequelae of HIV-infection. Health is assumed to be a major positive reinforcer, in particular in this population in which health is synonymous with life. The strength of the reinforcer (i.e., health) - as defined by seronegativity -would further the expectancy of control.

Prevention of AIDS is dependent upon individual control and modification of high-risk behavioural practices. The term expectancy of control over health in this study is operationalised by the scores of the HLCS.

The overarching research questions are:

1. How do seronegative homosexual men differ in their expectancy of control over health, as defined by the HLCS, from seropositive homosexual men?

2. What is the role of an internal expectancy of control in the area of health?

3. What is the role of an external expectancy of control in critical high-risk sexual and drug-abuse behaviours in a sample population of homosexual men attending a general medical clinic?

4. What differentiates between homosexual men who maintain their health (as defined by seronegativity) in the area of HIV serostatus, and homosexual men who do not?

In order to examine, explore and analyze the research questions, the following hypotheses are posed.

1) Seronegative homosexual men are predicted to be more highly internal in their expectancy of control over health than seropositive homosexual men.

2) Seropositive homosexual men are predicted to be more highly external in their expectancy of control over health than seronegative homosexual men.

As a result of this hypothesized difference in expectancy of control over health, chi-square analyses were completed for the entire study population and then serostatus was routinely used as the controlling variable. (In all the proposed hypotheses, "men" is the term used for homosexual men who participated in the study.) Hypotheses generated by the health locus of control variables are:

3) Younger men (that is, under 30) will differ significantly in their report of a more highly internal expectancy of control over health from older men (that is, over 30).

4) Older men (that is, over 30) will differ significantly in their report of a more highly external expectancy of control over health than younger men (that is, under 30).

5) English-speaking men (as defined by *language spoken most often at home*) are expected to differ significantly from French-speaking men (as defined by *language spoken most often at home*) in their internal expectancy of control over health.

6) English-speaking men (as defined by *language spoken most often at home*) are expected to differ significantly from French-speaking men (as defined

by *language spoken most often at home*) in their external expectancy of control over health.

The next level of hypotheses which follow is organized into four topic areas in order to draw meaningful profiles in the study population, in particular due to the large amount of data analyzed. The areas, determined by the content of the relevant literature, were formulated in the following areas: a) history of and present attitudes towards homosexual orientation, present state of well-being, and availability of support network; b) self-care behaviours, including preventive and health-maintenance actions; c) desire for and accuracy of knowledge related to HIV and AIDS; and d) HIV-transmission related behaviours, condom usage, and participation in high-risk sexual and drug-use activities.

The following hypotheses relates to internal and external expectancy of control over health. High and low expectancies are defined in the methodology section. The following group of hypotheses relate to the first area:

7) Men who are more highly internal in their expectancy of control over health will report significantly earlier age of awareness of their homosexual orientation than men who are less highly internal.

8) Men who are more highly internal in their expectancy of control over health will report significantly earlier age of first homosexual experience than men who are less highly internal.

9) Men who are more highly internal in their expectancy of control over health will differ significantly in their greater openness about their homosexual orientation from men who score as less highly internal.

10) Men who are more highly internal in their expectancy of control over health will differ significantly in their more extensive available support network from men who score as less highly internal.

11) Men who are more highly internal in their expectancy of control over health will differ significantly in their greater general feeling of well-being from men who score as less highly internal.

12) Men who are more highly internal in their expectancy of control over health will differ significantly in their greater level of worry about AIDS from men who score as less highly internal.

13) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reported age of awareness of their homosexual orientation.

14) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reported age of first homosexual experience.

15) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their openness about their homosexual orientation.

16) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in the extent of their available support.

17) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their general feeling of well-being.

18) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their general level of worry about AIDS.

The following group of hypotheses relates to the second area:

19) Men who are more highly internal in their expectancy of control over health will differ significantly in their reasons for the clinic visit from men who score as less highly internal.

20) Men who are more highly internal in their expectancy of control over health will differ significantly in their health-preventive behaviours in the area of hepatitis-B vaccination from men who score as less highly internal.

21) Men who are more highly internal in their expectancy of control over health will differ significantly in their reported incidence of cofactor sexually transmitted diseases (penile ulcers; syphilitic infection; prior herpes simplex type-2 infection) as compared with men who score as less highly internal.

22) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reasons for the clinic visit.

23) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their health-preventive behaviours in the area of hepatitis-B vaccination.

24) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reported incidence of cofactor sexually transmitted diseases (penile ulcers; syphilitic infection; prior herpes simplex type-2 infection).

The following group of hypotheses relates to the third area:

25) Men who are more highly internal in their expectancy of control over health will differ significantly in their accurate knowledge of AIDS and AIDS risk factors from men who score as less highly internal.

26) Men who are more highly internal in their expectancy of control over health will choose to know the results of their HIV test in significantly greater numbers than men who are less highly internal.

27) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their accuracy of knowledge about AIDS and AIDS risk-factors.

28) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their decision to accept the results of the HIV-testing done at the time of data collection.

The following group of hypotheses relates to the fourth area:

29) Men who are more highly internal in their expectancy of control over health will differ significantly in the value placed on sex than men who score as less highly internal.

30) Men who are more highly internal in their expectancy of control over health will differ significantly in their condom usage during receptive/insertive anal intercourse from men who score as less highly internal.

31) Men who are more highly internal in their expectancy of control over health will differ significantly in their reduction of high-risk sexual behavioural practices from men who score as less highly internal.

32) Men who are more highly internal in their expectancy of control over health will differ significantly in their reduction in number of one-time partners from men who score as less highly internal.

33) Men who are more highly internal in their expectancy of control over health will differ significantly in their history of intravenous drug use from men who score as less highly internal.

34) Men who are more highly internal in their expectancy of control over health will differ significantly in their greater use of sterile needles from men who score as less highly internal.

35) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in the value placed on importance of sex.

36) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their report of condom usage during receptive/insertive anal intercourse.

37) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their high-risk sexual behavioural practices.

38) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reduction of one-time partners .

39) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their history of intravenous drug use.

40) Men who are more highly external in their expectancy of control over health will differ significantly from men who are less highly external in their reported use of sterile needles .

All the predicted hypotheses will be tested in the null format.

CHAPTER IV

STRATEGY OF THE STUDY

This study of a sample of homosexual men in Montreal uses a pre-experimental design. The data are analyzed with the appropriate descriptive statistics of frequency distributions and cross-tabulations.

The validity of self-reported data can always be questioned. The reliability of self-reported sexual behaviours is supported (Saltzman, Stoddard, McCusker, Moon, & Mayer, 1987). Therefore, less subjective indicators are reviewed to support reported changes over time, such as the concurrent rates of sexually transmitted diseases, and their seroconversion rates (Calzavara, Coates, Johnson, Read et al., 1991).

Descriptor Variables of the Study

Subject Variables

Breakdown of the HLCS. The HLCS, the instrument used to measure expectancy of control over health in the study population, requires 6-point Likert scale responses ranging from possible total disagreement to possible total agreement. The response directionality for each item of the scale is parallel. The total possible responses for the internally-oriented items and for the externally-oriented items of the scale were summed separately and divided into three

categories of low, moderate, and high. When the scores are summed, the scores can range from a low of 5 to a high of 30 for Internal Health Locus of Control (I-HLC) and for External Health Locus of Control (E-HLC). The I-HLC and the E-HLC are each composed of five items. Thus, individual study participants were categorised according to their position on the continuum of total possible responses for internality and externality in their expectancy of control over health.

Description of the Demographic Variables. The study sample is a convenience sample of men who had made their own appointments at two general medical clinics in Montreal, clinics which have a large male homosexual patient population. The study population consists of 286 men ranging in age from 18 to 63. The HIV-antibody serostatus proportion is 3:1 seronegative to seropositive (i.e., 216 seronegative men; 70 seropositive men) based on ELISA testing with confirmatory Western Blot of the serology done at the time of questionnaire administration.

Among the seropositive men, 47 men (67%) reported French as their *language spoken most often at home* and 20 men (29%) reported English. Among the seronegative men, 124 men (57%) are French-speaking and 78 men (36%) are English-speaking. The remaining 3 seropositive men and 14 seronegative men reported other languages as their main spoken language. The seropositive population contains proportionately more French-speaking men than the seronegative group. *Language of questionnaire* emphasizes the discrepancy, with 45 (64%) of the seropositive men utilising the French questionnaire and 25 (38%) the English questionnaire. Among the seronegative men, 111 (51%) responded in French, and 105 (49%) in English.

In order to explore the health locus of control expectancy variable, the study participants completed the HLCS as part of the study questionnaire.

The questionnaire contains items exploring a broad range of sociodemographic characteristics and relevant variables. Items in the questionnaire explore the following variables:

-language of origin, present spoken language;
-present living arrangements;
-religious affiliation and degree of religiosity;
-current sexual orientation;
-importance of sex;
-age of awareness of homosexual orientation;
-age of first homosexual sexual encounter;
-age of first experience of anal intercourse;
-age of participation regularly in homosexual sexual relations;
-socialization patterns within the homosexual community;
-history of numbers of partners, of multiple partners, of one-time partners;
-openness about homosexual orientation;
-state of mind, feelings of happiness;
-self-acceptance of homosexuality;
-network of support;
-worry about getting AIDS;
-sexual history and current behaviours with repeat partners;
-sexual history and current behaviours with one-time partners;
-high-risk sexual behaviours and behavioural changes;
-intravenous drug use and needle sharing;
-use of recreational drugs;
-history of sexually transmitted diseases;
-history of hepatitis-B illness and vaccination;
-participation in sex with men who are seropositive or ill with AIDS;
-history of blood donation;

-sources of knowledge about AIDS:
-accuracy of knowledge about HIV and AIDS:
-interest in knowing results of present HIV testing:
-expectancy of control of reinforcements over health.

Some of the items are based on one question and some are based on multiple questions. The variables are composed of discrete and continuous items.

Analysis of the HLCS Variables. Serostatus is the main overarching categorization. The patterns of the data and the analyses will be presented and carefully reviewed. Statistical significance will be set at the .10 level due to the descriptive nature of this study and the desire to glean a meaningful picture of the parameters investigated. The theoretically relevant/statistically significant cross-tabulations are fully described and discussed.

> Until recently, it was thought that chi-square should not be used unless the minimum expected frequencies...were five or more in each cell. Roscoe and Byars (1971), Conover (1974), and Camilli and Hopkins (1978;1979) have shown that the chi-square statistic works well even when the average expected frequency is as low as two...the chi-square test of association gives accurate probability statements even with very small n's. (Glass & Hopkins, 1984, p.288)

The chi-square tables for those variables in which substantive and interpretive significance is found are presented. The implications for research and clinical applications of the analyses are presented, elaborated, and interpreted in the results and discussion sections.

Sociodemographic Descriptors of the Population

The data-gathering for the study was conducted in two general medical clinics in Montreal during 1988 and 1989. The medical clinics are commonly attended by a large homosexual population and are known to be accepting of a homosexual lifestyle. Two-hundred and eighty-six men (N=286) who came to the medical clinics for a doctor's appointment answered the questionnaire distributed by the study coordinator - a licensed nurse. Informed consent was obtained from each participant. Responses were rendered in a written format with the nurse available to clarify questions. Confidentiality was carefully maintained with the use of a numerical coding system.

The men came to the clinic for the following reasons:

-routine check
-results of HIV testing
-cold/flu
-t-cell count
-gastrointestinal complaints
-medical certificate
-hepatitis-B testing
-depression
-dermatological complaints
-followup on HIV+ test.
-HIV testing
-renew prescription
-chronic fever
-STD testing
-urethritis
-cramps
-haemorrhoids/prostate complaints
-neurological complaints
-update knowledge

The men ranged in age from 18 to 63, with one "no response" to the question about age. The distribution of the ages is presented in Table 5, of ages by serostatus in Table 6, and of country of origin in Table 7.

Table 5.

Distribution of ages in the study population.

AGE	FREQUENCY	PERCENT
AGE 11-20	3	1.0
AGE 21-30	109	38.1
AGE 31-40	109	38.1
AGE OVER 40	64	22.4
NO RESPONSE	1	0.3
		100.0

Of the total study population, 240 men were born in Canada. One-hundred and eighty-three men (64.0% of the total) were born in the province of Quebec and 99 (34.6% of the total) were born in Montreal. The distribution from the other provinces is 23 (8.0%) from Ontario; 5 (1.7%) from Alberta; 13 (4.5%) from New Brunswick; 5 (1.7%) from Nova Scotia; 1 (0.3%) each from British Columbia and from the Yukon; 2 (0.7%) each from Manitoba, Saskatchewan, and Newfoundland. Six men did not respond to this question about area of origin.

The question about language of origin elicited 16 different responses. The responses that accounted for more than 95% of the population are displayed in Table 8.

Six different spoken languages were reported . French and English accounted for more than 96% of spoken-language variability. The unique bilingual nature of Montreal demands that the language data be carefully considered. The French/English language data are presented in Table 9. The

Table 6.

Distribution of age by serostatus

Age groups	Serostatus of subjects: Positive	Negative	Row total/ percent
Age 11-20	0	3	3
	0.0	1.4	1.0
Age 21-30	25	84	109
	35.7	38.8	38.1
Age 31 to 40	33	76	109
	47.1	35.2	38.1
Age 41 and over	12	52	64
	17.1	24.1	22.4
No response	0	1	1
	0.0	0.4	.3
Column total/	70	216	286
percent	24.5	75.5	

Table 7.

Frequency distribution of country of origin.

COUNTRY OF ORIGIN	FREQUENCY	PERCENT
CANADA	240	83.9
FRANCE	6	2.0
GREECE	3	1.0
BAHAMAS	1	0.4
PORTUGAL	4	1.4
USA	7	2.4
BRITISH ISLES	5	1.7
LEBANON	2	0.7
EGYPT	4	1.4
HUNGARY	1	0.3
CYPRUS	1	0.3
CAMBODIA	1	0.3
BELGIUM	1	0.3
CHILE	1	0.3
SWITZERLAND	1	0.3
TRINIDAD	1	0.3
HONG KONG	1	0.3
GERMANY	1	0.3
SPAIN	1	0.3
MEXICO	1	0.3
NO ANSWER	3	1.0
TOTAL	286	100.0

Table 8.

Frequency distribution of language of origin.

LANGUAGE OF ORIGIN	FREQUENCY	PERCENT
FRENCH	174	60.8
ENGLISH	80	28.0
GREEK	7	2.4
PORTUGUESE	4	1.4
ITALIAN	4	1.4
ARABIC	3	1.0
OTHER	14	4.9

Table 9.

Frequency distribution of present spoken languages.

SPOKEN LANGUAGE	FREQUENCY	PERCENT
FRENCH	171	59.8
ENGLISH	98	34.3
FRENCH & ENGLISH	6	2.1

questionnaire was available in French and English. One hundred and fifty-six men (54.5%) responded in French and 130 men (45.5%) responded in English.

Twenty-one various responses were obtained when subjects were queried about ethnic group affiliation. The responses are presented in Table 10.

Table 10.

Frequency distribution of ethnic affiliation.

ETHNIC GROUP	FREQUENCY	PERCENT
FRENCH	164	57.3
ENGLISH,IRISH,SCOTTISH	54	18.9
JEWISH	4	1.4
CHINESE	2	0.7
GERMAN	3	1.0
DUTCH	2	0.7
GREEK	6	2.1
AFRICAN/BLACK	2	0.7
PORTUGUESE	5	1.7
ARAB	5	1.7
EUROPEAN MIXED	15	5.2
JEWISH/EUROPEAN MIXED	2	0.7
INDIAN/EUROPEAN	2	0.7
ITALIAN	5	1.7
MIXED, EUROPEAN & BLACK	3	1.0
ARMENIAN	2	0.7
POLISH	1	0.3
HUNGARIAN	1	0.3
INDO-CHINESE	1	0.3
MIXED, ASIAN & EUROPEAN	2	0.7
SPANISH	2	0.7
NO RESPONSE	3	1.0
TOTAL	286	100.0

The educational background data of the study population are presented in Table 11, the employment status data in Table 12, the level of income in Table 13, and the distribution of religious affiliation in Table 14.

Table 11.

Frequency distribution of educational background data.

HIGHEST LEVEL OF EDUCATION	FREQUENCY	PERCENT
PRIMARY SCHOOL	5	1.7
HIGH SCHOOL	73	25.5
CEGEP/JUNIOR COLLEGE	34	11.9
TECHNICAL/PARAPROF	19	6.6
SOME UNIVERSITY	60	21.0
UNIVERSITY DEGREE	64	22.4
POSTGRADUATE DEGREE	30	10.5
NO RESPONSE	1	0.3
TOTAL	286	100.0

Table 12.

Frequency distribution of employment status data.

EMPLOYMENT STATUS	FREQUENCY	PERCENT
WORKING	219	76.6
UNEMPLOYED	31	10.8
STUDENT	23	8.0
RETIRED	6	2.1
WELFARE	3	1.0
INVALID	2	0.7
SICK LEAVE	1	0.3
SABBATICAL	1	0.3
TOTAL	286	100.0

Table 13.

Frequency distribution of income data.

INCOME LEVEL:	NUMBER OF MEN:
1,000-9,999	31
10,000-19,999	63
20,000-29,999	81
30,000-39,999	45
40,000-49,999	29
50,000-59,999	11
60,000-69,999	6
70,000-79,999	2
80,000-89,999	2
90,000-100,000	3
Inapplicable/No answer	13
Column total:	286

Table 14.

Frequency distribution of religious affiliation.

RELIGION	FREQUENCY	PERCENT
ROMAN CATHOLIC	200	69.9
PROTESTANT	29	10.1
JUDAISM	3	1.0
ATHEIST/AGNOSTIC	32	11.2
GREEK ORTHODOX	9	3.1
BAHAI	2	0.7
THEOSOPHIST	1	0.3
MORMON	1	0.3
CHRISTIAN SCIENTIST	2	0.7
OTHER	4	1.4
ANGLICAN	1	0.3
NO RESPONSE/MISSING	2	0.6
TOTAL	286	100.0

This section has provided the sociodemographic parameters of the study population of 286 homosexual men. It is impossible to define the representativeness of these data for the Montreal male homosexual community as the data are based on a convenience sample of homosexual men.

CHAPTER V

RESULTS

Profiles of Subjects

The study population of 286 men is composed of two serostatus subpopulations, 216 seronegative and 70 seropositive. The population is described in the section on sociodemographics. Three of the seropositive men reported having been diagnosed with AIDS. All references to health locus of control and expectancy of control throughout the results and the discussion sections refer to the goal-specific area of health, as measured by the Health Locus of Control scale (HLCS). The patterns of the Internal Health Locus of Control (I-HLC) scores of the serostatus populations are presented in Table 15. The patterns of the External Health Locus of Control scores of the study population defined by serostatus are displayed in Table 16.

The theoretically relevant and sustantively meaningful cross-tabulations have been entered in Appendix D. All the incorporated cross-tabulation analyses subsequent to Table 17 are presented in Appendix D. Graphic presentations of frequency distributions of some of the relevant variables are presented in Appendix E. All the analyses cannot be incorporated into this paper due to the voluminous dimensions of the research. All the other analyses are available from the author upon request.

Table 15.

Cross-tabulation of Internal Health Locus of Control Scores With Serostatus

	Internal health locus of control			
	Low	Moderate	High	Row total/ percent
Positive	7	36	27	70
	10.0	51.4	38.6	24.5
Negative	11	86	119	216
	5.1	39.8	55.1	75.5
Column total/	18	122	146	286
percent	6.3	42.7	51.0	100.0

N=286, x2, df=2, p=.038

The seropositive men differ significantly from the seronegative men in their I-HLC profile (see Table 15). The seronegative men are significantly more highly internal in their expectancy of control over health than the seropositive men. The seropositive men tend toward moderate internal expectancy of control over health (see Table 15). The null hypothesis is rejected in this area. The seronegative study participants as a group are significantly more highly internal than the seropositive participants.

Table 16.

Cross-tabulation of External Health Locus of Control Scores With Serostatus

	External health locus of control			
	Low	Moderate	High	Row total/ percent
Positive	36	30	4	70
	51.4	42.9	5.7	24.5
Negative	126	86	6	216
	58.4	39.8	2.8	75.5
Column total/	162	114	10	286
percent	56.6	39.9	3.5	100.0

N=286, x2, df=2, p=.376

The profile of E-HLC is similar for the seropositive and the seronegative populations (see Table 16). The men in both serostatus populations tend toward low external expectancy of control over health with some clustering in the moderate category. The patterns of the E-HLC scores are reflected throughout the analyses of the scores derived from the relevant variables, of *age* and of *language*. **The profile of the External Health Locus of Control is for the most part the reverse profile of the Internal Health Locus of Control ;** thus the profiles

present reverse images. Therefore, the analyses of the E-HLC scores are not included in the results of this study. Due to the dimensions of the study, all of the data and analyses cannot be incorporated in full.

The cross-tabulation analyses of the impact of the variable *age* on the profiles of internal expectancy of control over health are presented in Tables D.1-D.6 and Figures E.1-E.4. The analyses of the *age* variable are fully presented due to the importance of this variable. There are no seropositive study participants under 21 years of age. There are three seronegative men under 21 years of age. They distribute one each among the three categories of low, moderate and high for I-HLC. Thus, they have been incorporated into a regrouped *age* categorisation of "under 31", "31-40", and "over 40".

The analyses of the I-HLC scores with the variable *age* yield interesting and substantive results. Cross-tabulation of I-HLC scores with the variable *age* in the total population which does not reach statistical significance yields profiles of the age groups which differ (see Table D.1). The profiles of the "31 to 40", and the "over 40" age groups are almost parallel, with a slightly more relative decline in high internal expectancy of control over health among the "31 to 40" year olds. Among the men who are "31-40" years of age, 8.3% are low, 46.8% are moderate, and 45.0% are high. Among the men who are "over 40 " years of age, 4.7 % are low, 50.0% are moderate, and 45.3% are high. These patterns are distinct from that of the men who are "under 31" years of age, among whom 5.4% are low, 33.9% are moderate,and 60.&% are high in their I-HLC scores. The younger men are clearly more highly internal than the older men, as predicted in the research hypotheses. The men who are "under 31" display a pattern similar to that of the seronegative men with increasing internal expectancy of control. The percentages

have been presented for the purposes of comparison in this analysis. All the subsequent results discuss the patterns obtained. **The percentages/ proportionalities will not be presented hereafter within the text but may be found in the tables of Appendix D.**

Analysis of the variable *age* results in significant differences in I-HLC scores in the seropositive population, whether the variable is grouped by decade (see Table D.3) or into two levels of "under 30" and "over 30" (see Table D.6). The impact of *age* is quite dramatic among the seropositive men.

The seropositive men who are "21 to 30" years old present a dramatically different pattern from the men who are older, whether "31 to 40", or "over 40". The seropositive men who are "21 to 30" years old present with a profile of I-HLC which is parallel to that of the seronegative men, with most of the men as highly internal. Wheras, "31 to 40" and "over 40" year old seropositive men are mainly moderate. The difference is highly statistically significant (see Table D.3). the null hypothesis is rejected.

Among the seronegative men, the impact of *age* upon the patterns of internal expectancy of control over health is visible, although not statistically significant (see Table D.2). The seronegative men who are "under 31", and "31 to 40" present a parallel pattern of increasing I-HLC. The powerful impact of the variable age is visible throughout the data analyses

The *French/English* variable is of research interest due to the bilingual, bicultural nature of the city of Montreal. Cross-tabulations of *language spoken most often at home* (i.e., French, English) with I-HLC scores are displayed in Tables D.7, D.8, and D.9. Although none of the analyses of the HLCS scores

approach statistical significance, they have been presented in tabular form and are discussed due to the importance of the variable.

The men who view themselves as English-speaking display a profile in which they are proportionately more highly internal than the men who respond that they are French-speaking. Both language/cultural populations tend towards more highly internal than moderate or low. A comparison of the distributions of the frequencies of *spoken language* and *language of questionnaire* is presented in Table 17.

Table 17.

Comparison of *Language Spoken Most Often at Home* with *Language of Questionnaire* Among the Serostatus Populations

	Serostatus	
	Seropositive	Seronegative
Spoken language		
French	47 (67%)	124 (57%)
English	20 (29%)	78 (36%)
Other	3 (4%)	14 (7%)
Language of questionnaire chosen		
French	45 (64%)	111 (51%)
English	25 (36%)	105 (49%)

In terms of the variable *language spoken most often at home,* the seropositive and the seronegative men are more French than English. In terms of

language of questionnaire, the ratio French:English reflects the spoken language ratios in the seropositive population. The seronegative men are almost 1:1, in language of questionnaire unlike the ratio of spoken language. All the *other-language* (i.e. non-French-, non-English-speaking) participants responded to the questionnaire in English.

The profiles of the I-HLC scores of the French and the English-speaking sub-populations reflect those of the study population in general. Some of the individual items of the HLCS significantly distinguish between the language subpopulations and are reviewed in the discussion section.

Analysis of Topical Results

The results will be reviewed according to the sequence of topic areas presented in the statement of the research hypotheses (see pp. 95 - 102). The profile of I-HLC scores having statistical and/or substantive significance for the related hypotheses will be drawn. Differences, wherever significant, between the seropositive and the seronegative populations will be noted and discussed. **The focus will be upon the meaningful patterns which emerge from the analyses of the Internal Health Locus of Control scores. The numbers upon which the patterns are developed are small. However, the repetitiveness of the patterns in key areas provides support for their substantive significance.**

Topic I: State of Well-Being

The first topic area is comprised of present state of well-being, level of general and HIV-related worry and in general and HIV-related, lifestyle variables

(i.e., history of homosexual orientation and attitudes towards homosexuality). The relevant variables are *age of awareness of homosexual orientation*, *age of first homosexual experience*, *age of regular homosexual activity*, *support network*, *openness about homosexual orientation*, *leisure time spent with homosexual men*, *present and past feelings of well-being*, and *level of worry about AIDS*.

Age of Awareness of Homosexuality. The first variable explored within this topic area is *age of awareness of homosexuality*. The distribution of *age of awareness* according to serostatus is presented in Figure E.1. None of the cross-tabulations of the I-HLC scores with this variable approach statistical significance. Cross-tabulation of this variable with I-HLC scores in the total population is presented in Table D.10, as an example of the analyses in this area. There is a tendency toward earlier *age of awareness of homosexual orientation* among the seropositive men, although the difference does not approach significance (see Tables D.11 and D.12).

Age of Awareness of Homosexual Orientation:

	Seropositive	Seronegative
Age 1-10	9 (13.0%)	19 (9.0%)
Age 11-20	52 (75.4%)	143 (67.8%)
Age 21-30	7 (10.1%)	44 (20.9%)
Age 31-40	1 (1.4%)	5 (2.4%)

The response of men who are low in their internal expectancy of control over health respond with proportionately younger *age of awareness of*

homosexual orientation (see Table D.10). The men who are moderate and high present with parallel profiles, almost exactly so. Six men respond that they became aware at age 31 or older. All six men are moderate or high in their I-HLC scores. Of the six men, one is seropositive and five are seronegative (see Tables D.11 and D.12).

Age of First Homosexual Sexual Experience. The study participants reported on the variable *age of first homosexual sexual experience*. Cross-tabulations of this variable with I-HLC scores do not result in statistical significance either for the total population or for the serostatus subpopulations. The profiles of the I-HLC scores of the men who are moderate and high for the analyses of the variable *age of first homosexual sexual experience* are fairly parallel. The seronegative men who are highly internal tend to report slightly later *age of first homosexual experience*, with the exception of "age 1-10" The proportion of seropositive and seronegative men who are low I-HLC responding "1-10" to the item on *age of first homosexual experience* is substantially lower than the men who are moderate or high (see Tables D.13 and D.14).

Significance is obtained when the variable is analyzed with serostatus (see Table D.15). The proportion of seropositive men responding with "age 1-10" to the item on *age of first homosexual experience* is significantly higher than the proportion of seronegative men responding with "1-10". The proportion of seronegative men responding with "age 11-20", "21-30", and "over 30" to this item is significantly higher than the seropositive men. The frequency distribution of the *age of first homosexual experience* according to serostatus is presented in graphic format in Figure E.2.

Age of First Homosexual Experience :

	Seropositive	Seronegative
Age 1-10	32 (45.7%)	62 (28.7%)
Age 11-20	34 (48.6%)	120 (55.6%)
Age 21-30	4 (5.7%)	28 (13.0%)
Age 31-40	0	6 (2.8%)

Age of First Anal Intercourse. The distribution of the variable *age of first anal intercourse* is distinct from those of *age of awareness of homosexual orientation* and of *age of first homosexual experience*. It is presented in graphic form in Figure E.3. Anal intercourse is definitely not synonymous with homosexual experience, whether past or present, for the study population.

Age of First Anal Intercourse :

	Seropositive	Seronegative
Never	0	18 (8.3%)
Age 1-10	5 (7.1%)	7 (3.3%)
Age 11-20	45 (64.3%)	102 (47.2%)
Age 21-30	17 (24.3%)	69 (31.9%)
Age 31-40	3 (4.3%)	20 (9.3%)

Analysis of the variable *age of first anal intercourse* with the I-HLC scores indicates that the men who have never had anal intercourse are all moderate and high in their internal expectancy of control over health (see Table D.16). The men who experienced anal intercourse at ages one through ten, assumedly anal intercourse associated with emotional trauma, are all moderate and high as well in their internal expectancy of control over health. These findings are not in the hypothesized directions. Early *experience of anal intercourse*, in particular where it is associated with emotional trauma may be linked with continued participation in high-risk sexual behaviours, information which would be obtained from in-depth interviews.

Analyses of the variable *age of first anal intercourse* with I-HLC scores for the serostatus populations yields interpretively interesting results (see Tables D.17 and D.18). The proportion of the seropositive men who are high I-HLC responding "11-20" to the item on *age of first anal intercourse* is substantially higher than the men who are low or moderate. Whereas the proportion of the seropositive men who are low internal responding "21 to 30" is substantially higher than the men who are moderate or high. The men who are moderate report proportionately the most at the extreme age categories, ages "1 to 10" and "31 to 40". Among the men who are seronegative, the men who are low in their internal expectancy of control over health report proportionately the most "11 to 20" as the age of first anal intercourse. The seronegative men who are moderate and high report parallel profiles of responses to *age of first anal intercourse.*

Highly statistically significant results are obtained when serostatus is cross-tabulated with the variable *age of first anal intercourse* (p=.009).

The variable *age of first anal intercourse* may be important, but requires more information to interpret the patterns among the serostatus populations, in particular the setting and emotional sequelae of this variable.

Openness about Homosexual Orientation. The study participants responded to questions delineating their *openness about their homosexual orientation* with three groups of people: straight friends, relatives, and work associates. The response patterns are indicators of openness, of self-acceptance, and of available support network. Cross-tabulations of these variables incorporating *openness about homosexuality* for the total population do not reach statistical significance. The analysis of the variable *openness with straight friends* with the I-HLC scores for the total population is an example of the numerous analyses in this area which are not statistically significant (see Table D.22). The analysis of the variable *openness with relatives* with the Internal Health Locus of Control within the seropositive population is significant (see Table D.23). The proportion of men who are low I-HLC responding " more than 50%" or "all" is significantly higher than the men who are moderate or high.

The patterns of the I-HLC scores for the analyses of the variable *openness with straight friends* are parallel for the men who are low and moderate in their internal expectancy of control over health. The men who are highly internal are evenly distributed among the three levels of the variable: "50% or less", "more than 50%", and "all". The men who are low respond proportionately less to "50% or less" and most to "more than 50%". Their response to "all" is proportionately equivalent to the men who are high, and greater than the men who are moderate (see Table D.22). The proportion of the men who are low responding "more than

50%" and "all" to the items on *openness with straight friends* and *with relatives* is higher than the men who are moderate and high.

A comparison of the variables related to *openness* for the serostatus groups results in distinctive patterns with the seronegative men responding proportionately more with "none" and the two groups responding similarly with "all" for *openness with straight friends*. The seropositive men respond proportionately much more with "more than 50%". The seronegative men distribute evenly among "50% or less", "more than 50%", and, slightly less so, "all". The seropositive men are heavily reliant upon friends. The differences between the distributions of the serostatus populations for the variables *openness with straight friends* (see Table D.24) and *openness with relatives* (see Table D.25) are statistically significant.

Cross-tabulations of serostatus with *openness about homosexual orientation with straight friends*, and *with relatives*, are statistically and interpretively significant. Differences according to serostatus are not significant for the variable *openness with work associates* . Serostatus is a significant factor in *openness with straight friends* and *with relatives*. The serostatus groups differ from each other in their openness with relatives. The seronegative men respond proportionately more with "none", and "50% or less". The seropositive men respond proportionately more often with "all".

Support Network. The variable *number of people you can trust* (an indicator of available support system) is cross-tabulated with I-HLC scores for the total population and, subsequently, for the serostatus populations. None of the analyses are statistically significant. The vast majority of the study participants report two to five people as the *number of people you can trust*. The frequency

distribution of this variable according to serostatus is displayed in Figure E.4. The frequency distributions of the two populations are almost parallel.

Leisure Time with Gay Men. The study participants were queried about the *proportion of their leisure time spent socializing with other gay men.* Cross-tabulation of this variable with I-HLC scores whether for the total population or for the population grouped by serostatus does not reach statistical significance. The frequency distribution according to serostatus is presented in Figure E.5. The differences between the serostatus populations are not significant. There is a tendency among the seropositive men toward a lesser percentage of their time being spent with other gay men and among the seronegative men with a higher percentage of their timebeing so spent..

Comfort and Well-Being. *Feelings of comfort and well-being* were explored. The men were asked their *feelings in relation to their homosexuality*, on continua of good/bad and guilty/depressed/ashamed. None of the analyses conducted with I-HLC scores are statistically significant. Cross-tabulation of the variable *degree that knowing that you are homosexual weigh[s] on your mind* with serostatus is significant (see Table D.26). Although the distribution of the variable *feelings about homosexual preference* for the serostatus populations is comparable, the distribution of the variable *knowing that you are homosexual weighs on your mind* is significantly different for the serostatus populations, that is, proportionately ten percent more of the seronegative men respond "yes" to the latter item (see Figure E.6).

The study participants were asked to respond to *general feelings of well-being these days* and *five years ago* (see Tables D.27, D.28, and D.29) One analysis of this variable with internal expectancy of control is statistically

significant, that of *how would you say you are feeling these days* for the seronegative men . The patterns which reach significance among the seronegative men for the I-HLC scores are visible in the nonsignificant analyses as well. The patterns are more pronounced and reach significance among the seronegative men. The proportion of men who are low responding with "unhappy" is higher and with "happy" is lower than the men who are moderate and high ["unhappy": low (45.5 %), moderate (17.6%), high (24.6%); and "happy": low (54.5%), moderate (82.4%), high (75.4%)].This trend may relate to the patterns of response to the items about *weight of homosexual orientation* and *worry about getting AIDS.*

Cross-tabulations of the variable *feelings of happiness today as compared with five years ago* with serostatus are statistically significant (see Table D.30). The resultant profiles of the I-HLC scores are quite similar to those of the variable *feelings of happiness these days.* The men who are moderate and high display parallel patterns. The men who are low respond proportionately the most often with "unhappy" and the least "happy". Again, the pattern is more pronounced among the seronegative men.

The men who are low in their internal expectancy of control over health are the least "happy", whether among the seropositive men or the seronegative men. The distribution of this variable for the serostatus populations is one in which the seronegative men are proportionately more "happy", and the seropositive men are proportionately more "unhappy". The men who are low and high in their internal expectancy of control over health respond proportionately with the "same" to the item comparing *feelings of happiness today with five years ago.*

The results among the serostatus populations are quite convincing that the patterns obtained are not a function of illness symptomatology among the men who are low internal, as the patterns are more pronounced among the seronegative men than among the seropositive men. Among the seropositive men, those who are moderate respond proportionately the most with "happier". The men who are high display an even distribution across all three levels of the variable. Among the seronegative men, those who are high and those who are moderate respond proportionately to this variable of *relative level of happiness* with similar distributions of response patterns, whereas the men who are moderate respond the least with "same" and the most with "happier".

Degree of Worrying. The men were questioned about their *degree of worrying in general* and specifically *about getting AIDS* and the *risk of getting AIDS* (two separate items in the questionnaire). The frequency distribution of the variable *level of worry about the risk of contracting AIDS* according to serostatus is presented in graphic form in Figure E.7. Cross-tabulation of these variables with I-HLC scores for the total population do not reach significance.

Analysis of the variable *type of person who worries a lot* with internal expectancy of control for the seropositive men is significant (see Table D.31). The pattern is one that moves from more worry to less worry as one follows the I-HLC scores from low to high among the seropositive men. The seropositive men who report low internal expectancy over health report higher levels of *worry in general* than the men who report high internal expectancy over health. Similarly, the seronegative men who are low in their internal expectancy of control over health respond proportionately the most with "worrying", followed by the men who are

high, and, then, the men who are moderate. Serostatus does not distinguish for the variable *level of worry in general* .

Analysis of the variable *concern or worry about getting AIDS* with the I-HLC scores of the seronegative population is statistically significant (see Table D.32). The seronegative men who are low in their internal expectancy of control over health respond with the outermost responses of "extremely" and "rarely". The men who are moderate in their I-HLC respond proportionately the least with "extremely", responding mainly with the middle category of "somewhat". The men who are high distribute evenly among all three response categories. The patterns are repeated among the seropositive men. The seropositive group as a whole respond with higher levels of worry. The men who are low in their internal expectancy of control over health, whether seropositive or seronegative, form two distinctive groups in response to this variable. Serostatus significantly differentiates for the items relating to the variable *worry about the risk of* and *about getting AIDS*. Concern about AIDS-related illness does create two subpopulations, following the lines of serostatus.

Topic II: Preventive Measures and Health Maintenance Behaviours

The second topic area relates to preventive measures and health maintenance behaviours. The relevant variables are the *reasons for the medical visit, hepatitis-B vaccination behaviour*, and *history of cofactor illnesses.*

Reasons for Clinic Visit. The frequency distribution of the variable *reason for the clinic visit* for the entire population is displayed in Table 18.
The distribution for the regrouped variable used in the analyses is presented in graphic form according to serostatus in Figure E.8. The distinctions between the

seropositive and the seronegative populations are evident. The seronegative men come for routine checkups and to request HIV tests. The seropositive men come for HIV results and illness-related symptomatology and tests. The difference between the two populations is statistically significant (see Table D.33).

Cross-tabulation of I-HLC scores with this variable in the total population is statistically significant (see Table D.34), and in the seropositive subpopulation (see Table D.35). The analysis of the variable *reason for clinic appointment today* with I-HLC scores in the seronegative population is not significant. It is presented in Table D.36 for the purposes of comparison.

The I-HLC distinguishes among the men who come to the clinic for a routine check, an HIV test, and for illness symptoms . Of the men who come to request HIV-testing, substantially more (61.6%) have high internal expectancy of control over health. The men who are high I-HLC come in proportionately significantly more for routine checkups and for HIV-testing than for any of the other reasons. The men who arrive as a result of illness symptoms report a distinctly different pattern of I-HLC scores, of being less highly internal than any other group (see Table D.34).

Hepatitis-B Vaccination Behaviour. *Hepatitis-B vaccination behaviour* is analyzed as a variable that is representative of preventive health actions. Cross-tabulations of the variable with I-HLC scores do not reach statistical significance (see Table D.37). More than half of the men have been tested for hepatitis-B antibodies. High I-HLC appears to have an impact upon *testing for antibodies to Hepatitis-B*, but not upon *vaccination behaviour*. The analyses of the I-HLC scores with the variables related to hepatitis-B are presented in Tables .D.38 and D.39.

Table 18.

Frequency Distribution of *Reason for Clinic Visit*

	Frequency	Percent
Inapplicable	4	1.4
Routine Check	68	23.8
Request HIV Test	86	30.1
Results HIV Test	43	15.0
Renew Prescription	5	1.7
Cold/Flu	16	5.6
Chronic Fever	3	1.0
Chronic Diarrhea	2	0.7
T-Cell Count	8	2.8
STD Test	6	2.1
Gastrointestinal	3	1.0
Urethritis	4	1.4
Medical Certificate	8	2.8
Cramps	12	4.2
Hepatitis-B Test	3	1.0
Hemmorhoid/Prostate	4	1.4
Depression	3	1.0
Neurological	1	0.3
Followup/HIV Test/Pos.	1	0.3
Update Knowledge	2	0.7
Dermatological	3	1.0

Analyses of the variable *previous testing for antibodies to the Hepatitis-B virus* with the Internal Health Locus of Control scores result in parallel patterns for the men who are moderate and high. The men who are low respond differently, i.e., substantially more "yes tested" and less "not tested". The responses to the "don't know " category are equivalent for all levels of internal expectancy of control over health in the total population (see Table D.37). The analyses of the variable within the serostatus populations yield results portraying the seropositive men as having been proportionately more "yes tested", and the seronegative men more "not tested". In terms of vaccination for the virus, the seropositive men had proportionately more not been vaccinated, and the seronegative men proportionately more vaccinated.

The reasons the men reported for not having been vaccinated for hepatitis-B are varied with the population scattered across all the possible reasons. The main reasons provided were history of the disease, no reason, and the vaccine not recommended. The other responses supplied by the men are "doesn't remember", "didn't know of vaccine", "didn't believe vaccine to be effective", "expense of vaccine", "vaccine transmits AIDS", and "brain aneurysm". No meaningful pattern can be elicited from the distribution.

Cofactor Illnesses. The role of cofactors in seroconversion and in the development of AIDS is a subject of increasing focus in the literature. Recurrent *history of sexually transmitted and infectious diseases* are those most often presented for discussion. The cofactor illnesses are cofactors to seroconversion and/or to the development of AIDS. Lowered incidence of cofactor illnesses are indicators of self-care and safer sexual behaviours. Frequencies of responses to

Table 19.

Occurrence of Cofactor Sexually Transmitted and Infectious Illnesses According to Serostatus in the Total Population

	SEROPOSITIVE (n=70)				SERONEGATIVE (n=216)			
	Yes	No	Don't know	No answer	Yes	No	Don't know	No answer
Gonorrhea penis	51 (73%)	14 (20%)	1 (1%)	4 (6%)	83 (39%)	119 (55%)	6 (3%)	8 (4%)
Gonorrhea rectum	15 (21%)	21 (30%)	5 (7%)	29 (41%)	16 (7%)	122 (57%)	8 (4%)	70 (32%)
Gonorrhea throat	15 (21%)	21 (30%)	4 (6%)	30 (43%)	10 (5%)	126 (58%)	7 (3%)	73 (34%)
Syphilis	25 (36%)	40 (57%)	1 (1%)	4 (6%)	30 (14%)	170 (79%)	4 (2%)	12 (6%)
Intestinal parasite	9 (13%)	50 (71%)	2 (3%)	9 (13%)	11 (5%)	179 (83%)	7 (3%)	19 (9%)
Hepatitis-B	19 (27%)	33 (47%)	1 (1%)	17 (24%)	27 (13%)	138 (64%)	6 (3%)	45 (21%)
Herpes-genital	6 (9%)	39 (56%)	0 (0%)	25 (36%)	12 (6%)	155 (72%)	1 (1%)	48 (22%)
Herpes-anus	9 (13%)	37 (53%)	0 (0%)	24 (34%)	5 (2%)	157 (93%)	1 (1%)	53 (25%)
Sores-penis	6 (9%)	50 (71%)	1 (1%)	13 (19%)	19 (9%)	179 (83%)	2 (1%)	16 (7%)
Sores-anus	6 (9%)	51 (73%	0 (0%)	13 (19%)	7 (3%)	190 (88%)	2 (1%)	17 (8%)
Warts-penis	9 (13%)	48 (67%)	0 (0%)	13 (19%)	13 (6%)	187 (87%)	1 (1%)	15 (7%)
Warts-anus	26 (37%)	37 (53%)	0 (0%)	7 (10%)	32 (15%)	173 (80%)	0 (0%)	11 (5%)

the various *infectious and/or sexually transmitted diseases* are available in Table 19. Comparisons of the incidence levels of the illnesses provide meaningful data.

The distributions of the occurrence of the reported cofactor illnesses are presented according to serostatus in Figures E.9, E.10, E.11, and E.12. The "no answer" category is not incorporated in the graphic presentations, but is strikingly high for many of the sexually transmitted diseases (see Table 19). The pattern of responses for this category appears to relate to the particular sexually transmitted disease. The sexually transmitted diseases which are considered indicative of high-risk exposure are rectal gonorrhea, hepatitis-B, genital herpes, and anal herpes.

Cross-tabulations of the various *cofactor illnesses* with the I-HLC scores do not reach statistical significance, whether for the entire population or for the serostatus subpopulations. There is a clear difference in pattern, however, in the total population between the men who have had the particular sexually transmitted disease and those who have not. The impact of illness is visible, though not statistically significant. The analyses of the I-HLC scores with the occurrence of gonorrhea of the rectum and gonorrhea of the throat are presented in Tables D.40 and D.41, as examples of this pattern. The patterns in the analyses of the *cofactor sexually transmitted diseases* are not all as pronounced, but are visible.

The patterns of the I-HLC scores of the men who report illness history in the total population are reflective of the patterns of the I-HLC scores within the seropositive population as a whole (see Table 15). The seronegative men for the most part present a different pattern which is reflective of the men who respond

"no" to item pertaining to the illness. This is consistent with the differences between the serostatus populations in illness incidence. The analyses of the I-HLC scores with the variable *occurrence of syphilis* in the serostatus populations are presented in Tables D.42 and D.43, as an example of this. There are several analyses in which the *occurrence of illness* results in clinically differentiating, albeit statistically nonsignificant, patterns of I-HLC scores among the seronegative men. The analysis of the variable *herpes of the genitals* is provided as an example (see Table D.44).

Significant differences between the seropositive and the seronegative men are obtained for the *occurrence of the cofactor illnesses*, namely, *gonorrhea of the penis* (see Table D.45), *gonorrhea of the rectum* (see Table D.46), *gonorrhea of the throat* (see TableD.47), *syphilis* (see Table D.48), *intestinal parasites* (see Table D.49), *hepatitis-A* (see Table D.50), *hepatitis-B* (see Table D.51), *herpes of the lips* (see Table D.52), *herpes of the anus* (see Table D.53), *sores around the anus* (see Table D.54), *warts on the penis* (see Table D.55), and *warts around the anus* (see Table D.56). The proportion of seropositive men having contracted the illness is significantly higher than the seronegative men.

Topic III: Knowledge about AIDS

The third topic area is the extent and accuracy of knowledge regarding the virus HIV and the illness AIDS. The study participants were queried about their *sources of useful information about HIV/AIDS*. Three different HIV/AIDS knowledge scales were administered.

Sources of Information. The usefulness of the various sources of information is relevant to the planning of interventions. The most distinctly *useful*

source of information for the participant homosexual men is the *physician*. Other sources - *newspapers* , *TV/radio, journals, "gay" newspapers/magazines*, and *posters/fliers* - were responded to as very useful by almost 30% of the men. There appears to be a general trend in reporting toward the response of "somewhat" for most sources of information. When the source of information is *books*, the trend shifts towards the "not at all" category, and similarly when the source of information is *gay organizations*. The trend becomes highly pronounced when the sources of information are *CLSC/DSC, bathhouses*, and *AIDS hotlines. Sources of useful information about AIDS* are displayed in graphic format in Figures E.13, E.14, and E.15.

Cross-tabulation of the I-HLC scores with the variable *posters/fliers as sources of useful information about AIDS* in the total population is highly statistically significant (see Table D.57). The men who are highly internal in their expectancy of control over health respond the most with "somewhat", then "very", and the least with "not at all". The men who are moderately internal respond heavily with the middle category of "somewhat". The men who are low in their internal expectancy of control over health respond similarly with "not at all" and "somewhat", and less than half with "very". Although highly statistically significant, no meaningful pattern can be gleaned from the data about posters and fliers.

The analysis of the I-HLC scores with the variable *physician as a source of useful information* is presented in Table D.59. Although not statistically significant, the trends provide meaningful and interpretable patterns. The men who are highly internal respond proportionately most often with "very", and least

with"somewhat" and "not at all" . The men who are low respond with an even distribution for "somewhat" and "very", none of them responding "not at all".

The cross-tabulation analyses of this variable within the serostatus populations are presented in Tables D.60 and D.61. The cross-tabulation in the seronegative population is statistically significant. The seronegative men who are low and moderate present with proportionately similar profiles . The seronegative men who are highly internal are substantially more reliant upon the *physician.* The seropositive men who are low internal are proportionately most reliant upon the *physician as their source of useful information*, followed by the men who are high and, then, the men who are moderate.

Physician as Source of Useful Information:

	Seropositive	Seronegative
Not at all	3 (5%)	17 (9%)
Somewhat	21 (32%)	94 (47%)
Very	41 63%)	87 (44%)

Analysis of serostatus with the variables comprising *sources of information* results in two analyses of significance . *Gay newspapers/magazines* and *physicians as sources of information* were significantly different for the two serostatus populations (Tables D.62 and D.64). The seropositive and the seronegative men responded, for the most part, "somewhat" to *gay newspapers and magazines.* Although statistically different, the patterns are quite similar. The seropositive men report themselves as heavily reliant on the *physician as the*

source of useful information. The pattern is not as pronounced among the seronegative men. The older study-participants, "over 40", rely very much on the *physician as the source of information*, whereas the men who are "21 to 30" and "31 to 40" years old distribute between "somewhat" and "very much" in their reliance (see Table D.63). It is important to note that the questionnaire was administered in a clinic office, following a visit with a physician. The responses to this item may be anxiety related. The item itself may have been anxiety provoking, depending upon the information just received from the physician.

Knowledge of HIV/AIDS.The men were asked to respond to three scales exploring their knowledge of HIV/AIDS. The correct responses are available in Appendix B. The first scale required a "yes", "no", or "don't know" response. The correct response rate was at least 85% for all the items, the only exception being the *possibility of contracting AIDS from receiving blood.* (Heat treatment of blood was newly instituted, starting in 1985, and confusion about the safety of blood transfusions may be reflected in the response patterns to this item.)

The distributions of two items which are linguistically and meaningfully clear and which tended to distinguish between the serostatus populations are presented in Figure E.16. The two items presented are *people can get AIDS by snorting drugs* and *people can get AIDS by having sex with someone who has shot drugs and looks healthy.* The seropositive men responded somewhat more knowledgeably to the first item, whereas the seronegative men responded more knowledgeably to the second item. The second item about *transmissibility from a healthy-appearing intravenous drug user* resulted in statistical significance when

cross-tabulated with serostatus (see Table D.65). The seropositive and seronegative men's level of response to the categories "yes" and "don't know" is distinctly different.

The next scale required a response of "no risk", "low risk", or "high risk". The distribution of responses to six of the items is presented according to serostatus in graphic form (Figures E.17, E.18, and E.19). The study participants tended to agree (>90%) in their view of *mutual masturbation* and *body rubbing* as "no risk" activities. The majority of the men viewed anal intercourse with a condom as "low risk" (68%) and anal intercourse without ejaculation (i.e., withdrawal) as "high risk" (55%). Sixty-five percent of the men placed *oral sex with the swallowing of ejaculate* as "high risk", whereas *oral sex without the swallowing of ejaculate* resulted in an even distribution between "low risk" and "high risk". *Deep kissing* was viewed as "no risk" by 58% of the men and "low risk" by 38%. The study participants viewed *monogamy* similarly, 61% responding with "no risk" and 39% with "low risk".

The shapes of the distributions change as risk becomes more clearly involved. Each of the activities were considered risky by at least some of the men The seropositive and the seronegative men tended to differ from each other in their ratings of the risk level of the activities of *oral sex without swallowing ejaculate* and of *deep kissing*. The distinctiveness of the patterns of the responses of the two serostatus populations to the risk level of *deep kissing* is statistically significant (see Table D.66). The seropositive men viewed the activity more as "no risk", the seronegative men more as "low risk". Both serostatus populations responded proportionately similarly to it as "high risk" (<5%).

Cross-tabulation of the I-HLC scores with responses to the item of *risk level of transmission of HIV from oral sex with the swallowing of ejaculate* in the total population is statistically significant (see Table D.67). The men who were highly internal in their expectancy of control over health responded mainly with "high risk" and minimally with "low risk". The men who were low internal responded the most with "no risk" and the least with "high risk". The study participants who are highly internal in their expectancy of control over health tend to view the *activities of oral sex* as more risky.

The third scale measuring *level of knowledge* required a response of "agree", "disagree", or "not sure". The items which are linguistically clear and which had a consenually definitive answer are presented in Figures E.20, E.21, and E.22. The item a *positive AIDS test means that one has developed immunity to the AIDS virus* had an 87% response rate of "disagree". It is linguistically ambiguous and is not included in the graphic presentations. The item a *negative AIDS test means that one has not been exposed to the AIDS virus* displayed a distribution of responses different from the other questions. This particular item can be viewed as partially correct due to the window period from infectivity to seroposivity and its ambiguity is paralleled in the distribution of the responses. *Accuracy of knowledge* in this area is supported by the next question tapping essentially the same information which is answered correctly by almost all the men. The study participants responded with a high level of accurate knowledge for all the other items of this scale.

One item that distinguishes significantly between the responses of the two serostatus populations is that a *positive AIDS test means that one will eventually*

develop AIDS. (see Table D.68) The seropositive men responded mainly with "disagree" and "not sure", whereas the seronegative men responded mainly with "agree". The patterns of responses in the two serostatus populations are essentially reversed. There is a slight trend visible of the seropositive men being more knowledgeable in their responses to this knowledge scale, and being more definite (i.e., responding less with "don't know"). The exception is the question about *seropositivity leading to AIDS* in which the response rate of "don't know" increases dramatically among the seropositive men.

In order to obtain a barometer of the influence of educational campaigns, the survey included questions about the *campaign "Jouez sûr"*, a widespread educational campaign in the Montreal homosexual community. The distribution of the men's responses of their *awareness of the campaign* and its *influence on sexual behaviour* categorised according to serostatus is presented in Figure E.23. The seronegative men tended to respond that the campaign had more influence on their sexual behaviour. None of the differences are statistically significant. When the Health Locus of Control was cross-tabulated with the variables related to awareness and *behaviourial influence of the campaign "Jouez-sûr"*, there was no discernible pattern of influence nor of significance.

Knowledge of Serostatus: Self and Partner. As a further analysis knowledge-related variables, the variables *knowledge of one's own serostatus, knowledge of one's partner's serostatus,* and *choosing to know HIV test results from the blood drawn at the time of data collection* are incorporated.

Cross-tabulation of the I-HLC scores with the variable *previous testing for the HIV virus* in the total population is significant (see Table D.69). The men who

have received a previous positive result differ in their internal expectancy of control over health from the men who have received a previous negative result. The differences are reflective of the patterns seen in the analyses of the I-HLC scores with serostatus in the total population.

Distribution of the serostatus subpopulations for the variable *testing for HIV-antibodies prior to data collection* is depicted in graphic form in Figure E.24, and *of one's primary partner* in Figure E.25. The vast majority of the men knew their true serostatus at the time of their participation in the study. Proportionately more seronegative men (as compared to seropositive men) had not been tested and did not know their HIV-antibody status (see Table D.72).

The frequency distribution of the responses to *previous testing of one's primary partner for HIV antibody status* yields interesting results and are presented below.

Responses to Previous Testing of One's Primary Partner:		
No primary partner	127	(46%)
Partner HIV-status unknown	10	(4%)
Seronegative partner	88	(32%)
Seropositive partner	23	(8%)
Partner never tested	10	(4%)

The distributions of the proportional frequencies for the categories of "not applicable", "never asked", and "not tested" are comparable for the serostatus

populations (see Table D.73). The seropositive men responded significantly more to *having a partner who had been tested but didn't know the results*, and *having a seropositive partner*. The seronegative men responded significantly more to having a seronegative primary partner. Seventeen percent of the seropositive men reported a seronegative primary partner.

Serostatus differentiates statistically for the variables *previous testing of oneself for HIV-antibodies* (see Table D.72), and *previous testing of one's primary partner* (see Table D.73). The significance derives from the previous negative result of the seronegative men versus the previous positive result of the seropositive men. Five men who thought they were negative for HIV-antibodies based on testing prior to participation in the study had seroconverted from a negative serostatus and were positive at the time of data collection.

The variable *choosing to know results from the HIV test done at the time of the survey* is cross-tabulated with the I-HLC scores. The results are statistically significant in the total population (see Table D.74) and in the seronegative population (see Table D.75). The men who were more highly internal in their expectancy of control over health responded definitively more "yes" and less "no" to the *choice to know the results*. The men who were moderate tended to have the least discrepancy of all three groups between their responses of "yes" and "no". The patterns of internal expectancy of control over health are statistically and distinctively significant between the men who respond affirmatively to *the choice of receiving HIV test results* and the men who respond negatively. There is no proportional difference between the seropositive and the seronegative men who choose to know their test results (see Tables D.75 and D.76).

The *reasons given for choosing to receive the results of HIV testing* are presented in Table D.77 and Figure E.26. The distribution of responses ranges across all the possible reasons. The major reason supplied by the seropositive men is to confirm their prior positive result. The main reasons of the seronegative men are to change their behaviour if the test results are positive and to know the future. About 5 percent of the seronegative men responded with "to help the study".

Topic IV: High-Risk Behaviours: Sexual and Drug Use

The fourth topic area is comprised of high-risk behaviours for HIV transmission. High-risk sexual behaviours and intravenous drug use are the essential routes of HIV transmission in this population. The relevant variables are *importance of sex, multiple partners, participation in anal intercourse, condom usage, changes in high-risk behaviours, intravenous drug use*, and *needle-sharing behaviours*. The study population as a group is conservative with respect to risky sexual practices and report real changes in high-risk sexual behaviours with increasing participation in safer sex.

The data about primary partner status provides background information for this topic area. The questionnaire does not differentiate between primary partners and repeat partners. The length of the primary partner relationship varied considerably.

Primary partner status in the study population:

No repeat partners/past month	108	(38%)
Primary partner relationship	139	(49%)
No primary partner/past month	39	(14%)

Length of primary partner relationship:		
No primary partner	147	(51%)
Less than one month	6	(2%)
One to three months	22	(8%)
Three to six months	13	(5%)
Six to twelve months	10	(4%)
One to three years	31	(11%)
Three or more years	54	(19%)

When queried about the monogamy of the primary relationship, 86 men reported monogamy and 52 men reported promiscuity or unknown status.

Importance of Sex. The variable *importance of sex* reflects the value placed on sex, the main route of transmission of HIV/AIDS in the homosexual population. Cross-tabulation of the I-HLC with this variable is statistically significant in the total population (see Table D.78). The men who are low internal have a distinctly different distribution than the men who are moderate or high in their I-HLC. Statistical significance is reached, as well, for the analyses of the variable *importance of sex* in the seronegative population (see Table D.79), but not in the seropositive population (see Table D.80). The patterns of the I-HLC follow the same pattern as in the seronegative and in the seropositive populations, despite the lack of significance in the seropositive group. The cells with an expected frequency of less than five are 22% for these analyses, the lowest of all the cross-tabulations of significance. The interpretation of all the data analyses are concluded with caution, relying on the strength of repeated patterns.

The patterns among the seronegative men, even more so than among the seropositive men, reflect those of the population as a whole. The men who are moderate and high in their internal expectancy of control over health view sex as "fairly important" for the most part, presenting parallel patterns. The men who respond as low view the importance of sex indifferently, distributing more evenly among "not very important", "fairly important", and "very important". The pattern of the men who are low in their internal expectancy of control over health is distinctly different. There is no statistically significant difference between the seropositive and the seronegative men in the distribution of their responses to this variable (see Table D.81).

Multiple Partners. *Multiplicity of partners* increases the risk of exposure to HIV infection and of progression to illness. The seronegative men have clearly as a group had fewer sexual partners, with the seropositive men reporting significantly proportionately more *multiple partners* (i.e., *number of one-time partners*). The distribution of the seronegative and the seropositive populations for the variable *total number of men with whom one has had receptive anal intercourse* is depicted in Figure E.27, and the proportion of the total who were one-time partners in Figure E.28.

The *total number of partners* for the serostatus populations, *the total number of men with whom one has had receptive anal intercourse*, and the *proportion of the total number who are one-time partners* are necessary for a complete profile of this population. The seronegative men as a group clearly report a lower *number of total partners*, and of *partners with whom one has had receptive anal intercourse*. More than 10% of the seronegative men have not participated in passive anal intercourse.The distributions of the serostatus

populations are presented in the analyses in Tables D.82 and D.83, the difference between the serostatus populations being highly significant. The distributions are presented in graphic form in Figures E.29, E.30, and E.31. This difference cannot be explained by age differences as the proportional distribution of ages is parallel for the serostatus populations.

Analyses of the variable t*otal number of men with whom one has had receptive anal intercourse* with I-HLC scores are presented in Tables D.84 and D.85. Statistical significance is obtained for the analysis in the seronegative population (see Table D.84). The patterns for the three levels of locus of control parallel each other. The significance derives from the two people who report "all". Regrouping of the levels to incorporate the eight men who report "over 100" into the category of "10-99" results in loss of siginificance ($p = 0.389$). All eight seronegative men who report "over 100" *partners with whom one has had receptive anal intercourse* are high in their internal expectancy of control over health.

Eighteen seropositive men respond with "over 100", significantly proportionately more than the seronegative men (see Table D.85). The eighteen seropositive men are mainly members of the moderate and high I-HLC groups, eight in each, with only two men in the low I-HLC group. **The patterns and trends elucidated in this area of the least participation in and the most reduction in high-risk behaviours among the men who are low in their internal expectancy of control over health, are repeatedly reflected throughout the analyses of the variables comprising this topic area.**

The differences between the serostatus groups for this variable are highly significant. The vast majority of the seronegative men report "one-to-nine" as the

total number. About 15% of the seronegative men report never having participated in receptive anal intercourse.

Anal Intercourse. Human immunodeficiency virus transmission is accomplished through the exchange of body fluids during intercourse, with receptive anal intercourse being the main high-risk sexual activity in this population. The questionnaire explores participation in the various forms of sexual activities with one-time and with repeat partners. Repeat partners are ones with whom one has had more than one sexual encounter. Repeat partners include primary partners. One-time partners are sexual partners with whom one has had only one encounter. A high rate of *participation in sexual encounters with one-time partners* is viewed as a cofactor to transmission and to illness, greatly increasing the risks of exposure, of infectivity, and of progression to illness. The vast majority of the men respond to the items constituting this area as not applicable (i.e., N/A) in that they have not participated in the particular form of sexual activity or did not have a repeat or one-time partner during the time delineated.

The men, whether seronegative or seropositive, participate less in passive anal intercourse than in active anal intercourse. Reported changes in the rates of participation in anal intercourse, especially of receptive anal intercourse, are clearly greater with one-time partners than with repeat partners. Receptive or passive anal intercourse is the essential route of HIV-transmission for the participant in male homosexual sex. Reduction of levels of participation in receptive anal intercourse is considered the indicator of change in high-risk sexual behaviours in the literature.

The frequency distributions of *participation in anal intercourse during a typical month this year* and *during a typical month three years ago with repeat partners* and *with one-time partners* are depicted in graphic form (see Figures E.32 and E.33). Frequency distributions of *condom usage during anal intercourse* during the month prior to questionnaire administration *with repeat partners* (see Figure E.34) and with *one-time partners* (see Figure E.35) are presented for the total population. **The group as a whole participates minimally in anal intercourse and has increased condom usage. A small number of men report decreasing or maintaining condom use at the same level as three years ago.**

The weekly frequency of homosexual activity leading to orgasm provides further background for interpretation of the data regarding high-risk sexual activities.

Weekly Frequency of Homosexual Sex by Serostatus:

Weekly Frequency	Positive	Negative	Total	
None	16 (23%)	31 (14%)	47	(16%)
<1	18 (25%)	59 (27%)	77	(27%)
1-3 Times	30 (43%)	109 (51%)	139	(49%)
4+ Times	6 (9%)	17 (8%)	23	(8%)

More than half of the men report sexual activity leading to orgasm at least "once per week" with any partner. About 16% of the total study population report "none". Simultaneously, only about 10% to 15% of the men report *participation*

in active or passive anal intercourse. Analyses of this variable with the I-HLC scores and with serostatus are presented in Tables D.89 and D.90. Neither serostatus nor internal expectancy of control differentiates patterns. It is important to note that this variable does not specify the type of sexual activity, the partner status, nor the level of condom usage. **The vast majority of the study participants are sexually active; however, not sexually active in terms of anal intercourse.**

The questionnaire explores *participation in anal intercourse* during three time frames: *the past one month*, *a typical month this year*, and *a typical month three years ago*. Partner status is defined as one-time or repeat. Anal intercourse is delineated as passive or active. The frequency distributions of the responses to the relevant variables are displayed.

Participation in receptive anal intercourse with one-time partners during the month prior to data collection:

Not applicable	257	(91%)
Participation without condoms	11	(4%)
Participation with condoms	14	(5%)

Participation in active anal intercourse with one-time partners during the month prior to data collection:

Not applicable	238	(85%)
Participation without condoms	19	(7%)
Participation with condoms	23	(8%)

The analyses of the variables related to anal intercourse with one-time partners with I-HLC scores are presented in Tables D.91 to D.98. Analyses of the variables related to *high-risk sexual practices with one-time partners* for the

Participation in anal intercourse with one-time partners

	Yes		No	
Past One Month/Passive Anal:	25	(9%)	257	(91%)
Typical Month This Year/Passive Anal:	48	(17%)	233	(83%)
Typical Month 3 Years Ago/Passive Anal:	89	(32%)	192	(68%)
Past One Month/Active Anal:	42	(15%)	238	(85%)
Typical Month This Year/Active Anal:	70	(25%)	210	(75%)
Typical Month 3 Years Ago/Active Anal:	109	(39%)	170	(61%)

serostatus populations yields some differences along the lines of serostatus. In terms of *receptive anal intercourse*, the resultant profiles based on the analyses of *participation during a typical month this year* describe the men who are highly internal as having proportionately the highest level of participation (see Table D.91). The patterns of the I-HLC scores for *participation during a*

typical month three years ago are parallel for all three levels of expectancy of control (see Table D.92). The profiles of the seronegative population are ones in which the men who are low in their expectancy of control over health report somewhat elevated participation levels for a typical month three years ago, whereas this year the levels are equivalent (see Tables D.93 and D.95). **Thus, the seronegative men who are low have made proportionately the most changes in reducing their level of *participation in receptive anal intercourse with one-time partners*.**

Analyses of *insertive anal intercourse with one-time partners* yields profiles of both serostatus populations in which the trends across the levels of I-HLC scores are parallel *during a typical month three years ago* (see Tables D.97 and D.98). *Participation during a typical month this year* results in an unusual pattern among the seropositive men in which the men who are low report the highest level of participation, followed by the men who are high, and, then, the men who are moderate. Analysis of the variable for the seronegative men results in patterns in which the men who are highly internal report slightly higher levels of participation.

The profiles of I-HLC scores for the variable *passive anal sex with one-time partners during a typical month three years ago* are ones in which the men who are low reported by far the highest level of participation. The profiles for the same variable during a typical month this year are ones in which the three levels of I-HLC scores are essentially equivalent. **Thus, the men who are low in their internal expectancy of control over health have made the most changes in their profile of *participation in receptive anal intercourse with one-time partners*.**

The men's report of *participation in anal intercourse during the month prior to data collection* frames the analyses of changes in high-risk sexual behaviours. The cross-tabulation analyses of the relevant variables of *anal intercourse with repeat partners* with I-HLC are displayed (see Tables D.99 to D.108).

Participation in Receptive Anal Intercourse with Repeat Partners:		
Not applicable	226	(81%)
Participation without condoms	25	(9%)
Participation with condoms	29	(10%)
Participation in Active Anal Intercourse with Repeat Partners:		
Not applicable	221	(80%)
Participation without condoms	35	(13%)
Participation with condoms	22	(8%)

The analyses of the variables related to anal intercourse, whether with one-time or with repeat partners, with serostatus are presented in Tables D.109 to D.118. Although the differences in proportions are small, the seronegative men tend to report somewhat more *participation in unprotected anal sex with repeat partners* and proportionately lower *condom use*. The absolute numbers found in the various categories cannot possibly be ignored, considering the critical nature of this activity in the spread of AIDS. The trend is even more pronounced in *anal*

intercourse with one-time partners, to the point where the differences between the serostatus populations are statistically significant for *participation in receptive*

Participation in anal intercourse with repeat partners :

	Yes		No	
Past One Month/Passive Anal:	54	(19%)	226	(81%)
Typical Month This Year/Passive Anal:	74	(26%)	208	(74%)
Typical Month 3 Years Ago/Passive Anal:	108	(39%)	173	(61%)
Past One Month/Active Anal:	57	(20%)	221	(80%)
Typical Month This Year/Active Anal:	89	(32%)	192	(68%)
Typical Month 3 Years Ago/Active Anal:	114	(41%)	165	(59%)

anal intercourse with one-time partners (see Tables D.109, D.110 and D.111). A distinctly high proportion of the seronegative men indicate that they have not participated in *anal intercourse*. Among those who report participation, a distinctly high proportion report lack of and lower rates of *condom use* (see Tables D.125 to D. 132).

Review of the analyses of the I-HLC scores with the variables incorporating *participation in anal intercourse* according to the serostatus populations results in discernible patterns. The analyses of the variables incorporating *participation in receptive anal intercourse with one-time partners* (i.e, *during the past month, during a typical month this year, during a typical month three years ago*) yield patterns of I-HLC scores in which the serostatus populations are equivalent in their levels of proportional participation/non-participation, and in the equivalence of the low/moderate/high.

The proportional distributions of the serostatus populations for participation/non-participation in the variables incorporating *receptive anal intercourse with repeat partners* are comparable. The greatest proportional changes towards reduced or non- participation were made by the men who are low in their internal expectancy of control over health. They responded with the highest level of participation for the defined earlier time frame of *a typical month three years ago*. **Thus, the men who are low have made the greatest proportional reduction in their *participation in receptive anal intercourse*.**

The serostatus differences are fairly consistent. The proportion of the seronegative men reporting "not applicable" and *participation in high-risk sexual activities* is higher than the seropositive men.. The analysis in Table D.125 is an example of the recurrent patterns obtained for the high-risk behaviourial variables cross-tabulated with serostatus. The seropositive men respond with proportionately greater *participation in the high-risk activity* and proportionately greater *use of condoms. Changes in high-risk sexual activities* reflect the proportional differences even more strongly, with the seropositive men reporting

the greater changes, the higher level of prior participation in the activity, and the relatively lower level of present participation in the high-risk sexual activity.

The resultant distributions for the analyses incorporating the variables of insertive anal intercourse are **not** comparable for the serostatus populations. The men who are seropositive report significantly higher rates of *participation in insertive anal intercourse whether with one-time or with repeat partners during a typical month three years ago* (see Tables D.113 and D.118). The patterns of the I-HLC scores are parallel for the variables explored during the *year current with data collection*, with the men who are low reporting the lowest level of participation. The patterns of the analyses incorporating the variables for *three years prior to data collection* result in the men who are moderate reporting the highest level of participation. Thus, the largest proportional changes in the *reduction of rates of active anal intercourse* were accomplished by the seropositive men who are moderate in their internal expectancy of control over health, an unusual finding. The established pattern of higher *rates of participation in the sexual activity with repeat partners* more so than *with one-time partners* is consistent throughout the data analyses.

Condom Usage. The key to risk reduction is *condom usage*. The vast majority of the men are not participating in anal intercourse. The percentage of men participating markedly decreased when comparing behaviours in the year of questionnaire administration with three years prior. Comparison of *condom usage* during the delineated time period focuses upon the men who are participating in anal intercourse. The "never" category is composed of men who *participated in anal intercourse with the defined partner (repeat or one-time)* and did **not** use condoms at all during the delineated time period. A comparison of the men who

respond with "never" and those who respond with"once" or "twice or more" develops a profile of the patterns among the men who do participate in anal intercourse.

The comparisons of *anal intercourse*, be it passive or active, of *a typical month three years ago with a typical month this year* unfortunately do not incorporate condom usage. Changes in condom usage are incorporated in the variables with the terms: "increased", "decreased" and "same"; "never", "once", and "twice or more". The variables inclusive of *condom* use do not incorporate the proportion of total number of sexual encounters out of which the condom use is reported, thus making meaningful interpretation difficult. The resultant data are further evidence that the men do not view insertive anal intercourse as high risk the way they do receptive anal intercourse.

Analyses of the I-HLC with the variables incorporating *condom usage* are presented in Tables D.119 to D.129. Cross-tabulation analyses of all the variables inclusive of my *partner used a condom* for purposes of comparison of high-risk behaviour (i.e., "never") with condom use (i.e., "number of times") result in a fairly consistent picture of the I-HLC scores. **The men who are low in their internal expectancy of control over health participate proportionally the least in the high-risk activity of receptive anal intercourse without condoms. The proportion of the men who are moderate in their internal expectancy of control over health participating in high-risk receptive anal sex is the highest.**

Changes in condom usage during passive and active anal intercourse for the serostatus populations *this year as compared with three years ago with one-time partners* are presented in Table 20, and with *repeat partners* in Table 21 and are depicted graphically in Figures E.36 and E.37.

Table 20.

Reported Changes in *Condom Usage during Receptive and Insertive Anal Intercourse Behaviours with One-time Partners*

	SEROPOSITIVE				SERONEGATIVE			
Receptive Role	INC+	SAME	DEC-	NO ANS	INC+	SAME	DEC-	NO ANS
Condom used	13 18.6%	2 2%	1 1.4%	2 2.9%	8 3.7%	5 2.3%	3 1.4%	8 3.7 %
No condom used	0	1 1.4%	12 17.1%	5 7.1%	1 0.5%	4 1.9%	7 3.2%	12 5.6 %
Insertive Role	INC+	SAME	DEC-	NO ANS	INC+	SAME	DEC-	NO ANS
Condom used	12 17.1%	4 5.7%	1 1.4%	3 4.3%	24 18.6%	6 2.8%	3 1.4%	12 5.6 %
No condom used	0	3 4.3%	13 18.6%	4 5.7%	2 0.9%	21 9.7%	7 3.2%	14 6.5 %
"No" to either time period	Receptive: 52 (74.3%)				192 (88.9%)			
"No" to either time period	Insertive: 50 (71.4%)				171 (79.2%)			

Table 21.

Reported Changes in *Condom Usage during Receptive and Insertive Anal Intercourse with Repeat Partners*

	SEROPOSITIVE				SERONEGATIVE			
Receptive Role	INC+	SAME	DEC-	NO ANS	INC+	SAME	DEC-	NO ANS
Condom used	9 12.9%	4 5.7%	2 2.9%	3 4.3%	16 17.4%	13 6.0%	5 2.3%	9 4.2%
No condom used	0 0.0%	4 5.7%	10 14.3%	4 5.7%	3 1.4%	11 5.1%	19 8.8%	9 4.2%
Insertive Role	INC+	SAME	DEC-	NO ANS	INC+	SAME	DEC-	NO ANS
Condom used	11 15.7%	3 4.3%	1 1.4%	4 5.7%	24 11.1%	15 6.9%	0 0.0%	17 7.9%
No condom used	1 1.4%	2 2.9%	13 18.6%	3 4.3%	2 0.9%	16 7.4%	26 12.0%	12 5.6%
"No" to either time period	Receptive: 52 (74.3%)				173 (80.1%)			
"No" to either time period	Insertive: 51 (72.9%)				160 (74.1%)			

The vast majority of the men report not having participated in either passive or active anal intercourse whether with repeat or one-time partners. The minority who do participate in anal intercourse report higher rates of *participation in insertive anal intercourse* than *participation in receptive anal intercourse*, the latter placing the participant at great risk of contracting HIV. Selectivity in choice of partner may be a factor, an element not explored by the study questionnaire. *Participation in anal intercourse with one-time partners* is distinctly lower than *with repeat partners*. Clearly, the men have increased condom usage and decreased anal intercourse with one-time partners.

The greater proportional changes were made by the seropositive men who, as a group, reported significantly greater history of participation in high-risk sexual activities and made proportionately greater reductions in their behaviours than the seronegative men (see Table D.135). Risk level for most of the men appears to be the motivating factor in change. **The seronegative men as a group are more conservative in their history of sexual practices. However, of the men who report continued high-risk sexual practices, the seronegative men participate proportionately more in the high-risk sexual activities.**

The reported patterns are further corroborated by analyses of *changes in condom usage* for the variables which include "my partner used a condom." Comparison of the response patterns of the analyses for these variables incorporating "increase" in *condom usage* reveals further validation of the derived patterns of the I-HLC scores. **The men who are low in their internal expectancy of control as a group have made proportionately the most changes. The men who are high in their internal expectancy of control over**

health have made somewhat greater changes than the men who are moderate, with both groups lagging proportionately far behind the men who are low (see Tables D.136 and D.137). The patterns derived were not the expected patterns. **The group of men who are low internal are small in number, but present clear trends and patterns.**

Comparison of the variables comprising *participation in unsafe anal intercourse* (i.e., without the benefit of a condom) with those comprising *safer sex* (i.e., condom use) further supports the patterns described (see Tables D.143 to D.156). The proportional differences between the levels of I-HLC are quite dramatic, with the men who are moderate and high reporting an even *participation with* and *without condom use*. **The men who are low in their internal expectancy of control report *condom use* during active anal sex far outweighing high-risk participation.They have made proportionately the greatest changes toward safer sex and have not increased nor maintained previous *levels of high-risk anal sex*.**

Analyses of the I-HLC scores with the variables incorporating changes in unsafe anal sex *(i.e., no condom usage) during receptive anal intercourse with one-time partners* and *with repeat partners* are displayed in Tables D.153 to D.156. A pattern emerges in which the men who are low in their expectancy of control over health have made proportionately the most changes. Three men (1%) of the total population report increasing *levels of unsafe receptive anal sex with repeat partners*. One person (0.4%) reports "increased" *unsafe passive anal intercourse with one-time partners*. The one individual who reported an "increase" in *unprotected receptive anal intercourse* is highly internal, and the

five people who reported maintaining the "same" *level of unsafe receptive anal sex* are moderate and high in their internal expectancy of control over health.

The men who report "decreased" *condom usage* are few in number. In order to better describe these men, their HIV-status is delineated below.

Decrease in Condom Use

With Repeat Partners:

Passive Anal: 2 seropositive; 5 seronegative

Active Anal: 1 seropositive; 0 seronegative

With One-Time Partners:

Passive Anal: 1 seropositive; 3 seronegative

Active Anal: 1 seropositive; 3 seronegative

It is important to note that maintenance of condom use at the "same level" as three years prior to questionnaire administration, when little was known about HIV transmission, may be as detrimental as "decreasing" condom usage. All the data relating to changes in *condom use* only provide the respondents' view of relative increase, decrease, or status quo. The data do not reflect the total level of participation, number of partners, status of the partners, nor explore the characteristics of the individual men who maintain their high-risk sexual behaviours. Full description of a small contingent of men is one important path for future research indicated by this study.

The trends of the patterns of the I-HLC scores are distinctive among the men who are low. They are the group who appear to participate presently the least in high-risk sexual activities. This pattern is repeated with few exceptions throughout the analyses of the items related to condom use. All the trends are determined by small numbers. However, the trends are visible with some differences apparent between the seronegative and the seropositive populations.

All the items related to *condom usage during passive anal intercourse* utilise the phrase "my partner used a condom". Profiles of the I-HLC scores for the analyses of the items inclusive of "my partner used a condom" are quite consistent. The men who are moderate in their expectancy of control over health report responses balanced between "changes toward safer sex" and "no change". **Among the variables comprising *anal sex with repeat partners*, the men who are highly internal report the least amount of proportionate change, balanced with maintaining previous levels of unsafe behaviours. The analyses of the variables that form *anal sex with one-time partners* result in patterns in which the men who are highly internal, distribute evenly between status quo and less change toward safer sex, unlike the men who are moderate or low.**

The variables dealing with *condom usage during active anal intercourse* incorporate the statement: "I used a condom". **Among the seropositive men, those who are highly internal as a group made proportionately the most changes in their behaviour. Among the seronegative men, those who are low in their expectancy of control over health consistently proportionately increased their level of safer sex distinctly more than those who are high and**

moderate. One analysis provides an exception to this, and that is one in which the seropositive men who are low distribute evenly between change and status quo (see Table D.142).

Changes in High-Risk Behaviours. There are discernible differences between the serostatus populations for the variables incorporating *changes in high-risk sexual behaviours*. The seronegative men report proportionately substantially more "non-participation" in anal sex, whereas the seropositive men report substantially proportionately more "increase" in condom use. The distinctions are more pronounced for anal intercourse with one-time partners than with repeat partners. The differences are statistically significant for the variable *changes in condom usage during receptive anal intercourse with one-time partners* (see Table D.135).

The seropositive men as a group report greater caution in their use of condoms during the month prior to questionnaire administration than the seronegative men, especially during sexual activities with one-time partners. It must be noted that the vast majority of the seropositive men knew that they were seropositive at the time of questionnaire administration. **Both serostatus groups report greater caution during receptive anal intercourse than during insertive anal intercourse. All the study participants, whether seropositive or seronegative are more cautious with one-time partners than with repeat partners.**

Serostatus is a critical variable in this general topic area. Numerous activities are reported at significantly different levels of participation by the

seropositive and the seronegative populations. Cross-tabulations of the following variables with serostatus are significant:

-passive anal intercourse with one-time partners during the past one month;

-changes in condom usage during passive anal intercourse with one-time partners;

-total number of men with whom one has had receptive anal intercourse;

-proportion of total men who were one-time partners;

-participation in passive anal intercourse with one-time partners during a typical month this year;

-participation in passive anal intercourse with one-time partners during a typical month three years ago;

-participation in active anal intercourse with one-time partners during a typical month this year;

-participation in active anal intercourse with one-time partners during a typical month three years ago;

-participation in anal intercourse with a partner known to be seropositive or have AIDS during the past six months;

-participation in anal intercourse with a partner known to be seropositive or to have AIDS during the past five years;

-participation in passive anal intercourse with repeat partners during a typical month this year;

-participation in passive anal intercourse with repeat partners during a typical month three years ago;

-participation in active anal intercourse with repeat partners during a typical month this year; and

-participation in active anal intercourse with repeat partners during a typical month three years ago.

Sexual Activities with One-time Partners. The study participants responded to items about *participation in sexual activities with one-time partners during the past one month*. The distribution of the responses to the variable any

sexual activity with a one-time partner during the past one month is presented in Figure E.58. The number of one-time partners during the previous month is an indicator of participation in high-risk sexual activities and has been grouped into response categories of "one" and "more than one" based on the data distribution. The distribution of the responses of the serostatus populations are parallel for this variable. None of the analyses of the I-HLC scores with this variable are statistically significant (see Tables D.157 to D.160).

The patterns resulting from the analyses are of interest. The men who are low in their internal expectancy of control over health respond proportionately the most with "more than one one-time partner", followed by the men who are high, and then the men who are moderate. Among the seropositive men, all the men who are low report "more than one one-time partner" in the month prior to data collection. Among the seronegative men, the men who are low internal and the men who are high internal respond proportionately similarly, an unusual profile of the men who are low. One-hundred and twenty-nine men reported "no one-time partners during the past one month".

Participation in sexual activity with one-time partners during the month prior to data collection :

Participation	155	(55%)
No sex/past month	47	(17%)
No sex/one-time partners/past month	82	(29%)

The men reported upon the possible meeting places or cruising areas for one-time partners during the month prior to data collection (see Table 22).

Table 22.

Sources of Meeting Places for One-time Partners

	No	Yes	No answer
Bar or disco	32	104	53
Bathhouse	46	51	60
Street	44	35	78
Private party	56	10	91
Gay association gatherings	62	3	92
Parks	46	38	73
Movie theatres	57	15	85
Restaurant or cafe	60	4	93
Metro system	60	5	92
Public restrooms	53	16	86
Health club or gym	56	10	91

The variety of *sexual activities* in which the men participated *with their one-time partners during the past one month* further depicts the patterns of sexual activities -- low- and high-risk -- in the study population. The distribution of the reported activities is portrayed in Table 23, and in Figures E.39, E.40, and E.41.

Table 23.

Sexual Activities with One-Time Partners During the Previous Month

Mutual Masturbation	130 (50%)
Active Oral Sex	109 (43%)
Passive Oral Sex	122 (46%)
Active Anal Sex	31 (13%)
Passive Anal Sex	21 (9%)
Active Rimming	37 (16%)
Passive Rimming	41 (18%)
Active Fisting	3 (1%)
Passive Fisting	3 (1%)
Sex Toys	15 (7%)
Poppers	49 (21%)
Recreational Drugs	33 (14%)

The serostatus populations report comparable participation in the activities of *mutual masturbation, oral sex (active or passive)*, and *active anal sex*. The seronegative men report the highest levels of proportional participation in the activities of *rimming* and *fisting*; the seropositive men report proportionately higher levels of *participation in passive anal intercourse* with one-time partners during the past one month and *use of other recreational drugs*.

In all the sexual activities, the higher rates of participation among the total study participants are reported by the men who are moderate and high in their internal expectancy of control over health (see Tables D.167 and D.168). *Fisting* is an activity which puts the recipient at higher risk during subsequent sexual activites due to the injuries and trauma incurred. The few men who report participation in *fisting* distribute among the levels of internal expectancy of control over health as three who are high, two who are moderate, and one who is low. The numbers are so few that caution in interpretation is necessary. However, the proportional frequencies are corroborated by the ratios obtained from the other activities which have higher levels of participation and certainly point to the need for further in-depth exploration of the individuals who continue to participate in high-risk activities and in activities which increase their own at-risk level.

The higher rates of *participation in sex toys*, *poppers*, and *other recreational drugs* are reported by the men who are moderate and high in their internal expectancy of control over health. About 20% of the men report the *use of inhalants* or *poppers*. The *use of inhalants* and *alcohol* tends to increase the risk of *participation in high-risk sexual activities*. The *use of alcohol* was not described in this population. The *use of poppers* does not appear to increase the level of participation in high-risk sexual activities in this study population, nor does it differentiate among the serostatus subpopulations. However, it may for a small percentage of the men who do combine drug and/or alcohol usage with sexual activities, information which cannot be gleaned from the data collected, information which would require idiographic methodologies of data collection.

The men who are low in their internal expectancy of control over health participate extensively in *oral sex* and *mutual masturbation*, and participate minimally or not at all in *anal sex*, *rimming*, and *fisting* (see Tables D.167, D.168, and D.169).

Anal Sex with Seropositive or Partner with AIDS. The study participants were asked about the frequency of their *participation in anal intercourse with someone who was known to be seropositive or to have AIDS during the past six months and during the past five years.* The vast majority responded with "never" and "don't know". The "don't know" response may indicate actual participation or lack of caution in screening partner status prior to sexual encounters. The distributions of the responses of the serostatus groups for *participation during the past six months* are statistically distinctive. Among the seronegative men, more than half respond with "never", whereas more than half the seropositive men respond with "don't know" (see Tables D.171 and D.172).

Cross-tabulation of the variable *participation in anal intercourse with a partner who is known to be seropositive or have AIDS during the past six months* with the I-HLC scores for the total population is significant (see Table D.170). The men who are low in their internal expectancy of control over health respond proportionately the most with "don't know" and the least with "never". The men who are moderate and high in their internal expectancy of control over health have parallel distributions of response patterns. Among the seropositive men, those who are highly internal respond the most with "don"t know" and those who are moderate the most with "never". Among the seronegative men, the pattern is

totally different with the men who are low responding proportionately the most with "don't know" and the least with "never".

The variable *participation in anal intercourse with someone who is carrying the AIDS virus* (seropositive or sick with AIDS) *during the past six months and past five years* might have provided a possible cross-check with other questions about high-risk sexual behaviours. Unfortunately, the question does not specify condom usage and, therefore, does not provide the information needed. Nor, does the question identify the partner relationship (one-time, repeat, primary) which would have added meaningful information in this area. The distribution of the responses is presented in Table 24.

Condom Breakage. Analyses of the variables comprising *condom breakage during the past six months and during the past five years* with the Internal Health Locus of Control scores do not result in statistical significance. The largest category is "not applicable". The vast majority of the men responded with either "don't recall", "not applicable", or "no answer". Distribution of the two serostatus populations for the variable *condom breakage during the past six months* is represented in Table 25, and in graphic form in Figure E.42, and *condom breakage during the past five years* in Figure E.43.

The seropositive men report proportionately less *condom breakage*, lower *participation in anal intercourse*, and higher rates of "don't recall" in relation to *condom usage* during the past six months. The pattern is different from that reported in relation to *condom breakage during the past five years*. The items connected with this variable employ the use of a double negative which may have confounded the results.

Table 24.

Frequency Distribution of *Participation in Anal Intercourse (Insertive or Receptive) with a Person Known to Be Carrying the AIDS Virus During the Past Six Months and During the Past Five Years* in the Total Population

	SIX MONTHS		FIVE YEARS	
TIMES/ANAL SERO+PARTNER	Frequency	Percent	Frequency	Percent
0	119	41.6	101	35.3
1	14	4.9	14	4.9
2	3	1.0	10	3.5
3	2	.7	4	1.4
4	2	.7	2	.7
5	0	0.0	4	1.4
6	1	.3	0	0.0
10	2	.7	1	.3
15	1	.3	2	.7
16	0	0.0	1	.3
20	0	0.0	2	.7
30	1	.3	1	.3
40	0	0.0	1	.3
97 OR MORE	0	0.0	2	.7
DON'T KNOW	96	33.6	106	37.1
No answer	45	15.7	35	12.2
Column total	286	100.0	286	100.0

Table 25.

Frequency Distribution of Condom Breakage During the Past Six Months According to Serostatus

	SEROPOSITIVE		SERONEGATIVE	
CONDOM BREAKAGE	Frequency	Percent	Frequency	Percent
NEVER	15	21.4	35	16.2
ONCE	9	12.9	12	5.6
2-4 TIMES	4	5.7	13	6.1
5-6 TIMES	0	0.0	5	2.3
DONT RECALL	17	24.3	35	16.2
NOT APPLICABLE	11	15.7	85	39.4
NO ANSWER	14	20.0	31	14.4
Total	286	100.0	286	100.0

Intravenous Drug Use. *Intravenous drug use* is a major route of HIV transmission through needle-sharing behaviour. The study participants reported little participation in *intravenous drug use.* Nine men reported use of intravenous drugs *during the past five years*, and five men *during the past six months.* Analyses of this variable with the Internal Health Locus of Control scores provide information about the patterns of the men who report having participated in *intravenous drug use.* The five men who reported *intravenous drug use during the past six months* are all seronegative and report either moderate or high internal

expectancy of control over health. Among the men who reported *intravenous drug use during the past five years*, seven are seronegative and two are seropositive and all report either moderate or high internal expectancy of control over health.

Needle-Sharing Behaviours. Although small in number, all the drug users are moderate or high in their internal expectancy of control over health and none are low. Intravenous drug use is to be considered synonymous with needle-sharing in this population. The nine men who reported *intravenous drug use* also reported participation in *needle-sharing.behavior* (see Tables D.173 and D.174). About half of the men who reported *intravenous drug use during the past five years* stopped shooting up *during the past six months*.

It is essential to describe *intravenous drug usage* behaviours. The questions posed about drug usage are written both in formal and colloquial language to ensure comprehension. The responses are consistent, whatever style of language is used. The distribution of *intravenous drug use behaviours* for the total population *during the past six months*, and *during the past five years*, is presented in Table 26, and the distribution of *needle-sharing behaviours* is presented in Table 27.

None of the men who reported *intravenous drug use during the past six months* knew of their positive serostatus. When questioned about previous AIDS virus testing, two of the recent intravenous drug users (i.e., during the past six months) had not been tested and three had received a negative HIV test result prior to data collection. Among the intravenous drug users during the past five years, two knew of positive test results and were not shooting drugs during the past six months. The small number of men who did not answer the question may

Table 26.

Distribution of *Intravenous Drug Use Behaviours* in the Past Six Months and the Past Five Years for the Total Population

	PAST 6 MONTHS		PAST 5 YEARS	
INTRAVENOUS DRUG USE	FREQUENCY	PERCENT	FREQUENCY	PERCENT
NEVER	277	96.9	272	95.1
ONCE	1	.3	2	.7
TWICE	1	.3	2	.7
THREE TIMES	1	.3	0	0.0
FIVE TIMES	1	.3	0	0.0
15 TIMES	0	0.0	1	.3
17 TIMES	0	0.0	1	.3
20 TIMES	0	0.0	1	.3
40 TIMES	1	.3	0	0.0
DON'T REMEMBER	0	0.0	2	.7
No answer	4	1.4	5	1.7
Total	286	100.0	286	100.0

Table 27.

Distribution of *Needle-Sharing Behaviours* in the Total Population

NEEDLE SHARING	FREQUENCY	PERCENT
NO IVDU	262	91.6
NEVER	9	3.1
RARELY	7	2.4
SOMETIMES	1	.3
OFTEN	1	.3
No answer	6	2.1
Total	286	100.0

Note: Rarely is defined by 1-25% ; sometimes by 25-49%; and oten by 50-74% of the time.

have participated in intravenous drug use and not answered the related items. Among the men who reported a history of *needle-sharing behaviour*, one had not been tested for the AIDS virus, seven had received negative results, and one had received positive results at the time of data collection.

Blood donation. *Blood donation* was an efficient route of HIV-transmission for the recipients of transfusions prior to the institution of heat treatment of donor blood in order to destroy HIV-viral contamination. Bloed donation was, at one time, a source of income among various groups. Educational campaigns were employed to heighten the awareness of at-risk individuals not to donate blood.

The study participants were questioned about *blood donation behaviours from 1981-82 until 1987-88*. The trend is clearly a reduction in reported *blood donation behaviours*. Twenty-three men reported donating blood in 1985-86; thirteen men did not respond to the question. Seven men reported blood donation activity during 1987-88, and five did not respond to the question. Distribution of *blood donation during the years 1985-1986* and *1987-1988* for the serostatus populations is displayed in graphic form in Figure E.44. Certainly, by 1987-88, transmission of the virus via blood transfusions was well known in the general population. The men who donated blood either did not know the results of their previous HIV-testing or knew they were seronegative.

The serostatus populations are fairly comparable for these variables with clear reductions in *blood donation* from the earlier time period to the more recent one. Meaningful analyses for the purposes of this study cannot be conducted with the small number of men who were blood donors. The trend away from high-risk behaviours for oneself and for others in the study population is evident.

There is no crossover between *needle-sharing behaviours* and *blood donation in 1987-88*. The intravenous drug users were not the blood donors. The small number of intravenous drug users among the study participants were not donating blood.

The results pertaining to the various areas of the hypotheses have been elaborated. The full picture will be developed in the discussion section. Subsequent to that, conclusions and implications for further research will be drawn.

CHAPTER VI

DISCUSSION

This section will discuss in detail the results of the analyses of the HLCS. The analyses of the variables relevant to serostatus, *age* and *language/culture* will be discussed first, followed by discussion of the four major topic areas stated in the research hypotheses.

The HLCS will be discussed for the individual items of the scale in the present study population in the major focal areas: serostatus, *age*, and *main spoken language*. The patterns of the profiles yield valuable information about the items of the scale and about the main areas of interest of this study. The HLCS can be found in Appendix C or in section 7 of the study questionnaire (Appendix B). The composite I-HLC score used for the analyses with the chi-square test of association is composed of the five internally-oriented items.

The composite E-HLC score is composed of the five externally-oriented items: items 3, 4, 6, and 7 (items 7. 3, 7.4, 7.6, 7.7, and 7.9 in the questionnaire). Item 5, an externally-oriented item, was deleted from the composite variable due to the ambiguity of its wording, the lack of clarity being with what the respondent is agreeing or disagreeing. The patterns of the composite External Health Locus of Control scores for the most part mirror or form reverse profile of those of the I-HLC scores. The analyses of the E-HLC scores do not add substantive information and have, therefore, not been included in the reported results.

The analyses in the results and discussion sections focus on the I-HLC scores composed of the internally-worded items: 1, 2, 8, 10, 11 (items 7.1, 7.2, 7.8, 7.10, and 7.11 in the questionnaire). The analyses of the patterns of the individual internally-oriented items result in two subgroups. Items 1 and 11 provide parallel patterns, particularly when analysed for serostatus and for *age* ("30 and under", "31 to 40", "40 and over"). The two items are direct "I" statements of responsibility for one's health. Items 2, 8, and 10 provide a different pattern cluster. Items 2 and 8 are statements which contain an "or" component, which tends to result in an even distribution of responses and a possible reflection of difficulty of interpretation or agreement/disagreement with a statement containing an "or" component. Item 10 is worded in the general form of "people", a different presentation than the "I" form of all the other internally-worded items. The analyses of items 1 and 8 with serostatus are presented as examples of the two profiles of internally-oriented items (Tables D.175 and D.176). Items 1 and 11 result in distributions heavily loaded toward high internal expectancy of control over health.

Analyses of the internally-oriented items with *age* result in two subgroups, parallel to the ones resulting from the analyses with serostatus. Items 1 and 11 result in patterns which tend mostly to high internal Health Locus of Control, in particular among the men who are "under-40" years of age. The other subgroup of items - 2, 8, and 10 - results in patterns which tend towards high internality in the "30 and under" age group, towards moderate internality in the "31 to 40" age group, and even distribution among low/moderate/ high in the "40 and over" age group. Overall, there is a clear, gradual upward slope toward low internal expectancy of control over health as *age* increases, and an opposite downward

slope in high internal expectancy of control as *age* increases. The men who are "31 to 40", as a group, are the most moderate in their internal expectancy of control over health.

Analyses of the individual internally-directed items of the HLCS with *age*, according to serostatus, yield distinctive results for the serostatus groups. All the items, with the exception of item 8, result in parallel patterns for all the *age* groups of the seronegative men. Item 2 also results, although not as dramatically as item 8, in patterns which are somewhat diverse, patterns presumably connected with the "or" component. The patterns of the results of the analyses of the internally-oriented items with *age* among the seropositive men are varied for the different age groups. Item 11 is the only item which produces a profile of high internality among all three age groups. The analyses of the other items result in a consistent tendency toward high internal locus of control for the "30 and under" age group (with varied profiles of low and moderate), and inconsistent profiles for the two other age groups of "31 to 40", and "40 and over". Analysis of item 1 results in a pattern of high internality for the "40 and over" age group, parallel to the patterns of the analyses of item 11. However, the pattern is not parallel for the "31 to 40" age group for this item. There is a visible tendency toward lowered internality with *age* for items 2, 8, and 10.

Analyses of the internally-oriented items with *language spoken most often at home* reflect the subgroups described for serostatus and for *age*. The distribution of the results of the analyses of items 1 and 11 is one of high internality. The distribution of the results of the analyses of items 2, 8, and 10 is one in which the moderate internal expectancy of control over health is greater than the high internal expectancy. The English-speaking participants (n=98) are

relatively more highly internal than the French-speaking participants (n=168). Analyses of the *main spoken-language* groups, according to serostatus, result in profiles of the English-speaking seropositive men as consistently more highly internal than the French-speaking seropositive men. There are no consistent patterns elicited from the analyses of the *main spoken language* among the seronegative men.

The patterns for I-HLC scores presented by the serostatus populations are statistically and substantively distinctive from each other. The hypothesis about the profile of I-HLC scores for serostatus is supported. The null hypothesis is rejected in this area. The seronegative men are proportionately more highly internal in their expectancy of control over health. The seropositive men tend to be proportionately more moderate and low in the patterns of their I-HLC Scale scores.

The hypotheses related to *age* are upheld in the seropositive population, a profile toward diminished internal health locus of control which is supported in the literature. Each older decade reports a clear tendency to be less highly internal in its internal expectancy of control over health. The "21 to 30 year old" seropositive men present as highly internal. They present a distinct profile from the older men, as predicted. The null hypothesis is rejected in relation to "younger men". Diminished internal expectancy of control over health is reported in the literature on patients with chronic pain and chronic illness. The patterns obtained in this study are reflective of those found among men with chronic pain and among studies of seropositive homosexual men. The null hypothesis is rejected for the variable *age* among the seropositive men.

The three men who are "under 21" years of age, all three of whom are seronegative, may actually present a distinct group both in terms of Health Locus of Control scores and in terms of other high-risk variables. It is impossible to determine from the present analyses. The literature is supportive of the view that this is an area to pursue.

The statistically significant trend among the seropositive men is visible among the seronegative men, but only as a trend and not statistically significant. The younger seronegative men ("under 30") present a pattern in their I-HLC scores which is more highly internal than the older men ("over 40").

The predictions about the *language* variable were not supported. The only difference of significance in this area is that of serostatus. Significantly more of the seropositive men are French, while the seronegative men are English. The null hypothesis is accepted for the area of *main spoken language*.

The majority of the seropositive men who participated in the study knew they were seropositive, knowledge that may have had an effect upon their expectancy of control over health. They had been infected with HIV and were vulnerable to develop AIDS. Seronegativity - as the majority of the seronegative study participants knew themselves to be - appears to have reaffirmed a sense of an internal expectancy of control over health.

Prior knowledge of serostatus in the study population may have influenced the patterns of the reported health locus of control scores. Perusal of this variable raises the question of the impact of prior testing and knowledge of results on behaviour and on health locus of control. The breakdown of the proportions is comparable for both subpopulations, seropositive and seronegative.

Table 28.

Reported *Knowledge of Serostatus* in the Study Population According to True Serostatus at the Time of Data Collection

PRIOR SEROSTATUS KNOWLEDGE	SEROPOSITIVE	SERONEGATIVE
One previous positive result	84%	0%
One previous negative result	7%	85%
Never been tested	6%	8%
Don't know testing results	3%	7%

Topic I: Discussion of Hypotheses

The seropositive study participants displayed a consistent pattern of a tendency toward younger ages when questioned about *age one first considered oneself to be homosexual* and *age of first homosexual experience*. A trend is established toward the seropositive men in the study having been exposed earlier in the epidemic to HIV infection than the seronegative men of comparable ages. The seropositive men have been homosexually active for a longer time than the seronegative men of comparable ages. Earlier on in the AIDS epidemic, at-risk individuals were less knowledgeable about the virus, infectivity, and modes of transmission.

The patterns of the I-HLC scores for the variables *age of awareness of homosexual orientation* and *age of first homosexual experience* are ones in which the men who are low report the earlier ages. The men who are moderate and high report parallel patterns for these variables. This pattern is present in both

serostatus populations. This pattern of distinctiveness presented by the men who are low in their internal expectancy of control over health is repeated in several key areas throughout the analyses. The patterns are visible, although for the most part not statistically significant.

The differences between the two serostatus populations in terms *of age of awareness of homosexual orientation* are dramatic. These differences may relate to some of the other differences found along the lines of serostatus for other variables .

The analyses of the variable *age of first homosexual sexual experience* support the patterns found for the men who are low in their internal expectancy of control over health. They respond proportionately the least with "age 1-10", and the most with "age 11-20". Again, the men who are moderate and high in their I-HLC scores parallel each other. The differences for this variable along the lines of serostatus are not as dramatic as the previous variable, but the trends parallel those for *age of awareness of homosexual orientation*.

Significant differences exist between the serostatus groups on *age of first homosexual experience* and *age of first anal intercourse*. The latter variable is reported in the literature as critical to maintaining reduction in high-risk sexual behaviours or levels of safer sex among homosexual men. The patterns suggest that these men may differ in their early sexual experiences, and possible traumatic experiences, all of which were not explored in the study questionnaire.

The variables *openness with straight friends* and *openness with relatives* result in differences of significance between the serostatus populations. The seropositive men are more open with both groups, responding with "all" substantially more than the seronegative men. There is no difference in *openness with work associates.*

The trend in the components of this variable of *openness about homosexual orientation* is reflected repeatedly: the moderately internal men respond heavily with the middle response category (i.e., "somewhat", "fairly"). The men who are highly internal tend not to respond with the middle response category of various items. The men who are low respond proportionately the most with "more than 50%". The men who are highly internal distribute evenly among the three categories of "50% or less", "more than 50%", and "all".

The men who are low in their internal expectancy of control over health appear to be more *open with straight friends and relatives*, irrespective of their serostatus. Thus, the trends cannot be attributed to illness symptoms. Knowledge of serostatus may have had an impact on this variable among the seropositive men. However, the trend among the men who are low in their internal expectancy of control over health is supported with repeated patterns resulting from different variables.

The men for the most part report "two to five" *people that one can trust.* The men seem to have a support network. The level of satisfaction with their support network was not explored in this study. The fact that both serostatus populations report similar numbers of people they can trust seems to be indicative of an acceptable, and perhaps satisfying, situation of social support.

The seronegative men report spending proportionately more of their *leisure time with other gay men* as compared with the seropositive men. There is no available indication from the data collected as to whether this proportionate difference reflects a change that may relate to serostatus or reflects distinct patterns of lifestyles between the two serostatus populations.

Although the variable *attitudes towards one's homosexual orientation* does not distinguish between the two serostatus populations, the variable *weight of*

one's homosexual orientation does differ. The seronegative men report that knowledge of their homosexuality weighs on their mind. The seronegative men report spending more leisure time with other homosexual men and report being more burdened by their homosexuality.

The seronegative men differ significantly in the analysis of the variable *feelings of happiness these days* with the I-HLC scores. The men who are low distribute evenly among the three categories. Although small in number, the impact of the low internal category is evident. They do not provide clear responses. The men who are moderate and high in their I-HLC scores are distinctly "happier". The men who are low are less "happy" and more "unhappy". The pattern for the seropositive men is visible throughout all the analyses of this variable, whether statistically significant or not. The men who are low are "more unhappy" and "less happy", regardless of serostatus. This is supported by the patterns of the E-HLC scores in the total population. Changes in feelings of happiness are quite distinctive according to serostatus.

The *level of worry in general* is parallel for both populations. The seropositive men's answers are more to the extremes for this variable, 10% of the seropositive men respond with "not at all" and 30% respond with "a great deal". The seronegative men do not respond with "not at all".

The patterns of the analyses of the variable *level of worry in general* in the seropositive population reflects that found in the analysis of the variable *level of happiness*. The seropositive men who are low in their internal expectancy of control over health respond proportionately the most with "more worry", and the men who are high proportionately the most with "less worry". The men who are low report being comparatively more "unhappy" and more "worried".

The seronegative men report being less *worried about getting AIDS*. The seropositive men respond as less *worried about the risk of getting AIDS*. The men may have viewed this question as referring to the illness AIDS or the virus HIV, respectively, and thus, responded along serostatus lines. Incorporation of a denial scale would have been useful.

Topic II: Discussion of the Hypotheses

The analyses of the I-HLC scores with the variable *reason for the clinic visit* are significant. The men who are highly internal report coming to "request an HIV-antibody test" and for "routine checkups". The men who are moderate and low in their internal expectancy of control over health report coming proportionately more for "illness-related symptomatology". The obtained patterns of significance are in the predicted directions and support the theory of Health Locus of Control and the literature in this area. The null hypothesis relevant to this variable is rejected.

The analyses of this variable among the seropositive men are statistically significant and reflect the patterns of the analyses in the total population. The patterns are reflected in the analyses of this variable for the seronegative men, although they do not reach statistical significance. High I-HLC scores is strongly associated with requesting an HIV test and coming for routine checkups in the study population. Request for HIV-antibody testing can be viewed as a health-oriented initiative because AZT is administered, increasingly often in combination with other medications (the most recent being DDC), to asymptomatic HIV-positive individuals. Lowered I-HLC scores are strongly associated with having illness symptoms.

The variable *reason for clinic visit* is significantly different in distribution for the serostatus populations. The seropositive men came proportionately more for "illness-related" reasons and for "HIV information". The seronegative men came proportionately more to request "HIV-testing" and "routine checkups". No information is available as to who booked the appointment, which might have added to an understanding of the differences.

The analyses of the I-HLC scores with the variables related to *hepatitis-B testing and vaccination* are not substantively nor statistically significant. More than half of the men had been tested for antibodies to the hepatitis-B virus. Perusal of the patterns derived from the analyses indicate that proportionately more of the men who had been tested are low in their internal expectancy of control over health. There was no discernible pattern in *history of vaccination behaviour. Hepatitis-B vaccination behaviour* requires the initiative or the agreement of the patient; whereas, *testing* may have been a routine part of STD tests for many of the men. The null hypothesis for this variable is upheld.

The *reasons for lack of hepatitis-B vaccination* are scattered across the spectrum. The men who are highly internal are the men who might have initiated the request for hepatitis-B vaccination, information which can only be conjectured from the data. There is no meaningful pattern. The most common reason given for lack of vaccination was "already have antibodies to hepatitis-B".

The variables of *hepatitis-B testing and vaccination behaviours* present different patterns in the two serostatus populations. Proportionately more of the seropositive men had been tested for hepatitis-B antibodies, whereas proportionately more of the seronegative men had not been tested. However, the pattern is reversed for hepatitis-B vaccination. These findings are supported by increased history of *cofactor STDs* among the seropositive men. The seronegative

men as a group became homosexually active at a later age and may have been better informed and/or more careful of health maintenance.

The reported incidence of other *cofactor illnesses* for seroconversion and the development of AIDS are displayed in Table 19. The differences in incidence rates for the serostatus populations are dramatic. The seropositive men proportionately report a history of having had almost all the illnesses two to six times more than the seronegative men. The reported incidence rates of the serostatus populations are comparable for *sores of the penis*, and less than double for *genital herpes*. The seropositive men respond clearly proportionately more with "don't know" for all the illnesses, with the exception of *gonorrhea of the penis, syphilis*, and *hepatitis-B* which are only slightly elevated. The highest response rates of "don't know" are to the illnesses related to *gonorrhea* (*throat, rectum*, and *penis*) and to *herpes* (*genital, anal*). The "don't know" response must be viewed as a "yes" in the case of these illnesses.

None of the analyses of the *cofactor illnesses* with I-HLC scores are statistically significant. The null hypothesis is accepted for the variables related to *cofactors*. Examination of the analyses reveals distinctive patterns, which are repeated throughout the components of this variable. There is a clear trend among the men who are low in their internal expectancy of control over health. The patterns of the men who respond "yes" to the various STDs reflect those of the analyses of the seropositive population for the cofactor illnesses. The corollary is true for the men who respond "no", as reflective of the analyses of the seronegative population.

The differences in incidence of cofactor illnesses reach statistical significance along the lines of serostatus for all the reported *strains of gonorrhea, syphilis, intestinal parasites, hepatitis-A* and *-B, herpes of the lips and the anus,*

sores around the anus, and genital/anal warts. The seropositive men report a significantly increased level of all the *cofactor illnesses* which are indicators of high-risk sexual behaviours. These differences reinforce the patterns of high-risk behaviours reported by the men in the study.

Topic III: Discussion of the Hypotheses

The variables in this topic area relate to *accuracy of knowledge* and *sources of knowledge about HIV and AIDS*. The *sources of information* that more men report as useful are *media-related, journalism-related*, and the *physician*. Almost 30% of the men view *newspapers, TV, radio, journals, gay newspapers and magazines*, and *posters/fliers* as *very useful sources of information*. The seropositive men and the men over "40 years" of age in both serostatus groups rely significantly more on the physician. Altogether, the physician is the main source of useful information for the study participants.

The analyses of the variables related to *sources of information other than the physician* do not provide an interpretively meaningful sequence of patterns. The men who are highly internal in their internal expectancy of control over health either distribute their responses evenly among all levels of response categories or tend to cluster in the "somewhat" category. The seropositive men who are low respond as the most reliant upon the *physician as the source of information*. This may relate to greater history of illness symptomatology. Among the seronegative men, the men who are highly internal are the most reliant upon the *physician as their source of information about HIV and AIDS*. Yet, physicians are reticent to discuss HIV-related issues inhibiting effective counselling, frequently responding only to the patient initiative (Fredman, Rabin, Bowman, Bandemer et al., 1989).

The men's responses to the scales of *knowledge* are fully described in the results section. A correct response rate of at least 85% for all the definitive, nonambiguous items was obtained for the total study population. There are three scales measuring *knowledge*. The seropositive men as a group appear to be minimally more knowledgeable. However, the items where the seronegative men tend to be more accurately knowledgeable have greater implications for placing oneself at risk.

The vast majority of the men view *mutual masturbation* and *deep kissing* as "no risk" activities. This view is reflected in the men's responses of high levels of participation in them. In terms of I-HLC, the men who are highly internal view the activities related to *oral sex* as for the most part "high risk". The men who are low are the only ones to respond to *oral sex with the swallowing of ejaculate* as "no risk". It is possible that this response pattern among the men who are low in their internal expectancy of control over health was influenced by the cohort of men who knew they were HIV-antibody positive. However, this is not reflected in their other responses. It appears that the men who are low are a distinct group in many areas explored by the present data.

Belief about the risk level of *deep kissing* did significantly distinguish the two serostatus populations. The seropositive men viewed *deep kissing* significantly more as "no risk", and the seronegative men as "low risk". It may be that the seropositive men engaged in this activity as a major sexual outlet and need to see it as "no risk". The seropositive men viewed *anal intercourse without ejaculation* and *with ejaculation* as less risky than the seronegative men. The responses may have reflected the risk level for themselves, although the questionnaire is not phrased as such.

A substantial proportion of the men responded to *monogamy* as low risk, that is almost 50% of the seropositive men and about 40% of the seronegative men. *Monogamy* apparently is viewed as including anal intercourse activity, and therefore having risk attached. The question does not differentiate between primary monogamous partners and "fuck buddies".

The item that *a positive AIDS test means one will eventually develop AIDS* elicits dramatically different responses from the two serostatus populations. The seropositive men respond with "disagree" or "not sure". The seronegative men respond with "agree". The position of the two groups in relation to this question is sharply delineated along the lines of serostatus. The response patterns of the seropositive men change for this item, possibly reflecting an elevated anxiety level. Again, a denial scale would have been useful.

As an indicator of knowledge gleaned from a recent campaign targeted at sexually active homosexual men in Montreal, the men were asked about the *influence of the campaign "Jouez-sûr"*. The response patterns do not provide a meaningful picture. The seronegative men were more aware of the campaign and its influence, though minimally so. There was no discernible relationship with the I-HLC scores. The *media* and the *physician* are more influential *sources of information*. The null hypotheses for the variables related to *accuracy of knowledge* are supported.

Further exploration of the variables related to *knowledge* incorporated *previous testing for HIV-antibody status of oneself* and *of one's partner, knowledge of HIV-test results*, and *choosing to know the results of HIV-antibody testing* from the blood drawn at the time of data collection.

The variables related to *previous testing* result in patterns of the I-HLC scores which reflect the breakdown of the serostatus populations. The majority of

the men knew their true serostatus at the time of data collection. It is interesting to note that proportionately more of the seronegative men than the seropositive men had not had previous HIV-antibody testing. This may represent the sampling procedure, as the study participants were recruited in a medical clinic. It would seem that it reflects the men's clear knowledge of their own risk level. Five men had seroconverted since a previous test.

The seropositive men were significantly less knowledgeable about *the HIV-status of their partner.* Obviously, this information has reduced significance for the seropositive men. The serostatus populations reported proportionately equivalent percentages of primary partners with the opposite serostatus.

The variable *choosing to know one's test results* from blood drawn at the time of data collection produces substantive results. Statistical significance is reached for this variable for the total population and for the seronegative subpopulation. The men who are more highly internal respond definitively more "yes" to this item. High I-HLC is significantly associated with the choice to know one's HIV test results in the total population and among the seronegative men. The pattern is visible among the seropositive men as well, though not as strongly . The null hypothesis is rejected for this knowledge-related variable.

Topic IV: Discussion of the Hypotheses

The study participants reported low rates of high-risk sexual behaviours as compared with other North American urban centers. This is consistent with reports that the Montreal male homosexual community is conservative in their sexual practices (R. Remis, personal communication, 1991).

Exploration of the variables related to *high-risk sexual behaviours* and *changes in high-risk behaviours* in the study population incorporated the analyses

of the variable *importance of sex*. *Importance of sex* reflects values and attitudes towards sexual behaviours which impact upon attempts to change targeted behaviours (Mittag, 1991). The variable *importance of sex* is significant for the I-HLC scores in the total and in the seronegative subpopulation and is further reflected in the statistically nonsignificant patterns in the seropositive subpopulation.

The men who are low in their internal expectancy of control over health are significantly different in the patterns of their responses to this item from the men who are moderate or high. The men who are low distribute in a balanced manner among the levels of responses. The men who are moderate and high display response patterns which are parallel. This is reflective of other variables in which the men who were moderate and high tended to cluster in the middle response categories.

The responses of the seronegative men display a greater discrepancy between the moderate and high categories. The responses of the seropositive men reflect those of the highly internal respondents who view sex as more important. This is reflective of the younger men who are more highly internal. The patterns of influence are those of the men who are low in their internal expectancy of control over health. The null hypothesis is rejected for the variable importance of sex. However, the direction of difference is not the one that had been predicted. The low internal subjects are a small group with significant influence.

The other variables incorporated in this topic area relate to *multiple partners, high-risk sexual behaviours*, and *high-risk drug-abusing behaviours*. *Receptive anal intercourse* is the high-risk marker activity among sexually active homosexual men. Based on the study questionnaire, 256 or 89.5% of the men report having participated at some previous time in *receptive anal intercourse.*

The majority report a lifetime practice of receptive anal intercourse with a range of 1 to 49 partners, again reflecting numbers which are indicative of a conservative population with regard to their sexual practices.

The men reported their level of *participation in high-risk anal sex during the month prior to data collection with one-time partners* as follows. In the seropositive group, 2/69 (2.9%) reported participation in unprotected receptive anal intercourse, and 9/213 (4.2%) of the seronegative group reported participation. *Participation in unprotected insertive anal intercourse during the previous month* was reported by 4/70 (5.7%) seropositive men and by 15/210 (7.1%) seronegative men.

The men clearly had lower levels of *participation in receptive anal intercourse* than *participation in insertive anal intercourse*. The study participants had lower levels of either activity *with one-time partners* than *with repeat partners*. All the study recruits were keenly aware of what constitutes high-risk behaviours. The awareness was reflected in their *present sexual behavioural patterns* and in their reported *changes in the high-risk sexual behaviours*.

There is some discrepancy between the rates of *participation in high-risk sexual behaviours* - whether *with repeat partners* or *with one-time partners* - for data *during the past one month* and *during a typical month this year*. The rates for a typical month are higher, but follow the same pattern distributions.

The reported *changes in the high-risk sexual behaviours* were made by a minority of the study population who responded affirmatively to having *participated in receptive/insertive anal intercourse* during the delineated time frames. The overall pattern of the changes are in the direction of safer sex. The vast majority of the men responded with "not applicable", not having participated in the anal intercourse activity in the particular time frame or with the specified

partner. Therefore, the analyses are based on a small number of men. An unusual pattern emerges for insertive anal intercourse with one-time partners in which the seropositive men who are low internal increased their high-risk behaviours.

The men who report highly internal expectancy of control over health in the total population and among the seronegative men report lower *total number of partners*. All of the seropositive men had *participated in receptive anal intercourse*, whereas about 10% of the seronegative men had not. The seropositive men participated in *receptive anal intercourse* at distinctly earlier ages than the seronegative men. The data provide support for the importance of *receptive anal intercourse* as an indicator of risk and as a predictor of high-risk behavioural relapse. These findings are supportive of the literature.

The language of the questions relevant to high-risk sexual behaviours was carefully reviewed. The patterns of the responses were examined when the presented statements were composed of active as compared with passive language, e.g., "I used a condom", "a condom was used". Questions with double negatives were omitted altogether from the analyses due to their ambiguous meaning. There was no difference in the patterns of responses to items using active as compared with passive language. The men as a group have reduced high-risk sexual behaviours dramatically. They have reduced the number of sexual partners. They have increased condom use.

The seropositive men in this study have proportionately reduced their *high-risk sexual behaviours* more than the seronegative men. This dramatic change among the seropositive men happens on the background of their having participated proportionately more in all the *high-risk sexual activities* three years earlier. The seronegative men's responses indicate that there are a small number of seronegative men who continue to participate or who have increased their *high-*

risk sexual behaviours. The number of seropositive men who report these disturbing patterns is fewer.

The men who maintain or increase their *level of high-risk sexual behaviours* are almost exclusively moderate and high in their internal expectancy of control over health for almost all the incorporated variables. The men who do not report the high-risk behaviours are the men who are low in their internal expectancy of control over health. The derived patterns are based on small numbers of men, as the vast majority of the men respond with "not applicable" *to participation in high-risk sexual behaviours*. Therefore, the null hypotheses related to high-risk sexual behaviours are accepted. However, there are clear pattern differences for these key variables, differences that link with those described several times for the men who are low in their internal expectancy of control over health. Even more disturbing, the patterns indicate that the men who are highly internal are the men who are the most active in *high-risk sexual behaviours*.

The analyses of the items related to the *high-risk behaviours of intravenous drug use and needle-sharing* yield results which again stress the conservative nature of this Montreal homosexual population. Nine men (2.3%) reported intravenous drug use during the past five years; five men (1.5%) reported shooting up during the past six months. All nine men reported needle-sharing behaviours as synonymous with drug use. Seven of the men had had negative HIV-antibody test results, one had not been tested, and one had received positive results. Almost half of the men had stopped their high-risk drug use. The men who were reporting intravenous drug use during the six months prior to data collection either knew they were seronegative or did not know their serostatus.

The null hypotheses posed for the variables related to intravenous drug use, therefore, are accepted. No substantive information can be gleaned for I-HLC related to intravenous drug use. The methods of data analysis employed in this study cannot be used with small "numbers". In-depth interviewing or ethnographic approaches would be indicated for future research.

The men who reported donating blood were not the men who were participating in intravenous drug use. There is a clear trend over the determined time period in significant reduction in *blood donation*. The trend correlates with the publicity of the Red Cross that members of at-risk groups not donate blood. In some geographical locales, blood donation was a common means of determining HIV-antibody status. This has for the most part not been an issue in Canada where HIV-antibody testing is universally available at no cost.

The design of the questionnaire presents flaws that resulted in gaps in the possible analysis of the data and which begs correction in future studies. Sexual behavioural history was obtained with one-time partners and with repeat partners ("partners with whom you had sex on more than one occasion...and also the man whom you consider to be your primary partner"). The questionnaire did not differentiate between repeat partners and primary partners. It is known that "fuck buddies" are the norm with some homosexual men. They are repeat partners, but not primary partners. No conclusions can be drawn from the data about men who have primary partners - neither their patterns of health locus of control, nor their behavioural patterns. Ross and Rosser (1991) recommend the use of three dimensions of unsafe homosexual behaviour for use in research in this area.

Numerous items about anal sex in the study questionnaire did not incorporate level of condom use. The variables investigating condom use did not delineate the number of times condoms were used out of the total number of

sexual encounters. Similarly, the items exploring condom breakage cannot be meaningfully analysed as the items do not include any data on the rates of usage. Thus, a meaningful rate of condom breakage cannot be established.

The questionnaire uses colloquial language and academic language, interchangeably, without consistency. There are several glaring omissions in the questionnaire. No information is requested about alcohol usage at all, nor drug-taking in conjunction with sexual behaviours. Alcohol use is reported to increase levels of risk taking during sexual activity. We have no data in this area.

What are the discernible differences based on the data collected in the present study which account for serostatus, for maintaining health in the 216 seronegative men? Did the seronegative men have distinctive patterns of health locus of control before being informed of serostatus? Were these men maintaining a more highly internal expectancy of control which resulted in accurate information earlier in the epidemic? Were they more active and insistent in maintaining safer sex? Were they exposed more to the deaths of friends and lovers from AIDS (Viney, Henry, Walker, & Crooks, 1991-1992)? Are the men who seroconvert higher risk-takers? A prospective study of homosexual men would answer these questions. In-depth interviews of the men during the course of a prospective study would add another dimension of importance.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The conclusions, summary statements, and implications are applicable to the present study population. The findings of importance are presented in summary form in Figure 4. All the following statements refer to the homosexual men who participated in the present study. The nature of this study as cross-sectional limits the statements of inference and generalisability. The data may be reflective of the Montreal male homosexual community; however, the representativeness of the study sample cannot be determined.

The seropositive men differ significantly from the seronegative men in their internal expectancy of control over health-related reinforcements. The seronegative men were more highly internal, whereas the seropositive men tended towards moderate internal expectancy of control with a profile of lowered I-HLC scores as compared with the seronegative men. The clear tendency of the seropositive men toward moderate I-HLC scores is consistent throughout the analyses.

The pattern toward diminished internal health locus of control is progressive with age in both serostatus populations and is reflective of the literature. Each older decade displays a clear tendency to be less highly internal in their expectancy of control over health. Age is an important variable in relation to expectancy of control over health-related reinforcements. The pattern of a more

highly internal expectancy of control over health-related reinforcements presents in the seronegative study population and in the "21-30" age group of the seropositive population. The different age groups within the seropositive men differ significantly from each other in their internal expectancy of control. The "31-40" and "over-40" years of age seropositive men report less highly internal locus of control over health - a finding which is supported by the literature on men with chronic illness.

The seropositive study participants tended to younger ages of awareness of one's homosexual orientation and of encountering one's first homosexual experience. The seropositive men were, as a group, exposed at consistently earlier ages to the human immunodeficiency virus and can be assumed to have had more sexual encounters at a time when knowledge about HIV, AIDS, and high-risk sexual behaviours was limited. When men of comparable ages of awareness of homosexual orientation are compared, the patterns of health locus of control tend to be more highly internal among the seronegative men.

More of the seropositive men (91%) than the seronegative men (85%) had been tested for HIV-antibody status. Seven percent of the presently seropositive men had previously received seronegative test results and may have still presumed that they were seronegative. The vast majority of the men who participated in the study knew their true serostatus. The seropositive men for the most part were aware that they were HIV infected and were vulnerable to develop AIDS. Seronegativity - as the majority of the seronegative study participants knew themselves to be - may have reaffirmed a sense of an internal expectancy of control over health. The influence of prior knowledge of serostatus in the study

Figure 4

Summary of Findings of Importance

TOPIC I

Age of awareness of homosexual orientation	*Seropositive	*Low
Age of first homosexual experience	*Younger ages	Mainly "11 - 20"
Openness with straight friends and relatives	*Seropositive	*Low
Weight of homosexuality	*Seronegative	
Leisure time with other gay men	*Seronegative	
Feelings of happiness		*Low
Level of worry in general		*Low / High

TOPIC II

Reason for clinic visit	*Seropositive / Seronegative	*High / Low / High
Hepatitis - B vaccination and testing	(>50% not tested) Seropositive tested Seronegative vaccinated	
Cofactor illnesses	*Seropositive	

TOPIC III

Sources of information: HIV / AIDS	*Seropositive and "over 40"	*Low Seronegative / High
Scales of knowledge	Differences in responses	*High
Choosing to know the results		*High (total and seronegative)

TOPIC IV

Importance of sex		*Low
High-risk sexual behaviours	*Seropositive	Patterns Seronegative: High Seropositive: Low
IVDU behaviours Blood donation		
Consistent differences:	One-time / Repeat Partner; Receptive / Insertive	
Changes...	to safer sex	

Note. * indicates statistical significance

population upon the patterns of the reported health locus of control scores must be considered.

The men as a whole are a knowledgeable group who appear to be active information-seekers. The data do indicate that men who are highly internal are information-seekers. High internal expectancy of control over health is associated with increased knowledge and desire for knowledgeability among the men who participated in this study.

Changes in high-risk sexual behaviours in the study population are parallel to those reported in other studies of urban homosexual men. The self-reported changes are corroborated by the rates of rectal gonorrhoea. The seronegative men as a group reported greater caution than the seropositive men as a group in history of participation in high-risk sexual behaviours (e.g., insertive anal sex, receptive anal sex).

In all the explored sexual activities, with the exception of receptive anal intercourse, there was a consistent small number of seronegative men who maintained or increased their level of participation in high-risk sexual behaviours. The men who reduced or indicated non-participation in high-risk sexual activities were for the most part low in their internal expectancy of control over health. This pattern is repeated again and again. Clarity is lost in this important area of high-risk sexual behavioural practices due to the deficiency of the questionnaire in its lack of differentiation between repeat partners and primary partners.

The study participants reported low rates of high-risk sexual behaviours as compared with other urban homosexual rates. This is consistent with reports of others regarding the Montreal male homosexual community as very conservative

in their sexual practices and with the reduction in high-risk behaviours within other urban American centres.

The data corroborate a clear overall trend in the reduction of high-risk sexual behaviours throughout the study population. Condom usage has increased with a concurrent reduction in the number of one-time partners. Reduction in high-risk sexual behaviours is reported by the seropositive and the seronegative study participants. Intensive educational campaigns have been targeted at the Montreal homosexual population prior to and concurrent with the present study.

A prospective study of homosexual men with in-depth interviews is indicated for future research with this population. The questionnaire should be adjusted to incorporate the deficient areas. Additional scales which would buttress the research would be: scales to measure denial and depression; instruments to measure personal responsibility, self-efficacy, and behavioural intentions; an AIDS-specific HLCS; and scales to measure self- and peer attitudes towards safer sex, condom use, alcohol and drug use. Serostatus appears to be the influencing variable in the patterns of HLCS scores throughout the data analyses. It would be indicated to incorporate a biopsychosocial approach into future research, taking into account the interactions between all areas into the pathogenesis of AIDS.

The men who are high and the men who are low in their internal expectancy of control over health appear to be two distinct groups. The men who are low are the men who may provide an understanding of the factors which enable maintenance of safer sex. Interventions as well as physician style may need to be adapted to match the needs and the ages of the target groups. The literature on matching physician style or medical intervention approach with patient health

locus of control in chronic illness is certainly relevant, although it is not clear that the HIV-antibody positive men in this study follow the lines described in the literature on patients with chronic illness.

Prospective studies are indicated to better understand the implications of these analyses for health maintenance in the area of HIV and AIDS. Such studies should attempt to coordinate health-care approaches with patient health locus of control. Certainly, initially highly internal health locus of control in patients with chronic illness is a factor in knowledge of illness and active participation in care. The role of an internal expectancy of control over health may become more clear or, alternatively, more complex as illness progresses.

The assumption has been made in this study that health has a high value. Health as defined by seronegativity in this population is presumed to be highly valued. However, there may be distinctions in the view of health held by the seropositive men and by the seronegative men. These distinctions may be a key variable in the differences in HLCS patterns. Scales that measure health value would have to be administered to determine this.

A useful adjunct to the questionnaire approach would be open-ended discussions following the principles of focused interviews (Merton, Fiske, & Kendall, 1956). Qualitative exploration of the experiences of health-maintenance and sexual decision-making would enhance knowledge and promote effective interventions.

Prospective studies would track health value and health locus of control prior to and following seroconversion in order to distinguish between those who maintain their seronegativity and those who do not, as well as the impact of

seroconversion on health locus of control and its possible role in maintaining health following seroconversion. Prospective studies would establish the causal relationship between social learning constructs and changes in high-risk behaviours.

A trend is established toward the seropositive men in the study having been exposed earlier on in the epidemic to HIV infection than the seronegative men of comparable ages. The seropositive men have been homosexually active for a longer time than the seronegative men within the comparable age groups. As well, earlier on in the AIDS epidemic, less was known about the virus, infectivity, and modes of transmission.

Age of first homosexual experience is a significant factor in unprotected anal sex (Doll, Judson, Ostrow, O'Malley et al., 1991) and in relapse to unprotected anal sex .

> "...risk behaviour relapse is strongly predicted by earlier history of frequent high-risk practices, especially unprotected receptive anal intercourse, high levels of sexual activity with multiple partners, high subjective gratification derived from risky sexual practices, sexual activity when intoxicated, and younger age...resumption of risk behavior was most saliently related to the strength, frequency, and reinforcement value level of behavior in the past." (Kelly, St. Lawrence, & Brasfield, 1991, pp. 165-166)

Relevant areas of information which are missing from the questionnaire are the clinical information from the medical examination that preceded the questionnaire, information about antiretroviral or immunomodulating treatment, information about the length and exclusivity of primary partner relationship,

alcohol use, drug use in conjunction with sexual practices, reinforcement value of the high-risk sexual practices, and the impact of primary partnership on specific sexual practices.

Targeted interventions would incorporate the importance of the physician in this study population. The suggestion of an AIDS specialty is a propos to the findings (Cotton, 1989). Interventions need to be tailored to the two subgroups found in this study. The history, response patterns, and high-risk sexual practices of the men who are low and the men who are high in their internal expectancy of control over health differ. There are a small number of men of great concern who persist in high-risk sexual activities. They may be representative of a larger pool of men who refuse to participate in studies and refuse to be tested. All the men are highly knowledgeable about HIV and AIDS.

It is possible that the men who are low in their internal expectancy of control over health are somewhat depressed or dysphoric (Murphy, Brasfield, Koob, Bahr, & St. Lawrence, 1991). People who are depressed are more acutely aware of risks and less willing to partake in high-risk behaviours. The men's early sexual history requires further exploration. It is possible that these men may never have eroticised anal sex, or that the reduced importance attributed to the value of sex may reflect reactive depressive symptomatology. The HIV-related histories of the participants are not available, All these data would provide important and relevant information. Future research and interventions need to incorporate the findings from the present study.

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APPENDIX A

Standards for Prevention, Counselling, and Treatment (CDC; WHO)

Principles of Community-Level Interventions (Coates & Greenblatt)

Ethical Principles for Psychological Research (APA)

Recommendations

1. Community health education programs should be aimed at members of high-risk groups to: (a) increase knowledge of AIDS; (b) facilitate behavioral changes to reduce risks of HTLV-III/LAV infection, and (c) encourage voluntary testing and counseling.

2. Counseling and voluntary serologic testing for HTLV-III/LAV should be routinely offered to all persons at increased risk when they present to health-care settings. Such facilities include, but are not limited to, sexually transmitted disease clinics, clinics for treating parenteral drug abusers, and clinics for examining prostitutes.

   a) Persons with a repeatedly reactive test result (see section on Test Interpretation) should receive a thorough medical evaluation, which may include history, physical examination, and appropriate laboratory studies.

   b) High-risk persons with a negative test result should be counseled to reduce their risk of becoming infected by:

      (1) Reducing the number of sex partners. A stable, mutually monogamous relationship with an uninfected person eliminates any new risk of sexually transmitted HTLV-III/LAV infection.

      (2) Protecting themselves during sexual activity with any possibly infected person by taking appropriate precautions to prevent contact with the person's blood, semen, urine, feces, saliva, cervical secretions, or vaginal secretions. Although the efficacy of condoms in preventing infections with HTLV-III/LAV is still under study, consistent use of condoms should reduce transmission of HTLV-III/LAV by preventing exposure to semen and infected lymphocytes (9,10).

      (3) For IV drug users, enrolling or continuing in programs to eliminate abuse of IV substances. Needles, other apparatus, and drugs must never be shared.

   c. Infected persons should be counselled to prevent the further transmission of HTLV-III/LAV by:

      (1) Informing prospective sex partners of his/her infection with HTLV-III/LAV, so they can take appropriate precautions. Clearly, abstention from sexual activity with another person is one option that would eliminate any risk of sexually transmitted HTLV-III/LAV infection.

      (2) Protecting a partner during any sexual activity by taking precautions to prevent that individual from coming into contact with the infected person's blood, semen, urine, feces, saliva, cervical secretions, or vaginal secretions. Although the efficacy of using condoms to prevent infections with HTLV-III?LAV is still under study, consistent use of condoms should reduce transmission of HTLV-III/LAV by preventing exposure to semen and infected lymphocytes (9,10).

      (3) Informing previous sex partners and any persons with whom needles were shared of their potential exposure to HTLV-III?LAV and encouraging them to seek counseling/testing.

      (4) For IV drug abusers, enrolling or continuing in programs to eliminate abuse of IV substances. Needles, other apparatus, and drugs must never be shared.

(5) Not sharing toothbrushes, razors, or other items that could become contaminated with blood.

(6) Refraining from donating blood, plasma, body organs, other tissue, or semen.

(7) Avoiding pregnancy until more is known about the risk of transmitting HTLV-III/LAV from mother to fetus or newborn (8).

(8) Cleaning and disinfecting surfaces on which blood or other body fluids have spilled, in accordance with previous recommendations (2).

(9) Informing physicians, dentists, and other appropriate health professionals of his/her antibody status when seeking medical care so that the patient can be appropriately evaluated.

3. Infected patients should be encouraged to refer sex partners or persons with whom they have shared needles to their health-care provider for evaluation and/or testing. If patients prefer, trained health department professionals should be made available to assist in notifying their partners and counseling them regarding evaluation and/or testing.

4. Persons with a negative test result should be counseled regarding their need for continued evaluation to monitor their infection status if they continue high-risk behavior (8).

CDC, March 14, 1986, pp. 152-154

Current trends

Additional recommendations to reduce sexual and drug abuse-related transmission of human T-lymphotropic virus type III/ lymphadenopathy-associated virus

Background

Human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV), the virus that causes acquired immunodeficiency syndrome (AIDS), is transmitted through sexual contact, parenteral exposure to infected blood or blood components, and perinatally from mother to fetus or neonate. In the United States, over 73% of adult AIDS patients are homosexual or bisexual men; 11% of these males also had a history of intravenous (IV) drug abuse. Seventeen percent of all adult AIDS patients were heterosexual men or women who abused IV drugs. The prevalence of HTLV-III/LAV antibody is high in certain risk groups in the United States.

Since a large proportion of seropositive asymptomatic persons have been shown to be viremic, all seropositive individuals, whether symptomatic or not, must be presumed capable of transmitting this infection. A repeatedly reactive persons serologic test for HTLV-III/LAV has important medical, as well as public health, implications for the individual and his/her health-care provider. The purpose of these recommendations is to suggest ways to facilitate identification of seropositive asymptomatic person, both for medical evaluation and for counselling to prevent transmission.

Previous U.S. Public Health Service recommendations pertaining to sexual, IV drug abuse, and perinatal transmission of HTLV-III/LAV have been published. Reduction of sexual and IV transmission of HTLV-III/LAV should be enhanced by using available serologic tests to give asymptomatic, infected individuals in high-risk groups the opportunity to know their status so they can take appropriate steps to prevent the further transmission of this virus.

Since the objective of these additional recommendations is to help interrupt transmission by encouraging testing and counseling among persons in high-risk groups, careful attention must be paid to maintaining confidentiality and to protecting records from any unauthorized disclosure. The ability of health departments to assure confidentiality-and the public confidence in that ability -are crucial to efforts to increase the number of persons requesting such testing and counseling. Without appropriate confidentiality protection, anonymous testing should be considered. Persons tested anonymously would still be offered medical evaluation and counseling.

Persons at increased risk of HTLV-III/LAV infection

Persons at increased risk of HTLV-III/LAV infection include: (1) homosexual and bisexual men; (2) present or past IV drugs abusers; (3) persons with clinical or laboratory evidence of infection, such as those with signs or symptoms compatible

with AIDS or AIDS-related complex (ARC); (4) persons born in countries where heterosexual transmission is thought to play a major role*; (5) male or female prostitutes and their sex partners; (6) sex partners of infected persons or persons at increased risk; (7) all persons with hemophilia who have received clotting-factor products; and (8) newborn infants of high-risk of infected mothers.

Recommendations

1. Community health education programs should be aimed at members of high-risk groups to: (a) increase knowledge of AIDS; (b) facilitate behavioral changes to reduce risks of HTLV-III/LAV infection; and (c) encourage voluntary testing and counseling.
2. Counseling and voluntary serologic testing for HTLV-III/LAV should be routinely offered to all persons at increased risk when they present to health-care settings. Such facilities include, but are not limited to, sexually transmitted disease clinics, clinics for treating parenteral drug abusers, and clinics for examining prostitutes.
   a. Persons with a repeatedly reactive test result (see section on Test Interpretation) should receive a thorough medical evaluation, which may include history, physical examination, and appropriate laboratory studies.
   b. High-risk persons with a negative test result should be counseled to reduce their risk of becoming infected by:
      (1) Reducing the number of sex partners. A stable, mutually monogamous relationship with an uninfected person eliminates any new risk of sexually transmitted HTLV-III/LAV infection.
      (2) Protecting themselves during sexual activity with possibly infected person by taking appropriate precaution to prevent contact with the person's blood, semen, urine, feces, saliva, cervical secretions, or vaginal secretions. Although the efficacy of condoms in preventing infections with HTLV-III/LAV is still under study, consistent use of condoms should reduce transmission of HTLV-III/LAV by preventing exposure to semen and infected lymphocytes.
      (3) For IV drug abusers, enrolling or continuing in programs to eliminate abuse of IV substances. Needles, other apparatus, and drugs must never be shared.
   c. Infected persons should be counseled to prevent the further transmission of HTLV-III/LAV by:
      (1) Informing prospective sex partners of his?her infection with HTLV-III/LAV, so they can take appropriate precautions. Clearly, abstention from sexual activity with another person is one option that would eliminate any risk of sexually transmitted HTLV-III/LAV infection.
      (2) Protecting a partner during any sexual activity by taking appropriate precautions to prevent that individual from coming into contact with the infected person's blood, semen, urine, feces, saliva,cervical secretions, or vaginal secretions. Although the efficacy of using condoms to prevent infection with HTLV-III/LAV is still under study, consistent use of condoms should reduce transmission of HTLV-III/LAV by preventing exposure to semen and infected lymphocytes.

(3) Informing previous sex partners and any persons with whom needles were shared of their potential exposure to HTLV-III/LAV and encouraging them to seek counseling/testing.
(4) For IV drug abusers, enrolling or continuing in programs to eliminate abuse of IV substances. Needles, other apparatus, and drugs must never be shared.
(5) Not sharing toothbrushes, razor, or other items that could become contaminated with blood.
(6) Refraining form donating blood, plasma, body organs, other tissue, or semen.
(7) Avoiding pregnancy until more is known about the risks of transmitting HTLV-III/LAV from mother to fetus or newborn.
(8) Cleaning and disinfecting surfaces on which previous recommendations
(9) Informing physicians, dentists, and other appropriate health professionals of his/her antibody status when seeking medical care so that the patient can be appropriately evaluated.

3. Infected patients should be encouraged to refer sex partners or persons with whom they have shared needles to their health-care provider for evaluation and/or testing. If patients prefer, trained health department professionals should be made available to assist in notifying their partners and counseling them regarding evaluation and/or testing.
4. Persons with a negative test result should be counseled regarding their need for continued evaluation to monitor their infection status if they continue high-risk behavior.
5. State and local health officials should evaluate the implications of requiring the reporting of repeatedly reactive HTLV-III/LAV antibody test results to the state health department.
6 State or local action is appropriate on public health grounds to regulate or close establishments where there is evidence that they facilitate high-risk behaviors, such as anonymous sexual contacts and/or intercourse with multiple partners or IV drug abuse (e.g., bathhouses, houses of prostitution, "shooting galleries").

Test Interpretation

Commercially available tests to detect antibody to HTLV-III/LAV are enzyme-linked immunoabsorbent assays (ELISAs) using derived from disrupted HTLV-III/LAV. When the ELISA is reactive on initial testing, it is standard procedure to repeat the test on the same specimen. Repeatedly reactive tests are highly sensitive and specific for HTLV-III/LAV antibody. However, since falsely positive tests occur, and the implications of a positive test are serious, additional more specific tests (e.g., Western blot, immunofluorescent assay, etc.) are recommended following repeatedly reactive ELISA results, especially in low-prevalence populations. If additional more specific test results are not readily available, persons in high-risk groups with strong repeatedly reactive ELISA results can be counseled before any additional test results are received regarding their probable infection status, their need for medical follow-up, and ways to reduce further transmission of HTLV-III/LAV.

Other Considerations

State or local policies governing informing and counseling sex partners and those who share needles with persons who are HTLV-III/LAV-antibody positive will vary, depending on state and local statutes that authorize such actions. Accomplishing the objective of interrupting transmission by encouraging testing and counselling among persons in high-risk groups will depend heavily on health officials paying careful attention to maintaining confidentiality and protecting records from unauthorized disclosure.

The public health effectiveness of various approaches to counselling, sex-partner referral, and laboratory testing will require careful monitoring. The feasibility and efficacy of each of these measures should be evaluated by state and local health departments to best utilize available resources.

[Developed by Center for Prevention Services and Center for Infectious Diseases, CDC, in consultation with persons from numerous other organizations and groups.]

The Committee on AIDS Research and the Behavioral, Social, aand Statistical Sciences recommends the following:

1. Information should be made available in clear, explicit language in the idiom of the target audience.
2. Sex education should be available to both male and female students; such education should include explicit information relevant to the prevention of HIV infection.
3. AIDS prevention messages should strike a balance in the level of threat that is used.
4. TV networks should present more public service messages on those behaviors associated with HIV transmission and practical measures for interrupting the spread of infection.
5. TV networks should accept condom advertisements.
6. Programs to initiate and sustain changes in risk-associated behaviors should take into account how the targeted population perceives and understands risk.
7. Innovative approaches to AIDS prevention programs should be introduced in a planned manner that reflects well-established principles about the adoption and diffusion of new ideas.
8. Programs to facilitate behavioral change should be approached as long-term efforts, with multiple and repeated strategies to initiate and sustain behavioral changes over time.
9. Anonymous HIV antibody testing with apporpriate pretest and posttest counselling should be made available on a voluntary basis to anyone desiring it.
10. Program should consider the psychological, social, biological, and environmental factors that may affect relapse; learned coping responses, including skills training and relapse rehearsal, should be taught to increase perceptions of self-efficacy.
12. The Office of the Assistant Secretary for Health should take responsability for an evaluating strategy thaat will provide timely information on the relative effectiveness of different AIDS intervention programs.
13. The use of randomized field experiments should be expanded for evaluating new intervention programs on both individual and community levels.
14. Only the best designed and best implemented intervention programs should be selected to receive those special reources that will be needed to conduct scientific investigation.

Prevention Action Recommendations From the National Research Council

(Turner, Miller, & Moses, 1989)

Principles of Community-Level Interventions

1. The achievement of health behaviour change requires information on the prevalence of health-diminishing behaviors in specific communities.
2. Determinants of health-diminishing behavior must be assesed for specific communities. Several levels of factors associated with this behavior must be addresed simultaneosly in assesing determinants of high-risk behaviors.
3. The religious, economic, legal, and policy norms and regulations of the community must be analyzed to determine the extent that they foster or inhibit health-promoting behavior.
4. Achieving bejavior change requires maximizing opportunities for the pprovision of knoledge, for skills training, andd for the changing of community norms.
5. Each avenue of influence in a given community needs to be analyzed to determine its utility in informing, motivating, and teaching skills.
6. Communication leading to persuasion and learning flows best through natural social networks.
7. Specific strategies need to be enacted to identify and modify prevaling community norms.
8. Both formative and summative evaluation strategies are needed.
9. The project needs to be viewed as a collaborative venture between the exogenous group and the community (the endogenous group).

(Coates & Greenblatt, 1989)

THE ETHICAL PRINCIPLES

The decision to undertake research should rest upon a considered judgment by the individual psychologist about how best to contribute to psychological science and to human welfare. The responsible psychologist weighs alternative directions in which personal energies and resources might be invested. Having made the decision to conduct research, psychologists must carry out their investigations with respect for the people who participate and with concern for their dignity and welfare. The Principles that follow make explicit the investigator's ethical responsibilities toward participants over the course of research, from the initial decision to pursue a study to the steps necessary to protect the confidentiality of research data. These Principles should be interpreted in terms of the context provided in the complete document offered as a supplement to these Principles.

1. In planning a study the investigator has the personal responsibility to make a careful evaluation of its ethical acceptability, taking into account these Principles for research with human beings. To the extent that this appraisal, weighing scientific and humane values, suggests a deviation from any Principle, the investigator incurs an increasingly serious obligation to seek ethical advice and to observe more stringent safeguards to protect the rights of the human research participant.

2. Responsibility for the establishment and maintenance of acceptable ethical practice in research always remains with the individual investigator. The investigator is also responsible for the ethical treatment of research participants by collaborators, assistants, students, and employees, all of whom, however, incur parallel obligations.

3. Ethical practice requires the investigator to inform the participant of all features of the research that reasonably might be expected to influence willingness to participate and to explain all other aspects of the research about which the participant inquires. Failure to make full disclosure gives added emphasis to the investigator's responsibility to protect the welfare and dignity of the research participant.

4. Openness and honesty are essential characteristics of the relationship between investigator and research participant. When the methodological requirements of a study necessitate concealment or deception, the investigator is required to ensure the participant's understanding of the reasons for the action and to restore the quality of the relationship with the investigator.

5. Ethical research practice requires the investigator to respect the individual's freedom to participate in research or to discontinue participation at any time. The obligation to protect the freedom requires special vigilance when the investigator is in a position of power over the participant. The decision to limit this freedom increases the investigator's responsibility to protect the participant's dignity and welfare.

6. Ethically acceptable research begins with the establishment of a clear and fair agreements between the investigator and the research participant that clarifies the responsibilities of each. The investigator has the obligation to honor all promises and commitments included in that agreement.

7. The ethical investigator protects participants from physical and mental discomfort, harm, and danger. If the risk of such consequences exists, the investigator is required to inform the participant of that fact, secure consent before proceeding, and take all possible measures to minimize distress. A research procedure may not be used if it is likely to cause serious and lasting harm to participants.

8. After the data are collected, ethical practice requires the investigator to provide the participant with a full clarification of the nature of the study and to remove any misconceptions that may have arisen. When scientific or humane values justify delaying or withholding information, the investigator acquires a special responsibility to assure that there are no damaging consequences for the participant.

9. Where research procedures may result in undesirable consequences for the participant, the investigator has the responsibility to detect and remove or correct these consequences, including, where relevant, long-term aftereffects.

10. Information obtained about the research participants during the course of an investigation is confidential. When the possibility exists that others may obtain access to such information, ethical research practice requires that this possibility, together with the plans for protecting confidentiality, be explained to the participants as a part of the procedure for obtaining informed consent.

(American Psychological Association, 1973, 1-2).

APPENDIX B

Study Questionnaire

INTRODUCTION

This is a questionnaire directed towards gay men as part of a study of AIDS virus infection and associated factors in the Montreal region.

Thank you for your willingness to participate in this study. Your cooperation is appreciated. Your contribution is essential for the success of this study which will help in controlling the AIDS epidemic.

You will find that we have chosen to use colloquialisms in order to provide clarity and avoid the ambiguity of clinical descriptions of sexual practices. We hope that you will not be offended by this choice of terminology.

Please be assured that all material collected in the course of this study will be regarded as **STRICTLY CONFIDENTIAL**. Do not write your name anywhere on the questionnaire.

We ask for your complete honesty and sincerity in responding truthfully to each of the study questions. For purposes of completeness and scientific validity, please try to reply to all questions to the best of your ability, unless directed otherwise.

Certain questions request precise information regarding your history of sexual activity. Though it may be difficult to give exact answers to such questions, please provide your best estimate.

1. PERSONAL DATA AND DEMOGRAPHICS

_____
STUDY ID

Date of completion of this questionnaire ___ ___ ___
yr mo da

1.1 What was the reason for your visit to the physician today?
(check all those that apply)

___ routine physical checkup
___ to request HIV test
___ to obtain results of HIV test
___ renewal of prescription for _____
___ cold, flu, sore throat or cough
___ chronic fever
___ chronic diarrhea
___ interferon therapy
___ other, please specify _____

1.2 Age _____ years

1.3 Place of birth _____ _____
city country

1.4 If not born in Canada, year of arrival in Canada? _____

1.5 Current residence (municipality) _____

1.6 If Montreal, postal code (first 3 digits only) _ _ _

1.7 What is the language you first learned and still understand? (check one only)
___ French
___ English
___ other, please specify :_____

1.8 What language do you speak most often at home? (check one only)
___ French
___ English
___ other, please specify :_____

1.9 To which ethnic or cultural group did you or your ancestors belong on first coming to this continent? (check one only)

___ French
___ English, Irish or Scottish
___ Jewish
___ Chinese
___ Inuit or Native Indian
___ other (specify) _____

1.10 What is your legal marital status? (check one only):

___ never married
___ married
___ concubinage (common law marriage)
___ divorced
___ separated
___ widowed

1.11 With whom do you currently live?

___ alone
___ only with my primary male partner/lover
___ with my male lover and my roommate(s)
___ with roommate(s) only
___ with my family only (parents, spouse, children, etc.)
___ with my female partner (unmarried)
___ other, please specify: _____

1.12 What is the highest level of education that you have completed? (check one only):

___ primary school
___ high school
___ CEGEP or junior college
___ technical or paraprofessional training program
___ some university
___ university graduate
___ post-graduate degree

1.13 What is your current employment status? (check one only)

___ working now
___ unemployed
___ student
___ retired
___ other, please specify: _____

1.14 What is your current main occupation? (work for which you are remunerated) _____

_____

1.15 What was your total income from all sources during 1987 (before taxes, to the nearest thousand dollars)?

_____,000 dollars

1.16 What is your religion? (check one only):

___ Roman Catholic
___ Protestant
___ Judaism
___ Moslem
___ no religious affiliation, atheist or agnostic
___ other, please specify: _____

1.17 How religious do you consider yourself to be? (check one only):

___ not at all religious
___ not too religious
___ moderately religious
___ very religious

2. LIFESTYLE AND LIFETIME SEXUAL HISTORY

2.1 How would you describe your current sexual orientation? (check one only):

___ exclusively homosexual
___ primarily homosexual, only slightly heterosexual
___ primarily homosexual, but more than slightly heterosexual
___ just about equally homosexual and heterosexual
___ primarly heterosexual, but more than slightly homosexual
___ primarily heterosexual, only slightly homosexual
___ exclusively heterosexual

2.2 What proportion of your leisure-time socializing is with other gay men? (check one only):

___ less than 1/4
___ 1/4 to less than 1/2
___ 1/2 to less than 3/4
___ 3/4 or more

2.3 How would you rate the importance of sex in your life? (check one only):

___ unimportant
___ not very important
___ fairly important
___ very important

2.4 At what age did you first consider yourself to be gay?

_____ years

2.5 At what age did you start socializing with other gay men?

_____ years

2.6 At what age did you have your first homosexual sexual experience (sex with a man resulting in orgasm)?

_____ years

2.7 At what age did you start having regular sex with other men (i.e. at least once every three months)?

_____ years

2.8 At what age did you first have anal intercourse (passive or active i.e. fucking or being fucked)?

_____ years

___ not applicable, I have never had anal intercourse

2.9 Since you first started having sexual activities with men on a regular basis, how many different men in total do you estimate that you have had sex with ? (check one only):

___ 1- 4
___ 5- 9
___ 10-19
___ 20-39
___ 40-49
___ 50-99
___ 100- 199
___ 200- 499
___ 500- 999
___ 1000-1999
___ 2000-2999
___ 3000 or more

2.10 Of all the men with whom you have had sex, estimate the number with whom you had receptive anal intercourse (i.e. the number of men who fucked you)

___ 0
___ 1
___ 2- 4
___ 5- 9
___ 10-19
___ 20-39
___ 40-49
___ 50- 99
___ 100- 199
___ 200- 499
___ 500- 999
___ 1000-1999
___ 2000-2999
___ 3000 or more

2.11 Of all the homosexual sexual partners that you have ever had sex with, what proportion of them would you say were one-time sexual partners? (men with whom you only had sex once ever) (check one only):

___ none (0%)
___ few (1-24%)
___ some (25-49%)
___ many (50-74%)
___ most (75-99%)
___ all (100%)

2.12 Of the following categories of people, please check the appropriate column indicating how many of them know of your homosexual orientation:

	None 0%	Few 1-24%	Some 25-49%	Many 50-74%	Most 75-99%	All 100%
a) straight friends	____	____	____	____	____	____
b) relatives (parents, spouse, siblings, etc.)	____	____	____	____	____	____
c) work associates	____	____	____	____	____	____

2.13 Gay men have different feelings about their sexual preference. When you take all of your feelings into consideration, how do you feel about your sexual preference?

___ I feel very good about it
___ I feel somewhat good about it
___ I feel equally good and bad about it
___ I feel somewhat bad about it
___ I feel very bad about it

2.14 Does knowing that you are homosexual weigh on your mind (make you feel guilty, depressed, anxious or ashamed)? (check one only):

___ a great deal
___ somewhat
___ not very much
___ not at all

2.15 Taking things together, how would you say that you are feeling these days? (check one only):

___ very happy
___ pretty happy
___ not too happy
___ pretty unhappy
___ very unhappy

2.16 Looking back, would you say that you are more or less happy now than you were five years ago? (check one only):

___ less happy now
___ the same
___ happier now

2.17 How many people are there that you feel you can trust, i.e. that you can tell just about anything to, and you can count on for understanding and support?

___ no one
___ 1 person
___ 2 or 3 people
___ 4 or 5 people
___ 6 or more people

2.18 At the current time, how do you feel your health is? (check one only):

___ excellent
___ good
___ fair
___ poor

2.19 Generally speaking, are you the type of person who worries a great deal, somewhat, very little, or not at all? (check one only):

___ a great deal
___ somewhat
___ very little
___ not at all

2.20 How concerned or worried are you that you might get AIDS?

___ extremely
___ somewhat
___ a little
___ not at all

2.21 How often do you worry about the risk of getting AIDS? (check one only):

___ never
___ very infrequently
___ sometimes
___ often
___ constantly

3. CURRENT SEXUAL BEHAVIOUR

3.1 In the PAST ONE MONTH on average, how often have you engaged in homosexual sexual activity resulting in orgasm? (such as mutual masturbation, sucking or blow jobs, fucking or anal intercourse, etc.)

___ not at all (please go to question 3.16 on page 17)
___ less than once a week
___ once a week
___ 2-3 times a week
___ 4-6 times a week
___ 7 times a week or more

The rest of this section asks about various types of sexual activity during the PAST ONE MONTH only.

The first part of this section asks questions about sexual practices with REPEAT PARTNERS only. REPEAT PARTNERS are partners with whom you had sex on more than one occasion.

The second part of this section asks questions about ONE-TIME SEXUAL PARTNERS only. ONE-TIME PARTNERS are men with whom you have had sex only once ever.

REPEAT PARTNERS during the PAST ONE MONTH

3.2 REPEAT PARTNERS are partners with whom you had sex on more than one occasion. The definition includes men with whom you had two or more sexual encounters, and also the man whom you consider to be your primary partner (main lover or partner to whom you are especially committed). During the PAST ONE MONTH, did you engage in any sexual activity with a REPEAT PARTNER?

___ no (please go to question 3.9 on page 13)
___ yes

3.3 Please indicate the number of REPEAT PARTNERS, including your primary partner if applicable, with whom you engaged in sexual activity during the PAST ONE MONTH.

___ 1
___ 2
___ 3
___ 4
___ 5 - 9
___ 10 - 19
___ 20 - 39
___ 40 or more

3.4 Is one of your REPEAT PARTNERS a primary partner (lover or partner to whom you are especially committed)?

___ yes
___ no (please go to question 3.5 on page 10)

If yes, for how long has this person been your primary partner?

___ less than one month
___ one month to less than three months
___ three months to less than six months
___ six months to less than one year
___ one year to less than three years
___ three years or more
___ not applicable (I do not limit my sexual activity mainly to this person)

If yes, did your primary partner to your knowledge engage in sexual activity with other people during the PAST ONE MONTH?

___ yes
___ no
___ I don't know

3.5 Try to recall all the sexual encounters you had with all your REPEAT PARTNERS during the PAST ONE MONTH, and mark down the number of encounters which included each of the following sexual practices. Put X in the appropriate column:

NUMBER OF ENCOUNTERS with REPEAT PARTNERS which included:

	0	1	2	3-4	5-9	10-14	15 +
a) Mutual masturbation	___	___	___	___	___	___	___
b) I blew him	___	___	___	___	___	___	___
c) He blew me	___	___	___	___	___	___	___
d) I fucked him	___	___	___	___	___	___	___
e) He fucked me	___	___	___	___	___	___	___
f) I rimmed him	___	___	___	___	___	___	___
g) He rimmed me	___	___	___	___	___	___	___
h) I fisted him	___	___	___	___	___	___	___
i) He fisted me	___	___	___	___	___	___	___
j) Use of sex toys (dildos, vibrators, cock rings, etc.)	___	___	___	___	___	___	___
k) I used inhalants (poppers)	___	___	___	___	___	___	___
l) I used recreational drugs other than poppers (cocaine, MDA, marijuana, tranquilizers, or amphetamines)	___	___	___	___	___	___	___

3.6 Recalling all your sexual encounters with all your REPEAT PARTNERS during the PAST ONE MONTH, how frequently did each of the following sexual practices take place?

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) when I blew him, my partner used a condom	____	____	____	____	____	____	____
b) when I blew him, no condom was used and he came in my mouth	____	____	____	____	____	____	____
c) when I blew him, no condom was used and he did not come in my mouth	____	____	____	____	____	____	____
d) when my partner blew me, I used a condom	____	____	____	____	____	____	____
e) when my partner blew me, no condom was used and I came in his mouth	____	____	____	____	____	____	____
f) when my partner blew me, no condom was used and I did not come in his mouth	____	____	____	____	____	____	____

3.7 During the PAST ONE MONTH, when you were fucked by a REPEAT PARTNER, how frequently did each of the following take place?

___ not applicable, I was not fucked by a repeat partner during the past one month

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) my partner used a condom	___	___	___	___	___	___	___
b) no condom used and he came in my anus	___	___	___	___	___	___	___
c) no condom used and he withdrew before coming	___	___	___	___	___	___	___
d) I douched before getting fucked	___	___	___	___	___	___	___
e) my anus bled during fucking	___	___	___	___	___	___	___

3.8 During the PAST ONE MONTH, when you fucked a REPEAT PARTNER, how frequently did each of the following take place?

___ not applicable, I did not fuck a repeat partner during the past one month

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) I used a condom	___	___	___	___	___	___	___
b) no condom used and I came in his anus	___	___	___	___	___	___	___
c) no condom used and I withdrew before coming	___	___	___	___	___	___	___
d) he douched before fucking	___	___	___	___	___	___	___
e) his anus bled during fucking	___	___	___	___	___	___	___

ONE-TIME PARTNERS during the PAST ONE MONTH

3.9 ONE-TIME PARTNERS are partners with whom you had sex only once ever. They are men with whom you were involved in what is commonly called a one-night stand. During the PAST ONE MONTH, did you engage in any sexual activity with a ONE-TIME PARTNER?

___ no (please go to question 3.16 on page 17)
___ yes

3.10 Please indicate the number of ONE-TIME PARTNERS, with whom you engaged in sexual activity during the PAST ONE MONTH.

___ 1	___ 5 - 9
___ 2	___ 10 - 19
___ 3	___ 20 - 39
___ 4	___ 40 or more

3.11 Of the ONE-TIME PARTNERS you have had sexual activity with during the PAST ONE MONTH, check how many you met at each of the following locations:

	0	1	2	3-4	5-9	10-14	15 +
a) bar/disco	___	___	___	___	___	___	___
b) bathhouse	___	___	___	___	___	___	___
c) street	___	___	___	___	___	___	___
d) private parties	___	___	___	___	___	___	___
e) gay association gatherings	___	___	___	___	___	___	___
f) parks	___	___	___	___	___	___	___
g) movie theatres	___	___	___	___	___	___	___
h) restaurant or cafe	___	___	___	___	___	___	___
i) in metro system	___	___	___	___	___	___	___
j) public restrooms	___	___	___	___	___	___	___
k) health clubs, gym	___	___	___	___	___	___	___
l) other, please specify _____	___	___	___	___	___	___	___

3.12 Try to recall all the sexual encounters you had with your ONE-TIME PARTNERS during the PAST ONE MONTH, and mark down the number of encounters which included each of the following sexual practices. Put X in the appropriate column:

NUMBER OF ENCOUNTERS with ONE-TIME PARTNERS which included:

	0	1	2	3-4	5-9	10-14	15 +
a) Mutual masturbation	___	___	___	___	___	___	___
b) I blew him	___	___	___	___	___	___	___
c) He blew me	___	___	___	___	___	___	___
d) I fucked him	___	___	___	___	___	___	___
e) He fucked me	___	___	___	___	___	___	___
f) I rimmed him	___	___	___	___	___	___	___
g) He rimmed me	___	___	___	___	___	___	___
h) I fisted him	___	___	___	___	___	___	___
i) He fisted me	___	___	___	___	___	___	___
j) Use of sex toys (dildos, vibrators, cock rings, etc.)	___	___	___	___	___	___	___
k) I used inhalants (poppers)	___	___	___	___	___	___	___
l) I used recreational drugs other than poppers (cocaine, MDA, marijuana, tranquilizers, or amphetamines)	___	___	___	___	___	___	___

3.13 Recalling all your sexual encounters with all the ONE-TIME PARTNERS during the PAST ONE MONTH, how frequently did each of the following sexual practices take place?

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) when I blew him, my partner used a condom	____	____	____	____	____	____	____
b) when I blew him, no condom was used and he came in my mouth	____	____	____	____	____	____	____
c) when I blew him, no condom was used and he did not come in my mouth	____	____	____	____	____	____	____
d) when my partner blew me, I used a condom	____	____	____	____	____	____	____
e) when my partner blew me, no condom was used and I came in his mouth	____	____	____	____	____	____	____
f) when my partner blew me, no condom was used and I did not come in his mouth	____	____	____	____	____	____	____

3.14 During the PAST ONE MONTH, when you were fucked by your ONE-TIME PARTNER, how frequently did each of the following take place?

___ not applicable, I was not fucked by a one-time partner during the past one month.

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) my partner used a condom	___	___	___	___	___	___	___
b) no condom used and he came in my anus	___	___	___	___	___	___	___
c) no condom used and he withdrew before coming	___	___	___	___	___	___	___
d) I douched before getting fucked	___	___	___	___	___	___	___
e) my anus bled during fucking	___	___	___	___	___	___	___

3.15 During the PAST ONE MONTH, when you fucked your ONE-TIME PARTNER, how frequently did each of the following take place?

___ not applicable, I did not fuck a one-time partner during the past one month

	never	once	twice	3-4 times	5-9 times	10-14 times	15 + times
a) I used a condom	___	___	___	___	___	___	___
b) no condom used and I came in his anus	___	___	___	___	___	___	___
c) no condom used and I withdrew before coming	___	___	___	___	___	___	___
d) he douched before fucking	___	___	___	___	___	___	___
e) his anus bled during fucking	___	___	___	___	___	___	___

3.16 Did you visit a bathhouse during the PAST ONE MONTH?

yes___ no___

If no, go to section 4 on page 19
If yes, please answer the following questions:

3.17 How many times did you visit a bathhouse in the PAST ONE MONTH?

_____ times

3.18 In the PAST ONE MONTH, during your visits to a bathhouse, with how many different partners did you have sex? (total number of partners for all visits) _____ partners

How many of these were ONE-TIME PARTNERS? _____

How many of these were REPEAT PARTNERS? _____

Now we are going to ask questions about anal sex (fucking or getting fucked) during your visits to a bathhouse.

3.19 **In the PAST ONE MONTH:**

How many different one-time partners did you fuck? _____

How many different one-time partners fucked you? _____

How many different repeat partners did you fuck? _____

How many different repeat partners fucked you? _____

3.20 **During your LAST VISIT to a bathhouse:**

How many different one-time partners did you fuck? _____
With how many of these partners did you use condoms? _____

How many different one-time partners fucked you? _____
With how many of these partners did you use condoms? _____

How many different repeat partners did you fuck? _____
With how many of these partners did you use condoms? _____

How many different repeat partners fucked you? _____
With how many of these partners did you use condoms? _____

3.21 During your LAST VISIT TO A BATHHOUSE, were condoms available at the bathhouse?

____ yes, you were able to buy condoms at the bathhouse

____ yes, free condoms were available at the bathhouse

____ no, condoms were not available at the bathhouse

3.22 During your LAST VISIT TO A BATHHOUSE, did you find any educational material concerning AIDS, safe sex, or condom use?

____ no

____ yes: ___ there were posters

___ there were pamphlets

___ other, please specify _____

_____

_____

4. CHANGES IN SEXUAL BEHAVIOUR

We would now like to ask a few questions regarding changes in sexual activity between a typical month three years ago and a typical month this year. The first half of this section concerns sexual activity with REPEAT PARTNERS (partners with whom you had sex on more than one occasion). The second half concerns sexual activity with ONE-TIME PARTNERS (partners with whom you had sex only once ever).

4.1 Did you get fucked by a REPEAT PARTNER during a typical month this year?

___ yes
___ no

4.2 Did you get fucked by a REPEAT PARTNER during a typical month three years ago?

___ yes
___ no

If you answered "no" to either question 4.1 or question 4.2, please go to question 4.4

4.3 When you were fucked by a REPEAT PARTNER during a typical month this year, how did the frequency of each of the following sexual activities compare with that of a typical month three years ago?

	Decreased compared to 3 years ago	Same as 3 years ago	Increased compared to 3 years ago
a) my partner used a condom			
b) no condom used and he came in my anus			
c) no condom used and he withdrew before coming			
d) I douched before being fucked			

4.4 Did you fuck a REPEAT PARTNER during a typical month this year?

___ yes
___ no

4.5 Did you fuck a REPEAT PARTNER during a typical month three years ago?

___ yes
___ no

If you answered "no" to either question 4.4 or question 4.5, please go to question 4.7

4.6 When you fucked a REPEAT PARTNER during a typical month this year, how did the frequency of each of the following sexual activities compare with that of a typical month three years ago?

	Decreased compared to 3 years ago	Same as 3 years ago	Increased compared to 3 years ago
a) I used a condom			
b) no condom used and I came in his anus			
c) no condom used and I withdrew before coming			
d) he douched before being fucked			

The following questions are the same as above but concerning ONE-TIME PARTNERS

4.7 Did you get fucked by a ONE-TIME PARTNER during a typical month this year?

___ yes
___ no

4.8 Did you get fucked by a ONE-TIME PARTNER during a typical month three years ago?

___ yes
___ no

If you answered "no" to either question 4.7 or question 4.8, please go to question 4.10

4.9 When you were fucked by a ONE-TIME PARTNER during a typical month this year, how did the frequency of each of the following sexual activities compare with that of a typical month three years ago?

	Decreased compared to 3 years ago	Same as 3 years ago	Increased compared to 3 years ago
a) my partner used a condom			
b) no condom used and he came in my anus			
c) no condom used and he withdrew before coming			
d) I douched before being fucked			

4.10 Did you fuck a ONE-TIME PARTNER during a typical month this year?

___ yes
___ no

4.11 Did you fuck a ONE-TIME PARTNER during a typical month three years ago?

___ yes
___ no

If you answered "no" to either question 4.10 or question 4.11, please go to question 5.1

4.12 When you fucked a ONE-TIME PARTNER during a typical month this year, how did the frequency of each of the following sexual activities compare with that of a typical month three years ago?

	Decreased compared to 3 years ago	Same as 3 years ago	Increased compared to 3 years ago
a) I used a condom			
b) no condom used and I came in his anus			
c) no condom used and I withdrew before coming			
d) he douched before being fucked			

5. OTHER BEHAVIOURS

5.1 In the past 6 months and in the past 5 years how many male sexual partners have you had who live in or have recently immigrated from the following areas?

Area	Number of Sexual Partners	
	past 6 months	past 5 years
New York City	_____	_____
San Francisco	_____	_____
Los Angeles	_____	_____
Boston	_____	_____
Washington	_____	_____
Miami	_____	_____
Haiti	_____	_____
West Africa	_____	_____
Central and East Africa	_____	_____

5.2 Have you ever had any of the following diseases? If yes, please indicate the number of times during your life. (check appropriate column for each of the following)

	Yes	Number of Times	No	Don't know
a. gonorrhea (clap):				
in penis	___	_____	___	___
in rectum	___	_____	___	___
in throat	___	_____	___	___
b. syphilis	___	_____	___	___
c. intestinal parasites (such as amoebae, giardia)	___	_____	___	___
d. hepatitis type A	___	_____	___	___
type B	___	_____	___	___
type non A non B	___	_____	___	___
unknown type	___	_____	___	___
e. herpes:				
cold sores on lips	___	_____	___	___
herpes sores on genitals	___	_____	___	___
herpes sores around anus	___	_____	___	___
herpes sores elsewhere	___	_____	___	___
(please specify)	_____			
f. herpes zoster (shingles)	___	_____	___	___
g. sores of unknown type on penis	___	_____	___	___
h. sores of unknown type around anus	___	_____	___	___
i. warts on penis	___	_____	___	___
j. warts around anus	___	_____	___	___
k. chlamydia	___	_____	___	___

5.3 Have you ever been tested to determine whether you have antibodies to the hepatitis B virus?

_____ yes, I have been tested
_____ no, I have not been tested
_____ I don't know if I have been tested

5.4 Have you ever been vaccinated against hepatitis B? (check one):

_____ no
_____ yes, one dose complete to date
_____ yes, two doses completed to date
_____ yes, all three doses completed to date
_____ I do not remember

5.5 If not vaccinated, please check or fill in all the applicable reasons why not:

_____ not applicable, I have been vaccinated against hepatitis B
_____ I have had the disease already
_____ I did not know a vaccine existed
_____ I did not believe that such a vaccine is necessary
_____ my doctor has not recommended this vaccine
_____ the cost of the vaccine is too expensive for me
_____ I believe that I could get AIDS from this vaccine
_____ no particular reason
_____ other reason(s). Please specify: _____
_____

5.6 If a condom was used when you fuck or you get fucked, how many times in the past 6 months and past 5 years has the condom broken?

_____ not applicable, I have not used condoms in the past 6 months
_____ times in the past six months
_____ not applicable, I have not used condoms in the past 5 years
_____ times in the past five years

5.7 How many times in the past 6 months and past 5 years have you had anal intercourse (fucking or being fucked) with someone who -to your knowledge- is carrying the AIDS virus (either seropositive or sick with AIDS)?

_____ times in the past six months
_____ times in the past five years
_____ don't know

5.8 Have you been previously tested for antibodies to the AIDS virus? (check one only)

_____ no
_____ yes, but I don't know the result(s)
_____ yes, all results were negative
_____ yes, at least one result was positive

If yes, please state when and where you were last tested:

Date: _____ _____
yr mo

Place: _____ physician
_____ hospital
_____ blood donour clinic
_____ CLSC
_____ anonymous test site
_____ other, please specify: _____

5.9 If you have a primary partner, has your partner been tested for antibodies to the AIDS virus? (check one only):

_____ not applicable, I do not have a primary partner
_____ yes, but I don't know the results
_____ yes, all results were negative
_____ yes, at least one result was positive
_____ no, he has not taken the test

5.10 In the past 6 months how many times have you taken intravenous drugs (shot drugs with a needle)?

number of times: _____

5.11 In the past 5 years, how many times have you taken intravenous drugs (shot drugs with a needle)?

number of times: _____

5.12 If you have ever injected yourself with drugs using a needle, have you ever shared a needle with other drug users? (check one)

_____ not applicable, I have never taken intravenous drugs
_____ no, never, (0% of the time)
_____ yes, rarely (1-24%)
_____ yes, sometimes (24-49%)
_____ yes, many times (50-74% of the time)
_____ yes, most of the time (75-99%)
_____ yes, always (100%)

5.13 How many times have you donated blood during each of the following time periods? (Please write 0 if you have not donated blood during a given year)

1987-88: _____ times
1985-86: _____ times
1983-84: _____ times
1981-82: _____ times

The next two questions concern sexual intercourse with women (penetration of the penis in the vagina). Please write 0 if you have not had sex with a woman during the specified time period.

5.14 With how many different female partners did you have sexual intercourse during the past 6 months and the past 5 years:

_____ in the past six months (best guess)
_____ in the past five years (best guess)

5.15 If you have had sexual intercourse with a woman during the past six months, did you use a condom?

_____ not applicable, I have not had intercourse with a woman in the past 6 months
_____ yes, always
_____ yes, some of the time only
_____ no, never

NOTE: The following items were inserted into section 5 of the 1989 questionnaire. These items are not incorporated into the analyses of the present study.

5.6 During the past twelve months, when you fuck or get fucked, how many times per week, on average, do you or your partner use a condom?

_____ not applicable, I have not had anal intercourse in the past twelve months
_____ not applicable, I have not used condoms in the past twelve months
_____ times per week

5.10 If you have tested positive for antibodies to the AIDS virus (HIV positive), what treatment if any are you using? (check only one):

_____ not applicable, I am not HIV positive
_____ using A2T
_____ using Retrovir
_____ using Beta Interferon
_____ I am positive, but I am not receiving treatment
_____ using Ribovirin
_____ using A2T and alpha interferon

Note: Other items were adjusted numerically to follow.

6. KNOWLEDGE OF AIDS

6.1 When did you first hear about AIDS? _____ year _____ month (if can recall)

6.2 We would like to know where you have obtained useful information about AIDS. (check the appropriate column for each type of information source)

	Degree of Usefulness to You			
	Not at all	A Bit	Moderately	Very
a. newspaper/magazines (general circulation)				
b. television/radio				
c. scientific journals				
d. gay newspapers/mags				
e. books				
f. posters/ fliers				
g. physician				
h. CLSCs/DSCs				
i. AIDS hot line				
j. gay organizations				
k. bathhouses				
l. other gays				
m. From what other sources have you benefitted? (please specify):				
_____				
_____				

6.3 What, in your judgement, is the total number of reported cases of AIDS to date in Quebec? (check one):

___ 0- 49	___ 300-399
___ 50- 99	___ 400-499
___ 100-149	___ 500-699
___ 150-199	___ 700-999
___ 200-299	___ 1000 or more

___ I don't know

6.4 Can a person have the AIDS germ in their body and still be healthy? (In other words, be a healthy carrier of the AIDS germ?)

___ yes ___ no ___ I don't know

6.5 Do you believe that people can get AIDS by (check one answer only):

	Yes	No	I don't know
a. giving blood at blood bank (Red Cross)?	___	___	___
b. receiving blood at a hospital?	___	___	___
c. sharing needles while shooting drugs	___	___	___
d. snorting drugs?	___	___	___
e. having sex with someone who has AIDS?	___	___	___
f. having sex with a person who has shot drugs but looks healthy?	___	___	___
g. using public toilets?	___	___	___

6.6 People differ in their beliefs about the risks of particular sexual practices. How risky do you think each of the following practices is for contributing to the transmission of the AIDS virus from one sexual partner to another? (Please check appropriate column)

	no risk	low risk	high risk
a. Mutual masturbation	_____	_____	_____
b. Body rubbing	_____	_____	_____
c. Fucking with condom	_____	_____	_____
d. Fucking and withdrawing before coming	_____	_____	_____
e. Sucking and swallowing "cum"	_____	_____	_____
f. Sucking and spitting out "cum"	_____	_____	_____
g. Sucking without taking "cum"	_____	_____	_____
h. Deep Kissing	_____	_____	_____
i. Monogamy (sex with only one person who has sex only with you)	_____	_____	_____
j. Celibacy (no sexual activity with anyone)	_____	_____	_____

6.7 Please indicate how strongly you agree or disagree with the following statements (make one check mark opposite each statement):

	Agree	Disagree	Not sure
a. the virus HIV is the cause of AIDS	___	___	___
b. a positive AIDS test means one has been exposed to the virus	___	___	___
c. a positive AIDS test means that one has developed immunity to the AIDS virus	___	___	___
d. a positive AIDS test means that one will eventually develop AIDS	___	___	___
e. a negative AIDS test means that one has not been exposed to the AIDS virus	___	___	___
f. even with a negative test result, one may have recently been exposed to the AIDS virus but has not yet developed antibodies to it	___	___	___
g. a positive AIDS test means that one is capable of transmitting the AIDS virus to someone else	___	___	___

6.8 Have you heard about the campaign "Jouez sûr / Play Safe"?

___ yes
___ no
___ uncertain whether I've heard about the campaign

6.9 If yes, has this campaign had an influence on your sexual behaviour?

___ I have not heard about it
___ yes
___ no

6.10 Please indicate the approximate date at which you first sought care by one of the doctors in this office

_____ year _____ month

7. ATTITUDES ABOUT HEALTH

Please indicate the degree to which you agree or disagree with the following statements by circling the appropriate number on a scale that goes from 1 (I strongly disagree) to 6 (I strongly agree).

7.1 If I take care of myself, I can avoid illness.

strongly disagree	1	2	3	4	5	6	strongly agree

7.2 Whenever I get sick it is because of something I've done or not done.

strongly disagree	1	2	3	4	5	6	strongly agree

7.3 Good health is largely a matter of good fortune.

strongly disagree	1	2	3	4	5	6	strongly agree

7.4 No matter what I do, if I am going to get sick I will get sick.

strongly disagree	1	2	3	4	5	6	strongly agree

7.5 Most people do not realize the extent to which their illnesses are controlled by accidental happenings.

strongly disagree	1	2	3	4	5	6	strongly agree

7.6 I can only do what my doctor tells me to do.

strongly disagree	1	2	3	4	5	6	strongly agree

7.7 There are so many strange diseases around you never know how or when you might pick one up.

strongly disagree	1	2	3	4	5	6	strongly agree

7.8 When I feel ill, I know it is because I have not been getting the proper exercise or eating right.

strongly disagree	1	2	3	4	5	6	strongly agree

7.9 People who never get sick are just plain lucky.

strongly disagree	1	2	3	4	5	6	strongly agree

7.10 People's ill health results from their own carelessness.

strongly disagree	1	2	3	4	5	6	strongly agree

7.11 I am directly responsible for my health.

strongly disagree	1	2	3	4	5	6	strongly agree

7.12 Have you elected to receive the results of the blood test ?

_____ yes
_____ no

7.13 If yes, please indicate all the reasons why:

___ if I am positive, I want to change my behaviour in order not to infect others
___ I want to know what the future holds for me .
___ other reasons, please specify _____

_____

_____

WE SINCERELY THANK YOU FOR YOUR PARTICIPATION IN THE STUDY AND FOR TAKING THE TIME TO COMPLETE THE QUESTIONNAIRE

APPENDIX C

Health Locus of Control Scale

HEALTH LOCUS OF CONTROL SCALE

Please indicate the degree to which you agree or disagree with the following statements by circling the appropriate number on a scale that goes from 1 (I strongly disagree) to 6 (I strongly agree).

Item 1 If I take care of myself, I can avoid illness.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 2 Whenever I get sick it is because of something I've done or not done.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 3 Good health is largely a matter of good fortune.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 4 No matter what I do, if I am going to get sick I will get sick.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 5 Most people do not realize the extent to which their illnesses are controlled by accidental happenings.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 6 I can only do what my doctor tells me to do.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 7 There are so many strange diseases around you never know how or when you might pick one up.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 8 When I feel ill, I know it is because I have not been getting the proper exercise or eating right.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 9 People who never get sick are just plain lucky.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 10 People's ill health results from their own carelessness.

strongly disagree	1	2	3	4	5	6	strongly agree

Item 11 I am directly responsible for my health.

strongly disagree	1	2	3	4	5	6	strongly agree

APPENDIX D

Cross-tabulation Analyses of the Data

Note. The cell percentages in Tables D.1 to D.9 are row percentages.

The cell percentages in Tables D.10 to D.176 are column percentages.

Contents of Appendix D

D.119-D.126 .....Condom usage during anal intercourse with one-time partners.

D.127-D.134 .....Condom usage during anal intercourse with repeat partners.

D.135-D.139 .....Changes in condom usage during anal intercourse with one-time partners.

D.140-D.142 .....Changes in condom usage during anal intercourse with repeat partners.

D.143-D.147 .....Participation in unsafe anal intercourse with one-time partners.

D.148-D.152 .....Participation in unsafe anal intercourse with repeat partners.

D.153-D.154 .....Changes in unsafe anal intercourse with one-time partners.

D.155-D.156 .....Changes in unsafe anal intercourse with repeat partners.

D.157-D.160 .....Number of one-time partners during the past one month.

D.161-D.162 .....Any sexual activities with repeat partners during the past one month.

D.163-D.166 .....Number of repeat partners during the past one month.

D.167-D.169 .....Sexual activities with one-time partners during the past one month.

D.170-D.172 .....Participation in anal intercourse with seropositive or PWA partner.

D.173-D.174 .....Needle-sharing behaviours.

D.175-D.176 .....Internally-oriented HLCS items with serostatus.

Table D.1.

Cross-tabulation of Internal Health Locus of Control Scores with Variable Age in the Total Population

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 31	6	38	68	112
	5.4	33.9	60.7	39.3
31-40	9	51	49	109
	8.3	46.8	45.0	38.2
Over 40	3	32	29	64
	4.7	50.0	45.3	22.5
Column total	18	121	146	285
percent	6.3	42.5	51.2	100.0

n=285, x2, df=4, p=.108

Table D.2.

Cross-tabulation of Internal Health Locus of Control Scores with Variable Age in the Seronegative Population

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 31	3	33	51	87
	3.4	37.9	58.6	40.5
31-40	5	29	42	76
	6.6	38.2	55.3	35.3
Over 40	3	23	26	52
	5.8	44.2	50.0	24.2
Column total	11	85	119	215
percent	5.1	39.5	55.3	100.0

n=215, x2, df=4, p=.799

Table D.3.

Cross-tabulation of Internal Health Locus of Control Scores with Variable Age in the Seropositive Population

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 31	3	5	17	25
	12.0	20.0	68.0	35.7
31-40	4	22	7	33
	12.1	66.7	21.2	47.1
Over 40		9	3	12
		75.0	25.0	17.1
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=4, p=.001

Table D.4.

Cross-tabulation of Internal Health Locus of Control Scores with *Regrouped Age Variable* in the Total Study Population.

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 30	6	38	68	112
	5.6	33.9	60.7	39.3
Over 30	12	83	78	173
	6.9	48.0	45.1	60.7
Column total	18	121	146	285
percent	6.3	42.5	51.2	100.0

n=285, x2, df=2, p=.036

Table D.5.

Cross-tabulation of Internal Health Locus of Control Scores with *Regrouped Age Variable* in the Seronegative Population.

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 30	3	33	51	87
	3.4	37.9	58.6	35.7
Over 30	8	52	68	128
	6.3	40.6	53.1	64.3
Column total	11	85	119	215
percent	51.4	42.9	5.7	100.0

n=70, x2, df=2, p=.806

Table D.6.

Cross-tabulation of Internal Health Locus of Control Scores with *Regrouped Age Variable* in the Seropositive Population.

	Internal health locus of control			
Age	Low	Moderate	High	Row total percent
Under 30	3	5	17	25
	12.0	20.0	68.0	35.7
Over 30	4	31	10	45
	8.9	68.9	22.2	64.3
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=2, p=.000

Table D.7.

Cross-tabulation of Internal Health Locus of Control Scores with The Variable *Language Spoken Most Often At Home (French, English)* in the Total Population

	Internal health locus of control			
Spoken language	Low	Moderate	High	Row total
				percent
French	2	73	86	171
	1.2	42.7	50.3	63.6
English	6	37	55	98
	6.1	37.8	56.1	36.4
Column total	18	110	141	269
percent	6.7	40.9	52.4	100.0

n=269, x2, df=2, p=.654

Table D.8.

Cross-tabulation of Internal Health Locus of Control Scores with Variable *Language Spoken Most Often At Home (French, English)* in the Seronegative Population

	Internal health locus of control			
Language	Low	Moderate	High	Row total
				percent
French	7	48	69	124
	5.6	38.7	55.6	61.4
English	4	28	46	78
	5.1	35.9	59.0	38.6
Column total	11	76	115	202
percent	5.4	37.6	56.9	100.0

n=202, x2, df=2, p=.897

Table D.9.

Cross-tabulation of Internal Health Locus of Control Scores with Variable *Language Spoken Most Often At Home (French, English)* in the Seropositive Population

	Internal health locus of control			
Language	Low	Moderate	High	Row total percent
French	5	25	17	47
	10.6	53.2	36.2	70.1
English	2	9	9	20
	10.0	45.0	45.0	29.9
Column total	7	34	26	67
percent	10.4	50.7	38.8	100.0

n=67, x2, df=2, p=.789

Table D.10.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable Age *First Considered Oneself to Be Homosexual* in the Total Population

	Internal health locus of control			
Age of awareness	Low	Moderate	High	Row total percent
1-10	2	12	14	28
	11.8	10.0	9.8	10.0
11-20	13	82	100	195
	76.4	68.3	69.9	69.6
21-30	2	24	25	51
	11.8	20.0	17.5	18.2
31-40		2	4	6
		1.7	2.8	2.1
Column total	17	120	143	280
percent	6.1	42.9	51.1	100.0

n=280, x2, df=6, p=.951

Table D.11.

Cross-tabulation of Internal Health Locus of Control Scores with *Age First Considered Oneself to be Homosexual* in the Seronegative Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10	1	8	10	19
	9.1	9.5	8.6	9.0
Age 11-20	9	55	79	143
	81.8	65.5	68.1	67.8
Age 21-30	1	20	23	44
	9.1	23.8	19.8	20.9
Age 31-40		1	4	5
		1.2	3.5	2.4
Column total	11	84	116	211
percent	5.2	39.8	55.0	100.0

n=211, x2, df=6, p=.822

Table D.12.

Cross-tabulation of Internal Health Locus of Control Scores with *Age First Considered Oneself to be Homosexual* in the Seropositive Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10	1	4	4	9
	16.7	11.1	14.8	13.0
Age 11-20	4	27	21	52
	66.7	75.0	77.8	75.4
Age 21-30	1	4	2	7
	16.7	11.1	7.4	10.1
Age 31-40		1		1
		2.8		1.4
Column total	6	36	27	69
percent	8.7	52.5	39.1	100.0

n=66, x2, df=6, p=.944

Table D.13.

Cross-tabulation of Internal Health Locus of Control Scores with *Age of First Homosexual Sexual Experience* in the Seronegative Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10	2	28	32	62
	18.2	32.6	26.9	28.7
Age 11-20	8	47	65	120
	72.7	54.7	54.6	55.5
Age 21-30	1	10	17	28
	9.1	11.6	14.3	13.0
Age 31-40		1	5	6
		1.2	4.2	2.8
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=6, p=.675

Table D.14.

Cross-tabulation of Internal Health Locus of Control Scores with *Age of First Homosexual Sexual Experience* in the Seropositive Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10	2	14	16	32
	28.6	38.9	59.3	45.7
Age 11-20	4	21	9	34
	57.1	58.3	33.3	48.6
Age 21-30	1	1	2	4
	14.3	2.8	7.4	5.7
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=4, p=.233

Table D.15.

Cross-tabulation of *Age of First Homosexual Sexual Experience* with Serostatus in the Total Population

	Serostatus of subjects		
Age	Positive	Negative	Row total percent
1-10	32	62	94
	45.7	28.7	32.9
11-20	34	120	154
	48.6	55.6	53.8
21-30	4	28	32
	5.7	13.0	11.2
31-40		6	6
		2.8	2.1
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=3, p=.023

Table D.16.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Age of First Anal Intercourse* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Never		10	8	18
		8.2	5.5	8.3
Age 1-10		5	7	12
		4.1	4.8	4.2
Age 11-20	11	60	76	147
	61.1	49.2	52.1	51.4
Age 21-30	6	37	43	86
	33.3	30.3	29.4	30.1
Age 31-40	1	10	12	23
	5.6	8.2	8.2	8.0
Column total	18	122	146	286
percent	6.3	42.7	51.0	100.0

n=286, x2, df=8, p=.894

Table D.17.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Age of First Anal Intercourse* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Never		10	8	18
		11.6	6.7	8.3
Age 1-10		1	6	7
		1.2	5.0	3.2
Age 11-20	7	40	55	102
	63.6	46.5	46.3	47.2
Age 21-30	3	28	38	69
	27.3	32.5	31.9	31.9
Age 31-40	1	7	12	20
	9.1	8.2	10.1	9.3
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=8, p=.641

Table D.18.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Age of First Anal Intercourse* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10		4	1	5
		11.1	3.7	7.1
Age 11-20	4	20	21	45
	57.1	55.6	77.8	64.3
Age 21-30	3	9	5	17
	42.9	25.0	18.5	24.3
Age 31-40		3		3
		8.3		4.3
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.303

Table D.19.

Cross-tabulation of the Variable *Age of First Anal Intercourse* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Never		18	18
		8.3	6.3
Age 1-10	5	7	12
	7.1	3.3	4.2
Age 11-20	45	102	147
	64.3	47.2	51.4
Age 21-30	17	69	86
	24.3	31.9	30.1
Age 31-40	3	20	23
	4.3	9.3	8.0
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=4, p=.009

Table D.20.

Cross-tabulation of Internal Health Locus of Control Scores with *Age of Regular Homosexual Sexual Experience* in the Seronegative Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10			1	1
			0.9	0.5
Age 11-20	6	42	66	114
	54.5	48.9	56.9	53.5
Age 21-30	4	42	43	89
	36.4	48.8	37.0	41.8
Age 31-40	1	2	6	9
	9.1	2.3	5.2	4.2
Column total	11	86	116	213
percent	5.2	40.4	54.5	100.0

n=213, x2, df=6, p=.576

Table D.21.

Cross-tabulation of Internal Health Locus of Control Scores with *Age of Regular Homosexual Sexual Experience* in the Seropositive Population.

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Age 1-10		1	1	2
		2.8	3.7	2.9
Age 11-20	4	23	22	49
	57.1	63.9	81.5	70.0
Age 21-30	3	10	4	17
	42.9	27.7	14.8	24.3
Age 31-40		1		1
		2.8		1.4
Over 40		1		1
		2.8		1.4
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=8, p=.737

Table D.22.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Openness with Straight Friends* in the Total Population

Openness/ straight friends	Internal health locus of control: Low	Moderate	High	Row total percent
None		8	10	18
		6.6	6.8	6.3
50% or less	5	35	47	87
	27.8	28.7	32.2	30.4
More than 50%	8	51	49	108
	44.4	41.8	33.6	37.8
All	5	28	40	73
	27.8	23.0	27.4	25.5
Column total	18	122	146	286
percent	6.3	42.7	51.0	100.0

n=286, x2, df=6, p=.743

Table D.23.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Openness with Relatives* in the Seropositive Population

Openness/ relatives	Internal health locus of control: Low	Moderate	High	Row total percent
None		3	3	6
		8.6	11.1	8.8
50% or less		11	1	12
		31.4	3.7	17.6
More than 50%	1	9	5	15
	16.7	25.7	18.5	22.1
All	5	12	18	35
	83.3	34.3	66.7	51.5
Column total	6	35	27	68
percent	8.8	51.5	39.7	100.0

n=68, x2, df=6, p=.038

Table D.24.

Cross-tabulation of The Variable *Openness with Straight Friends* with Serostatus in the Total Population

Openness/ straight friends	Serostatus of subjects: Positive	Negative	Row total percent
None	1	17	18
	1.4	7.9	6.3
50% or less	15	72	87
	21.4	33.3	30.4
more than 50%	36	72	108
	51.4	33.3	37.8
All	18	55	73
	25.7	25.5	25.5
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=3, p=.015

Table D.25.

Cross-tabulation of The Variable *Openness with Relatives* with Serostatus in the Total Population

Openness/ relatives	Serostatus of subjects: Positive	Negative	Row total percent
None	6	40	46
	8.8	18.6	16.3
50% or less	12	60	72
	17.6	27.9	25.4
More than 50%	15	44	59
	22.1	20.5	20.8
All	35	71	106
	51.5	33.0	37.5
Column total	68	215	283
percent	24.0	76.0	100.0

n=283, x2, df=3, p=.019

Table D.26.

Cross-tabulation of The Variable *Knowledge of Your Homosexuality Weighs On Your Mind* with Serostatus in the Total Population

	Serostatus of subjects		
Weight/homosexuality	Positive	Negative	Row total percent
Yes	9	50	59
	13.0	23.1	20.7
No	60	166	226
	87.0	76.9	79.3
Column total	69	216	285
percent	24.2	75.8	100.0

n=285, x2, df=1, p=.071

Table D.27.

Cross-tabulation of Internal Health Locus of Control scores with the Variable *Feelings of Well-Being These Days* in the Seronegative Population

	Internal health locus of control			
Feelings these days	Low	Moderate	High	Row total percent
Happy	6	70	89	165
	54.5	82.4	75.4	77.1
Unhappy	5	15	29	49
	45.5	17.6	24.6	22.9
Column total	11	85	118	214
percent	5.1	39.7	55.1	100.0

n=214, x2, df=2, p=.096

Table D.28.

Cross-tabulation of Variable *Feelings of Well-Being These Days* with Serostatus in the Total Population

	Serostatus of subjects		
Feelings these days	Positive	Negative	Row total
			percent
Happy	45	165	210
	66.2	77.1	74.5
Unhappy	23	49	72
	33.8	22.9	25.5
Column total	68	214	282
percent	24.1	75.9	100.0

n=282, x2, df=1, p=.072

Table D.29.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Feelings of Happiness These Days as Compared with Five Years Ago* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Less happy	7	28	25	60
	38.9	23.0	17.2	21.1
Same	5	28	44	77
	27.8	23.0	30.3	27.0
Happier	6	66	76	148
	33.3	54.0	52.4	51.9
Column total	18	122	145	285
percent	6.3	42.8	50.9	100.0

n=285, x2, df=4, p=.159

Table D.30.

Cross-tabulation of Variable *Feelings of Happiness These Days As Compared with Five Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Changes in feelings	Positive	Negative	Row total percent
Less happy	25	35	60
	35.7	16.3	21.1
Same	17	60	77
	24.3	27.9	27.0
Happier	28	120	148
	40.0	55.8	51.9
Column total	70	215	285
percent	24.6	75.4	100.0

N=285, x2, df=2, p=.002

Table D.31.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Level of Worry in General* in the Seropositive Population

	Internal health locus of control			
Level of Worry	Low	Moderate	High	Row total percent
A great deal	3	12	7	22
	42.9	33.3	25.9	31.4
Somewhat	3	24	20	47
	42.9	66.7	74.1	67.1
Not at all	1			1
	14.3			1.4
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=4, p=.034

Table D.32.

Cross-tabulation of Internal Health Locus of Control Scores with the *Level of Concern or Worry About Contracting AIDS* in the Seronegative Population

	Internal health locus of control			
Worry about AIDS	Low	Moderate	High	Row total percent
Extremely	4	17	40	61
	36.4	19.8	33.9	28.4
Somewhat	2	44	43	89
	18.1	51.2	36.4	41.4
Rarely	5	25	35	65
	45.6	29.1	29.7	30.2
Column total	11	86	118	215
percent	5.1	40.0	54.9	100.0

n=215, x2, df=4, p=.067

Table D.33.

Cross-tabulation of the Variable *Reason For Clinic Appointment Today* with Serostatus in the Total Population

	Serostatus of subjects		
Reasons for visit	Positive	Negative	Row total percent
Routine check	12	56	68
	17.1	26.3	24.0
Request HIV test	11	75	86
	15.7	35.2	30.4
Results HIV test	14	29	43
	20.0	13.6	15.2
Illness symptoms	17	33	50
	24.3	15.5	17.7
Request test information	16	20	36
	22.3	9.4	12.7
Column total	70	213	283
percent	24.7	75.3	100.0

n=283, x2, df=4, p=.001

Table D.34.

Cross-tabulation of Internal Health Locus of Control Scores with *Reason for the Clinic Visit* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Routine check up	7	23	38	68
	38.9	19.2	26.2	24.0
Request HIV test	4	29	53	86
	22.2	24.2	36.6	30.4
Results HIV test	3	21	19	43
	16.7	17.5	13.1	15.2
Illness symptoms	1	30	19	50
	5.6	25.0	13.1	17.7
Request information	3	17	16	36
	16.7	14.2	11.0	12.7
Column total	18	120	145	283
percent	6.4	42.4	51.2	100.0

n=286, x2, df=8, p=.053

Table D.35.

Cross-tabulation of Internal Health Locus of Control Scores with *Reason for the Clinic Visit* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Routine check up	2	3	7	12
	28.6	8.3	25.9	17.1
Request HIV test		4	7	11
		11.1	25.9	15.7
Results HIV test	2	6	6	14
	28.6	16.6	22.2	20.0
Illness symptoms	1	14	2	17
	14.3	38.9	7.4	24.3
Request information	2	9	5	16
	28.6	25.0	18.5	22.9
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=286, x2, df=8, p=.075

Table D.36.

Cross-tabulation of Internal Health Locus of Control Scores with *Reason for the Clinic Visit* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Routine check up	5	20	31	56
	45.5	23.8	26.3	26.3
Request HIV test	4	25	46	75
	36.4	29.8	39.0	35.2
Results HIV test	1	15	13	29
	9.1	17.9	11.0	13.6
Illness symptoms		16	17	33
		19.0	14.4	15.5
Request info	1	8	11	20
	9.1	9.5	9.3	9.4
Column total	11	84	118	213
percent	5.2	39.4	55.4	100.0

n=213, x2, df=8, p=.508

Table D.37.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Previous Testing for Antibodies to the Hepatitis-B Virus* in the Total Population

	Internal health locus of control			
Hepatitis-B testing	Low	Moderate	High	Row total percent
Yes tested	12	64	76	152
	70.6	52.5	52.1	53.3
Not tested	1	30	36	67
	5.9	24.6	24.7	23.5
Don't know	4	28	34	66
	23.5	23.0	23.3	23.2
Column total	17	122	146	285
percent	6.0	42.8	51.2	100.0

n=285, x2, df=4, p=.492

Table D.38.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Previous Testing for Antibodies to the Hepatitis-B Virus* in the Seronegative Population

	Internal health locus of control			
Hepatitis-B testing	Low	Moderate	High	Row total percent
Yes tested	7	44	61	112
	63.6	51.2	51.3	51.9
Not tested		24	32	56
		27.9	26.9	25.9
Don't know	4	18	26	48
	36.4	20.9	21.8	22.2
Column total	11	86	119	216
percent	5.1	39.8	95.1	100.0

n=216, x2, df=4, p=.355

Table D.39.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Previous Testing for Antibodies to the Hepatitis-B Virus* in the Seropositive Population

	Internal health locus of control			
Hepatitis-B testing	Low	Moderate	High	Row total percent
Yes tested	5	20	15	40
	83.3	55.6	55.6	58.0
Not tested	1	6	4	11
	16.7	16.7	14.8	15.9
Don't know		10	8	18
		27.8	29.6	26.1
Column total	6	36	27	69
percent	8.7	52.2	39.1	100.0

n=69, x2, df=4, p=.645

Table D.40.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Occurrence of Gonorrhea of the Rectum* in the Total Population

	Internal health locus of control			
Gonorrhea/rectum	Low	Moderate	High	Row total percent
Yes	3	15	13	31
	25.0	20.0	13.0	16.6
No	9	54	80	143
	75.0	72.0	80.0	76.5
Don't know		6	7	13
		8.0	7.0	7.0
Column total	12	75	100	187
percent	6.4	40.1	53.5	100.0

n=187, x2, df=4, p=.536

Table D.41.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Occurrence of Gonorrhea of the Throat* in the Total Population

	Internal health locus of control			
Gonorrhea/throat	Low	Moderate	High	Row total percent
Yes	1	13	11	25
	9.1	18.6	11.1	13.7
No	10	53	84	147
	90.9	73.6	84.0	80.3
Don't know		6	5	11
		8.3	5.0	6.0
Column total	11	72	100	183
percent	6.0	39.3	54.6	100.0

n=183, x2, df=4, p=.419

Table D.42.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Occurrence of Syphilis* in the Seronegative Population

	Internal health locus of control			
Syphilis	Low	Moderate	High	Row total percent
Yes	1	11	18	30
	11.1	13.6	15.8	14.7
No	8	68	94	170
	88.9	84.0	82.5	83.3
Don't know		2	2	4
		2.5	1.8	2.0
Column total	9	81	114	204
percent	4.4	39.7	55.9	100.0

n=204, x2, df=4, p=.964

Table D.43.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Occurrence of Syphilis* in the Seropositive Population

	Internal health locus of control			
Syphilis	Low	Moderate	High	Row total percent
Yes	3	14	8	25
	42.6	41.2	32.0	37.9
No	3	20	17	40
	42.6	58.8	68.0	60.6
Don't know	1			1
	14.8			1.5
Column total	7	34	25	66
percent	10.6	51.5	37.9	100.0

n=66, x2, df=4, p=.052

Table D.44.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Occurrence of Genital Herpes* in the Seronegative Population

	Internal health locus of control			
Herpes/genital	Low	Moderate	High	Row total percent
Yes	1	7	4	12
	11.1	10.6	4.3	7.1
No	8	58	89	155
	88.9	87.9	95.7	92.3
Don't know		1		1
		1.5		0.6
Column total	9	66	93	168
percent	5.4	39.3	55.4	100.0

n=168, x2, df=4, p=.383

Table D.45.

Cross-tabulation of the Variable *Gonorrhea of the Penis* with Serostatus In the Total Population

	Serostatus of subjects		
Gonorrhea/penis	Positive	Negative	Row total percent
Yes	51	83	134
	77.3	39.9	48.9
No	14	119	133
	21.2	57.2	48.5
Don't know	1	6	7
	1.5	2.9	2.6
Column total	66	208	274
percent	24.1	75.9	100.0

n=274, x2, df=2, p=.000

Table D.46.

Cross-tabulation of the Variable *Gonorrhea of the Rectum* with Serostatus In the Total Population

	Serostatus of subjects		
Gonorrhea/rectum	Positive	Negative	Row total percent
Yes	15	16	31
	36.6	11.0	16.6
No	21	122	143
	51.2	83.6	76.5
Don't know	5	8	13
	12.2	5.5	7.0
Column total	41	146	187
percent	21.9	78.1	100.0

n=187, x2, df=2, p=.000

Table D.47.

Cross-tabulation of the Variable *Gonorrhea of the Throat* with Serostatus In the Total Population

	Serostatus of subjects		
Gonorrhea/throat	Positive	Negative	Row total percent
Yes	15	10	25
	37.5	7.0	13.7
No	21	126	147
	52.5	88.1	80.3
Don't know	4	7	11
	10.0	4.9	6.0
Column total	40	143	183
percent	21.9	78.1	100.0

n=183, x2, df=2, p=.000

Table D.48.

Cross-tabulation of the Variable Syphilis with Serostatus In the Total Population

	Serostatus of subjects		
Syphilis	Positive	Negative	Row total percent
Yes	25	30	55
	37.9	14.7	20.4
No	40	170	210
	60.6	83.3	77.8
Don't know	1	4	5
	1.5	2.0	1.9
Column total	66	204	270
percent	24.4	75.6	100.0

n=270, x2, df=2, p=.000

Table D.49.

Cross-tabulation of the Variable *Intestinal Parasites* with Serostatus In the Total Population

	Serostatus of subjects		
Intestinal parasites	Positive	Negative	Row total percent
Yes	9	11	20
	14.8	5.6	7.8
No	50	179	229
	82.0	90.9	88.8
Don't know	2	7	9
	3.3	3.5	3.5
Column total	61	197	258
percent	23.6	76.4	100.0

n=258, x2, df=2, p=.065

Table D.50.

Cross-tabulation of the Variable *Hepatitis*-A with Serostatus In the Total Population

	Serostatus of subjects		
Hepatitis-A	Positive	Negative	Row total percent
Yes	9	8	17
	17.9	4.3	7.2
No	42	171	213
	80.8	92.4	89.9
Don't know	1	6	7
	1.9	3.2	3.0
Column total	52	185	237
percent	21.9	78.1	100.0

n=237, x2, df=2, p=.006

Table D.51.

Cross-tabulation of the Variable *Hepatitis-B* with Serostatus In the Total Population

	Serostatus of subjects		
Hepatitis-B	Positive	Negative	Row total percent
Yes	19	27	46
	35.8	15.8	20.5
No	33	138	171
	62.3	80.7	76.3
Don't know	1	6	7
	1.9	3.5	3.1
Column total	53	171	224
percent	23.7	76.3	100.0

n=224, x2, df=2, p=.007

Table D.52.

Cross-tabulation of the Variable *Herpes of the Lips* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Yes	22	37	59
	39.3	19.3	23.8
No	34	153	187
	18.2	81.8	75.4
Don't know		2	2
		100.0	0.8
Column total	56	192	248
percent	22.6	77.4	100.0

n=248, x2, df=2, p=.007

Table D.53.

Cross-tabulation of the Variable *Herpes of the Anus* with Serostatus in the Total Population

	Serostatus of subjects		
Herpes/anus	Positive	Negative	Row total percent
Yes	9	5	14
	19.6	3.1	6.7
No	37	157	194
	80.4	96.3	92.8
Don't know		1	1
		0.6	0.5
Column total	46	163	209
percent	22.0	78.0	100.0

n=209, x2, df=2, p=.000

Table D.54.

Cross-tabulation of the Variable *Sores of an Unknown Type Around the Anus* with Serostatus in the Total Population

	Serostatus of subjects		
Sores/anus	Positive	Negative	Row total percent
Yes	6	7	13
	10.5	3.5	5.1
No	51	190	241
	89.5	95.5	94.1
Don't know		2	2
		1.0	0.8
Column total	57	199	256
percent	22.3	77.7	100.0

n=256, x2, df=2, p=.081

Table D.55.

Cross-tabulation of the Variable *Warts On the Penis* with Serostatus in the Total Population

	Serostatus of subjects		
Warts/penis	Positive	Negative	Row total percent
Yes	9	13	22
	15.8	6.7	8.5
No	48	187	235
	84.2	93.0	91.1
Don't know		1	1
		0.3	0.4
Column total	57	201	258
percent	22.1	77.9	100.0

n=258, x2, df=2, p=.075

Table D.56.

Cross-tabulation of the Variable *Warts Around the Anus* with Serostatus in the Total Population

	Serostatus of subjects		
Warts/anus	Positive	Negative	Row total percent
Yes	26	32	58
	41.3	12.8	21.6
No	37	173	210
	58.7	87.2	78.4
Column total	63	205	268
percent	23.5	76.5	100.0

n=268, x2, df=1, p=.000

Table D.57.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Posters/Fliers as Sources of Useful Information About AIDS* in the Total Population

	Internal health locus of control			
Posters/fliers	Low	Moderate	High	Row total percent
Not at all	6	10	26	42
	40.0	9.4	20.5	16.9
Somewhat	7	72	61	140
	46.7	67.9	48.0	56.5
Very	2	24	40	66
	13.3	22.6	31.5	26.6
Column total	15	106	127	248
percent	6.0	42.7	51.2	100.0

n=248, x2, df=4, p=.003

Table D.58.

Cross-tabulation of Internal Health Locus of Control Scores with *Posters/Fliers as Source of Useful Information About HIV/AIDS* in the Seronegative Population

	Internal health locus of control			
Posters/fliers	Low	Moderate	High	Row total percent
Not at all	5	7	23	35
	55.6	9.5	22.3	18.8
Somewhat	3	52	47	102
	33.3	70.3	45.6	54.8
Very	1	15	33	49
	11.1	20.2	32.1	26.3
Column total	9	74	103	186
percent	4.8	39.8	55.4	100.0

n=186, x2, df=4, p=.001

Table D.59.

Cross-tabulation of Internal Health Locus of Control Scores with *Physician as Source of Useful Information About HIV/AIDS* in the Total Population

	Internal health locus of control			
Physician/source	Low	Moderate	High	Row total percent
Not at all		11	9	20
		10.0	6.6	7.6
Somewhat	8	55	52	115
	50.0	49.5	38.2	43.7
Very	8	45	75	128
	50.0	40.5	55.2	48.7
Column total	16	111	136	263
percent	6.1	42.2	51.7	100.0

n=263, x2, df=4, p=.147

Table D.60.

Cross-tabulation of Internal Health Locus of Control Scores with *Physician as Source of Useful Information About HIV/AIDS* in the Seronegative Population

	Internal health locus of control			
Physician/source	Low	Moderate	High	Row total percent
Not at all		9	8	17
		11.7	7.1	8.6
Somewhat	6	43	45	94
	6.7	55.8	40.2	47.5
Very	3	25	59	87
	33.3	32.5	52.7	43.9
Column total	9	77	112	198
percent	4.5	38.9	56.6	100.0

n=198, x2, df=4, p=.050

Table D.61.

Cross-tabulation of Internal Health Locus of Control Scores with *Physician as Source of Useful Information About HIV/AIDS* in the Seropositive Population

	Internal health locus of control			
Physician/source	Low	Moderate	High	Row total percent
Not at all		2	1	3
		5.9	4.2	4.6
Somewhat	2	12	7	21
	28.6	35.3	29.1	32.3
Very	5	20	16	41
	71.4	58.8	66.7	63.1
Column total	7	34	24	65
percent	10.8	52.3	36.9	100.0

n=65, x2, df=4, p=.928

Table D.62.

Cross-tabulation of Variable *Physician as Source of Useful Information About AIDS* with Serostatus in the Total Population

	Serostatus of subjects		
Physician	Positive	Negative	Row total percent
Not at all	3	17	20
	4.6	8.6	7.6
Somewhat	21	94	115
	32.3	47.5	43.7
Very	41	87	128
	63.1	43.9	48.7
Column total	65	198	263
percent	24.7	75.3	100.0

n=263, x2, df=2, p=.026

Table D.63.

Cross-tabulation of Variable *Physician as Source of Useful Information About AIDS* with the Variable *Age* in the Total Population

	Age			
Physician/source	Under 31	31-40	Over 40	Row total percent
Not at all	7	6	7	20
	6.7	5.8	13.0	7.6
Somewhat	47	51	16	114
	45.2	49.0	29.6	43.5
Very	50	47	31	128
	48.1	45.2	57.4	48.9
Column total	104	104	54	262
percent	39.7	39.7	20.6	100.0

n=262, x2, df=4, p=.142

Table D.64.

Cross-tabulation of the Variable *Newspapers/Magazines as Sources of Useful Information About AIDS* with Serostatus in the Total Population

	Serostatus of subjects		
Newspapers/magazines	Positive	Negative	Row total percent
Not at all	7	7	14
	10.4	3.4	5.1
Somewhat	44	138	182
	65.7	66.3	66.2
Very	16	63	79
	23.9	30.3	28.7
Column total	67	208	275
percent	24.4	75.6	100.0

n=275, x2, df=2, p=.057

Table D.65.

Cross-tabulation of the Belief That *People Can Get AIDS By Having Sex with a Person Who Has Shot Drugs But Looks Healthy* with Serostatus in the Total Population

AIDS from Healthy IVDA	Serostatus of subjects: Positive	Negative	Row total percent
Yes	55	194	249
	79.7	91.6	88.6
No	3	9	12
	4.4	4.2	4.3
Don't know	11	9	20
	15.9	4.2	7.1
Column total	69	212	281
percent	24.6	75.4	100.0

n=281, x2, df=2, p=.004

Table D.66.

Cross-tabulation of the Variable *Belief of the Risk Level of Deep Kissing* with Serostatus in the Total Population

	Serostatus of subjects		
Risk/deep kissing	Positive	Negative	Row total percent
No risk	48	115	163
	71.6	53.7	58.0
Low risk	17	89	106
	25.4	41.6	37.7
High risk	2	10	12
	3.0	4.7	4.3
Column total	67	214	281
percent	23.8	76.2	100.0

n=281, x2, df=2, p=.035

Table D.67.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Belief of the Risk Level of Oral Sex with Swallowing Ejaculate* in the Total Population

	Internal health locus of control			
Risk level/oral sex	Low	Moderate	High	Row total
				percent
No risk	2	2	5	9
	12.5	1.6	3.4	3.2
Low risk	5	46	40	91
	31.3	37.7	27.4	32.0
High risk	9	74	101	184
	56.2	60.7	69.2	64.8
Column total	16	122	146	284
percent	5.6	43.0	51.4	100.0

n=284, x2, df=4, p=.076

Table D.68.

Cross-tabulation of the Belief That *a Positive AIDS Test Means That One Will Eventually Develop AIDS* with Serostatus in the Total Population

	Serostatus of subjects		
Positive test/ eventual aids	Positive	Negative	Row total percent
Agree	14	123	137
	20.3	57.8	48.8
Disagree	27	48	75
	39.7	22.5	26.7
Not sure	27	42	69
	40.0	19.7	24.6
Column total	68	213	281
percent	24.2	75.8	100.0

n=281, x2, df=2, p=.000

Table D.69.

Cross-tabulation of the Internal Health Locus of Control Scores with The Variable *Testing for HIV Virus Prior to Data Collection* in the Total Population

	Internal health locus of control			
Previous HIV testing	Low	Moderate	High	Row total percent
No		7	15	22
		5.7	10.3	7.7
Results unknown		7	10	17
		5.7	6.8	5.9
Results negative	11	78	99	188
	61.1	63.9	67.8	65.7
1 result positive	7	30	22	59
	38.9	24.6	15.1	20.6
Column total	18	122	146	286
percent	6.3	42.7	51.0	100.0

n=286, x2, df=6, p=.096

Table D.70.

Cross-tabulation of the Internal Health Locus of Control Scores with The Variable *Testing for HIV Virus Prior to Data Collection* in the Seronegative Population

	Internal health locus of control			
Prior HIV testing	Low	Moderate	High	Row total percent
No		4	14	18
		4.6	11.8	8.3
Results unknown		6	9	15
		7.0	7.6	6.9
Results negative	11	76	96	183
	100.0	88.4	80.7	84.7
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=4, p=.240

Table D.71.

Cross-tabulation of the Internal Health Locus of Control Scores with The Variable *Testing for HIV Virus Prior to Data Collection* in the Seropositive Population

	Internal health locus of control			
Prior HIV testing	Low	Moderate	High	Row total percent
No		3	1	4
		8.3	3.7	5.7
Results unknown		1	1	2
		2.8	3.7	2.9
Results negative		2	3	5
		5.6	11.1	7.1
1 positive result	7	30	22	59
	100.0	83.3	81.5	84.3
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.840

Table D.72.

Cross-tabulation of the Variable *Testing for HIV-Antibody Status Prior to Data Collection* with Serostatus in the Total Population

	Serostatus of subjects		
Previous HIV testing	Positive	Negative	Row total percent
No	4	18	22
	5.7	8.4	7.7
Results unknown	2	15	17
	2.9	6.9	5.9
Results negative	5	183	188
	7.1	84.7	65.7
1 result positive	59		59
	84.3		20.6
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=3, p=.000

Table D.73.

Cross-tabulation of the Variable *Testing for HIV Virus of Primary Partner* with Serostatus in the Total Population

	Serostatus of subjects		
Primary partner HIV testing	Positive	Negative	Row total percent
Not applicable	34	93	127
	48.6	44.5	45.5
Yes don't know	5	4	9
	7.1	1.9	3.2
Yes result negative	12	76	88
	17.1	36.3	31.5
Yes 1 result positive	12	11	23
	17.1	5.3	8.2
Not tested	5	23	28
	7.1	11.0	10.0
Never asked	1	2	3
	1.4	1.0	1.1
1 positive/1 negative	1		1
	1.4		0.4
Column total	70	209	279
percent	25.1	74.9	100.0

n=279, x2, df=6, p=.001

Table D.74.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Choosing to Know Results of the HIV Testing* in the Total Population

	Internal health locus of control			
Receive HIV-test results	Low	Moderate	High	Row total percent
Yes	16	102	139	257
	88.9	84.3	95.2	90.2
No	2	19	7	28
	11.1	15.7	4.8	9.8
Column total	18	121	146	285
percent	6.3	42.5	51.2	100.0

n=285, x2, df=2, p=.012

Table D.75.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Choosing to Know Results of the HIV Testing* in the Seronegative Population

Receive HIV-test results	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	10	72	112	194
	90.9	83.7	94.1	89.8
No	1	14	7	22
	9.1	16.3	5.9	10.2
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=2, p=.052

Table D.76.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Choosing to Know Results of the HIV Testing* in the Seropositive Population

	Internal health locus of control			
Prior HIV testing	Low	Moderate	High	Row total percent
Yes	6	30	27	63
	85.7	85.7	100.0	91.3
No	1	5		
	14.3	14.3		
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=7, p=.121

Table D.77.

Cross-tabulation of Internal Health Locus of Control Scores with *Reasons Given for Receiving Results of HIV-Antibody Testing* in the Total Population

	Internal health locus of control			
Reasons why	Low	Moderate	High	Row total percent
Inapplicable	2	17	7	26
	11.1	14.3	5.0	9.4
Change if pos	3	29	41	73
	16.7	24.4	29.3	26.4
Know future	2	19	30	51
	11.1	16.0	21.4	18.4
1 & 2	8	31	45	84
	44.4	26.1	32.1	30.3
Already pos	2	14	10	26
	11.1	11.8	7.1	9.4
To help study		4	6	10
	0.0	3.4	4.3	3.6
Want VDRL test	1	4	1	6
	5.6	3.4	0.7	2.2
Financial planning		1		1
		0.8		0.4
Column total	18	119	140	277
percent	6.5	43.0	50.5	100.0

n=277, x2, df=14, p=.221

Table D.78.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Importance of Sex* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not very important	3	11	22	36
	18.8	9.2	15.6	13.0
Fairly important	6	85	82	173
	37.5	70.8	58.2	62.5
Very important	7	24	37	68
	43.7	20.0	26.2	24.5
Column total	16	120	141	277
percent	5.8	43.3	50.9	100.0

n=277, x2, df=4, p=.051

Table D.79.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Importance of Sex* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not very important	2	8	20	30
	18.2	9.3	17.5	14.2
Fairly important	4	64	63	131
	36.4	74.4	55.3	62.1
Very important	5	14	31	50
	45.4	16.3	27.2	23.7
Column total	11	86	114	211
percent	5.2	40.8	54.0	100.0

n=211, x2, df=4, p=.023

Table D.80.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Importance of Sex* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not very important	1	3	2	6
	20.0	8.8	7.4	9.1
Fairly important	2	21	19	42
	40.0	61.8	70.4	63.6
Very important	2	10	6	18
	40.0	29.4	22.2	27.3
Column total	5	34	27	66
percent	7.6	51.5	40.9	100.0

n=66, x2, df=4, p=.736

Table D.81.

Cross-tabulation of the Variable *Importance of Sex* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not very important	6	30	36
	9.1	14.2	13.0
Fairly important	42	131	173
	63.6	62.1	62.5
Very important	18	50	68
	27.3	23.7	24.5
Column total	66	211	277
percent	23.8	76.2	100.0

n=277, x2, df=2, p=.523

Table D.82.

Cross-tabulation of the Variable *Total Number of Men with Whom One Had Receptive Anal Intercourse* with Serostatus in the Total Population

	Serostatus of subjects		
Total men	Positive	Negative	Row total percent
Zero		30	30
		13.9	10.5
1-9	20	132	152
	28.6	61.1	53.1
10-99	32	46	78
	45.7	21.3	27.3
100 or more	18	8	26
	25.7	3.7	9.1
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=3, p=.000

Table D.83.

Cross-tabulation of the Variable *Proportion of Total Number of Partners Who Were One-Time Partners* with Serostatus in the Total Population

	Serostatus of subjects		
Proportion/one-time	Positive	Negative	Row total percent
Zero		7	7
		3.3	2.5
Some 1-49%	16	73	89
	22.9	33.9	31.2
Many 50-99%	54	133	187
	77.1	61.9	65.6
All 100%		2	2
		0.9	0.7
Column total	70	215	285
percent	24.6	75.4	100.0

n=285, x2, df=3, p=.075

Table D.84.

Cross-tabulation of the Internal Health Locus of Control Scores with Variable *Total Number of Men with Whom One Had Receptive Anal Intercourse* in the Seronegative Population

	Internal health locus of control			
Total men	Low	Moderate	High	Row total percent
Zero	1	13	16	30
	9.1	15.1	13.4	13.9
1-9	6	47	79	132
	54.5	54.7	66.4	61.1
10-99	4	26	16	46
	36.4	30.2	13.4	21.3
Over 100			8	8
			6.7	3.7
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=6, p=.015

Table D.85.

Cross-tabulation of the Internal Health Locus of Control Scores with Variable *Total Number of Men with Whom One Had Receptive Anal Intercourse* in the Seropositive Population

	Internal health locus of control			
Total men	Low	Moderate	High	Row total percent
1-9	4	10	6	20
	57.1	27.8	22.2	28.6
10-99	1	18	13	32
	14.3	50.0	48.2	45.7
Over 100	2	8	8	18
	28.6	22.2	29.6	25.7
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=4, p=.350

Table D.86.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *One-Time Partners As Proportion of All Partners* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Zero		1	6	7
		0.8	4.1	2.5
Some 1-49%	3	39	47	89
	16.7	32.2	32.2	31.2
Many 50-99%	15	81	91	187
	83.3	66.9	62.3	65.6
All 100%			2	2
			1.4	0.7
Column total	18	121	146	285
percent	6.3	42.5	51.2	100.0

n=285, x2, df=6, p=.259

Table D.87.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *One-Time Partners As Proportion of All Partners* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Zero		1	6	7
		1.2	5.0	3.3
Some 1-49%	2	31	40	73
	18.2	36.5	33.6	34.0
Many 50-99%	9	53	71	133
	81.8	62.4	59.7	61.9
All 100%			2	2
			1.7	0.9
Column total	11	85	119	215
percent	5.1	39.5	55.3	100.0

n=215, x2, df=6, p=.419

Table D.88.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *One-Time Partners As Proportion of All Partners* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Some 1-49%	1	8	7	16
	14.3	22.2	25.9	22.9
Many 50-99%	6	28	20	54
	85.7	77.8	74.1	77.1
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=2, p=.801

Table D.89.

Cross-tabulation of the Variable *Weekly Frequency of Sexual Activity Resulting In Orgasm* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
None	16	31	47
	22.9	14.3	16.4
Less than one	18	59	77
	25.7	27.3	26.9
1-3 times	30	109	139
	42.8	50.5	48.6
Four or more	6	17	23
	8.6	7.9	8.0
Column total	70	216	286
percent	24.5	75.5	100.0

n=286, x2, df=3, p=.386

Table D.90.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Weekly Frequency of Homosexual Sexual Activity* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
None	3	18	26	47
	16.7	14.8	17.8	16.4
Less than one	5	30	42	77
	27.8	24.6	28.8	26.9
1-3 times	8	67	64	139
	44.4	54.9	43.8	48.6
Four and more	2	7	14	23
	11.1	5.7	9.6	8.0
Column total	18	122	146	286
percent	6.3	42.7	51.0	100.0

n=286, x2, df=6, p=.675

Table D.91.

Cross-tabulation of the Internal Health Locus of Control Scores with *Participation in Receptive Anal Intercourse with One-Time Partners During a Typical Month This Year* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	3	18	27	48
	17.6	15.1	18.6	17.1
No	14	101	118	233
	82.4	84.9	81.4	82.9
Column total	17	119	145	281
percent	6.0	42.3	51.6	100.0

n=281, x2, df=2, p=.753

Table D.92.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	8	41	40	89
	44.4	34.5	27.8	31.7
No	10	78	104	192
	55.6	65.5	72.2	68.3
Column total	18	119	144	281
percent	6.4	42.3	51.2	100.0

n=281, x2, df=2, p=.248

Table D.93.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with One-Time Partners During a Typical Month This Year* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	2	10	16	28
	18.2	11.9	13.6	13.1
No	9	74	102	185
	81.8	88.1	86.4	86.9
Column total	11	84	118	213
percent	5.2	39.4	55.4	100.0

n=213, x2, df=2, p=.829

Table D.94.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with a One-Time Partner During a Typical Month This Year* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	1	8	11	20
	16.7	22.9	40.7	29.4
No	5	27	16	48
	83.3	77.1	59.3	70.6
Column total	6	35	27	68
percent	8.8	51.5	39.7	100.0

n=68, x2, df=2, p=.239

Table D.95.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	23	25	52
	36.4	27.4	21.4	24.5
No	7	61	92	160
	63.6	72.6	78.6	75.5
Column total	11	84	117	212
percent	5.2	39.6	55.2	100.0

n=212, x2, df=2, p=.400

Table D.96.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	18	15	37
	57.1	51.4	55.6	53.6
No	3	17	12	32
	42.9	48.6	44.4	46.4
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=2, p=.931

Table D.97.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	3	30	36	69
	27.3	36.1	31.0	32.9
No	8	53	80	141
	72.7	63.9	69.0	67.1
Column total	11	83	116	210
percent	5.2	39.5	55.2	100.0

n=210, x2, df=2, p=.692

Table D.98.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	20	16	40
	57.1	57.1	59.3	58.0
No	3	15	11	29
	42.9	42.9	41.7	42.0
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=2, p=.985

Table D.99.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with Repeat Partners During a Typical Month This Year* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total
				percent
Yes	4	35	35	74
	22.2	29.4	24.1	26.2
No	14	84	110	208
	77.8	70.6	75.9	73.8
Column total	18	119	145	282
percent	6.4	42.2	51.4	100.0

n=282, x2, df=2, p=.577

Table D.100.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with Repeat Partners During a Typical Month This Year* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total
				percent
Yes	3	21	29	53
	27.3	25.0	24.6	24.9
No	8	63	89	160
	72.7	75.0	75.4	75.1
Column total	11	84	118	213
percent	5.2	39.4	55.4	100.0

n=213, x2, df=2, p=.980

Table D.101.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with Repeat Partners During a Typical Month This Year* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	1	14	6	21
	14.3	40.0	22.2	30.4
No	6	21	21	48
	85.7	60.0	77.8	69.6
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=2, p=.198

Table D.102.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Participation in Receptive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	8	48	52	108
	44.4	40.7	35.9	38.4
No	10	70	93	173
	55.6	59.3	64.1	61.6
Column total	18	118	145	281
percent	6.4	42.0	51.7	100.0

n=281, x2, df=2, p=.628

Table D.103.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	31	35	70
	36.4	36.9	29.7	32.9
No	7	53	83	143
	63.6	63.1	70.3	67.1
Column total	11	84	118	213
percent	5.2	39.4	55.4	100.0

n=213, x2, df=2, p=.540

Table D.105.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	17	17	38
	57.1	50.0	63.0	55.9
No	3	17	10	30
	42.9	50.0	37.0	44.1
Column total	7	34	27	68
percent	10.3	50.0	39.7	100.0

n=68, x2, df=2, p=.597

Table D.105.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with Repeat Partners During a Typical Month This Year* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	2	28	39	69
	18.2	33.3	33.3	32.5
No	9	56	78	143
	81.8	66.7	66.7	67.5
Column total	11	84	117	212
percent	5.2	39.6	55.2	100.0

n=212, x2, df=2, p=.580

Table D.106.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with Repeat Partners During a Typical Month This Year* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	2	11	7	20
	28.6	31.4	25.9	29.0
No	5	24	20	49
	71.4	68.6	74.1	71.0
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=2, p=.894

Table D.107.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	3	34	37	74
	27.3	40.5	32.2	35.2
No	8	50	78	136
	72.7	59.5	67.8	64.8
Column total	11	84	115	210
percent	5.2	40.0	54.8	100.0

n=210, x2, df=2, p=.409

Table D.108.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Yes	4	19	17	40
	57.2	54.3	63.0	58.0
No	3	16	10	29
	42.8	45.7	37.0	42.0
Column total	7	35	27	69
percent	10.1	50.7	39.1	100.0

n=69, x2, df=2, p=.789

Table D.109.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During a Typical Month This Year* with Serostatus in the Total Population

	Serostatus of subjects		
Passive anal	Positive	Negative	Row total percent
Yes	20	28	48
	29.4	13.1	17.1
No	48	185	233
	70.6	86.9	82.9
Column total	68	213	281
percent	24.2	75.8	100.0

n=281, x2, df=1, p=.002

Table D.110.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Passive anal	Positive	Negative	Row total percent
Yes	37	52	89
	53.6	24.5	31.7
No	32	160	192
	46.4	75.5	68.3
Column total	69	212	281
percent	24.6	75.4	100.0

n=281, x2, df=1, p=.000

Table D.111.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
Receptive anal	Positive	Negative	Row total percent
Not applicable	3	97	129
	4.8	56.4	54.9
Zero	21	64	85
	33.3	37.2	36.2
1	5	8	13
	7.9	4.7	5.5
2	1	3	4
	1.6	1.7	1.7
3-4	3		3
	4.8		1.3
5-9	1		1
	1.6		0.4
Column total	63	172	235
percent	26.8	73.2	100.0

n=235, x2, df=5, p=.031

Table D.112.

Cross-tabulation of the Variable *Participation in Insertive Anal Intercourse with One-Time Partners During a Typical Month This Year* with Serostatus in the Total Population

	Serostatus of subjects		
Active anal	Positive	Negative	Row total
			percent
Yes	21	49	70
	30.4	23.2	25.0
No	48	162	210
	69.6	76.8	75.0
Column total	69	211	280
percent	24.6	75.4	100.0

n=280, x2, df=1, p=.230

Table D.113.

Cross-tabulation of the Variable *Participation in Insertive Anal Intercourse with One-Time Partners During a Typical Month Three Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Active anal	Positive	Negative	Row total percent
Yes	40	69	109
	58.0	32.9	39.1
No	29	141	170
	42.0	67.1	60.9
Column total	69	210	279
percent	24.7	75.3	100.0

n=279, x2, df=1, p=.000

Table D.114.

Cross-tabulation of the Variable *Active Anal Intercourse with One-Time Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	32	97	129
	53.3	55.4	54.9
Zero	22	53	75
	36.7	30.4	31.9
1	3	15	18
	5.0	8.6	7.7
2	3	5	8
	5.0	2.8	3.4
3-4		5	5
		2.8	2.1
Column total	60	175	235
percent	25.5	74.5	100.0

n=235, x2, df=4, p=.453

Table D.115.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with Repeat Partners During a Typical Month This Year* with Serostatus in the Total Population

	Serostatus of subjects		
Passive anal	Positive	Negative	Row total percent
Yes	21	53	74
	30.4	24.9	26.2
No	48	160	208
	69.6	75.1	73.8
Column total	69	213	282
percent	24.5	75.5	100.0

n=282, x2, df=1, p=.362

Table D.116.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Passive anal	Positive	Negative	Row total percent
Yes	38	70	108
	55.9	32.9	38.4
No	30	143	173
	44.1	67.1	61.6
Column total	68	213	281
percent	24.2	75.8	100.0

n=281, x2, df=1, p=.001

Table D.117.

Cross-tabulation of the Variable *Participation in Insertive Anal Intercourse with Repeat Partners During a Typical Month This Year* with Serostatus in the Total Population

	Serostatus of subjects		
Active anal	Positive	Negative	Row total percent
Yes	20	69	89
	29.0	32.5	31.7
No	49	143	192
	71.0	67.5	68.3
Column total	69	212	281
percent	24.6	75.4	100.0

n=281, x2, df=1, p=.581

Table D.118.

Cross-tabulation of the Variable *Participation in Insertive Anal Intercourse with Repeat Partners During a Typical Month Three Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Active anal	Positive	Negative	Row total percent
Yes	40	74	114
	58.0	35.2	40.9
No	29	136	165
	42.0	64.8	59.1
Column total	69	210	279
percent	24.7	75.3	100.0

n=279, x2, df=1, p=.001

Table D.119.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Condom Usage During Receptive Anal Intercourse with One-Time Partners During the Past One Month* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	17	112	128	257
	94.4	92.6	89.5	91.1
Never		6	5	11
		5.0	3.5	3.9
Once		1	5	6
		0.8	3.5	2.1
Twice or more	1	2	5	8
	5.6	1.6	3.5	2.8
Column total	18	121	143	282
percent	6.4	42.9	50.7	100.0

n=282, x2, df=6, p=.532

Table D.120.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Condom Usage During Receptive Anal Intercourse with One-Time Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	10	80	108	198
	90.9	94.1	92.3	93.0
Never		4	5	9
		4.7	4.3	4.2
Once		1	3	4
		1.2	2.6	1.9
Twice or more	1		1	2
	9.1		0.8	0.9
Column total	11	85	117	213
percent	5.2	39.9	54.9	100.0

n=213, x2, df=6, p=.131

Table D.121.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Condom Usage During Receptive Anal Intercourse with One-Time Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	7	32	20	59
	100.0	88.8	76.9	85.5
Never		2		2
		5.6		2.9
Once			2	2
			7.7	2.9
Twice or more		2	4	6
		5.6	15.4	8.7
Column total	7	36	26	69
percent	10.1	52.2	37.7	100.0

n=69, x2, df=6, p=.243

Table D.122

Cross-tabulation of the Internal Health Locus of Control Scores with *Condom Usage During Insertive Anal Intercourse with One-Time Partners During the Past One Month* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	16	103	119	238
	88.9	85.1	84.1	85.0
Never		9	10	19
		7.4	7.1	6.8
Once	1	6	9	16
	5.55	5.0	6.4	5.7
Twice or more	1	3	3	7
	5.55	2.5	2.1	2.5
Column total	18	121	141	280
percent	6.4	43.2	50.4	100.0

n=280, x2, df=6, p=.886

Table D.123.

Cross-tabulation of Internal Health Locus of Control Scores with *Condom Usage During Insertive Anal Intercourse with One-Time Partners During the Past One Month* in the Seronegative Population.

	Internal health locus of control			
Condom usage	Low	Moderate	High	Row total
				percent
Not applicable	10	72	99	181
	90.9	84.7	86.8	86.2
Never		7	8	15
		8.2	7.0	7.1
Once	1	5	5	11
	9.1	5.9	4.4	5.2
Twice or more		1	2	3
		1.2	1.8	1.4
Column total	11	85	114	210
percent	5.2	40.5	54.3	100.0

n=210, x2, df=6, p=.937

Table D.124.

Cross-tabulation of Internal Health Locus of Control Scores with *Condom Usage During Insertive Anal Intercourse with One-Time Partners During the Past One Month* in the Seropositive Population.

	Internal health locus of control			
Condom usage	Low	Moderate	High	Row total
				percent
Not applicable	6	31	20	57
	85.7	86.1	84.1	81.4
Never		2	2	4
		5.55	7.4	5.7
Once		1	4	5
		2.8	14.8	7.1
Twice or more	1	2	1	4
	14.3	5.55	3.7	5.7
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.467

Table D.125.

Cross-tabulation of the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	59	198	257
	85.5	93.0	91.1
Never	2	9	11
	2.9	4.2	3.9
Once	2	4	6
	2.9	1.9	2.1
Twice or more	6	2	8
	8.7	0.9	2.8
Column total	69	213	282
percent	24.5	75.5	100.0

n=282, x2, df=3, p=.008

Table D.126.

Cross-tabulation of the Variable *Condom Usage During Insertive Anal Intercourse with One-Time Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	57	181	238
	81.4	86.2	85.0
Never	4	15	19
	5.7	7.2	6.8
Once	5	11	16
	7.2	5.2	5.7
Twice or more	4	3	7
	5.7	1.4	2.5
Column total	70	210	280
percent	25.0	75.0	100.0

n=280, x2, df=3, p=.213

Table D.127.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Condom Usage During Receptive Anal Intercourse with Repeat Partner During the Past One Month* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	15	89	122	226
	88.2	74.8	84.7	80.7
Never		16	9	25
		13.5	6.2	8.9
Once	1	3	8	12
	5.9	2.5	5.6	4.3
Twice or more	1	11	5	17
	5.9	9.2	3.5	6.1
Column total	17	119	144	280
percent	6.1	42.5	51.4	100.0

n=280, x2, df=6, p=.077

Table D.128.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Condom Usage During Receptive Anal Intercourse with Repeat Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	8	64	98	170
	80.0	77.1	83.8	81.0
Never		11	9	20
		13.3	7.7	9.5
Once	1	2	6	9
	10.0	2.4	5.1	4.3
Twice or more	1	6	4	11
	10.0	7.2	3.4	5.2
Column total	10	83	117	210
percent	4.8	39.5	55.7	100.0

n=210, x2, df=6, p=.393

Table D.129.

Cross-tabulation of Internal Health Locus of Control Scores with *Condom Usage During Receptive Anal Intercourse with Repeat Partners During the past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	7	25	24	56
	100.0	69.4	88.9	80.0
Never		5		5
		13.9		7.1
Once		1	2	3
		2.8	7.4	4.3
Twice or more		5	1	6
		13.9	3.7	8.6
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.148

Table D.130.

Cross-tabulation of the Variable *Condom Usage During Receptive Anal Intercourse with Repeat Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	56	170	226
	80.0	81.0	80.7
Never	5	20	25
	7.1	9.5	8.9
Once	3	9	12
	4.3	4.3	4.3
Twice or more	6	11	17
	8.6	5.2	6.1
Column total	70	210	280
percent	25.0	75.0	100.0

n=280, x2, df=3, p=.729

Table D.131.

Cross-tabulation of the Internal Health Locus of Control Scores with The Variable *Condom Usage During Insertive Anal Intercourse with Repeat Partners During the Past One Month* in the Total Study Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	16	91	114	221
	88.9	75.8	81.4	79.5
Never	1	15	19	35
	5.55	12.5	13.6	12.6
Once		9	3	12
		7.5	2.1	4.3
Twice or more	1	5	4	10
	5.55	4.2	2.9	3.6
Column total	18	120	140	278
percent	6.5	43.2	50.4	100.0

n=278, x2, df=6, p=.328

Table D.132.

Cross-tabulation of Internal Health Locus of Control Scores with *Condom Usage During Insertive Anal Intercourse with Repeat Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
Condom usage	Low	Moderate	High	Row total percent
Not applicable	9	63	91	163
	81.8	75.0	80.5	78.4
Never	1	11	17	29
	9.1	13.1	15.0	13.9
Once		8	2	10
		9.5	1.8	4.8
Twice or more	1	2	3	6
	9.9	2.4	2.7	2.9
Column total	11	84	113	208
percent	5.3	40.4	54.3	100.0

n=208, x2, df=6, p=.192

Table D.133.

Cross-tabulation of Internal Health Locus of Control Scores with *Condom Usage During Insertive Anal Intercourse with Repeat Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
Condom usage	Low	Moderate	High	Row total percent
Not applicable	7	28	23	58
	100.0	77.8	85.2	82.9
Never		4	2	6
		11.1	7.4	8.6
Once		1	1	2
		2.8	3.7	2.9
Twice or more		3	1	4
		8.3	3.7	5.7
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.859

Table D.134.

Cross-tabulation of the Variable *Condom Usage During Insertive Anal Intercourse with Repeat Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	58	163	221
	82.8	78.4	79.5
Never	6	29	35
	8.6	13.9	12.6
Once	2	10	12
	2.9	4.8	4.3
Twice or more	4	6	10
	5.7	2.9	3.6
Column total	70	208	278
percent	25.2	74.8	100.0

n=278, x2, df=3, p=.398

Table D.135.

Cross-tabulation of the Variable *Changes in Condom Usage During Receptive Anal Intercourse with One-Time Partners During a Typical Month This Year as Compared with a Typical Month Three Years Ago* with Serostatus in the Total Population

	Serostatus of subjects		
Changes in condom usage	Positive	Negative	Row total percent
Not applicable	52	192	244
	76.5	92.4	88.4
Decreased	1	3	4
	1.5	1.4	1.4
Same	2	5	7
	2.9	2.4	2.5
Increased	13	8	21
	19.1	3.8	7.6
Column total	68	208	276
percent	24.6	75.4	100.0

n=276, x2, df=3, p=.001

Table D.136.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Condom Usage During Receptive Anal Intercourse with One-Time Partners This Year as Compared with Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	8	78	106	192
	80.0	94.0	92.2	92.3
Decreased			3	3
			2.6	1.4
Same		3	2	5
		3.6	1.7	2.4
Increased	2	2	4	8
	20.0	2.4	3.5	3.8
Column total	10	83	115	208
percent	4.8	39.9	55.3	100.0

n=208, x2, df=6, p=.093

Table D.137

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Condom Usage During Receptive Anal Intercourse with One-Time Partners This Year as Compared with Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	6	29	17	52
	100.0	80.5	65.4	76.5
Decreased		1		1
		2.8		1.5
Same		1	1	2
		2.8	3.8	2.9
Increased		5	8	13
		13.9	30.8	19.1
Column total	6	36	26	68
percent	8.8	52.9	38.2	100.0

n=68, x2, df=6, p=.472

Table D.138.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Condom Usage During Insertive Anal Intercourse with One-Time Partners* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	9	69	93	171
	90.0	84.1	83.0	83.8
Decreased		1	2	3
		1.2	1.8	1.5
Same		4	2	6
		4.9	1.8	2.9
Increased	1	8	15	24
	10.0	9.8	13.4	11.8
Column total	10	82	112	204
percent	4.9	40.2	54.9	100.0

n=204, x2, df=6, p=.843

Table D.139.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Condom Usage During Insertive Anal Intercourse with One-Time partners* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total
				percent
Not applicable	4	28	18	50
	66.7	77.8	72.0	74.6
Decreased		1		1
		2.8		1.5
Same		3	1	4
		8.3	4.0	6.0
Increased	2	4	6	12
	33.3	11.1	24.0	17.9
Column total	6	36	25	67
percent	9.0	53.7	37.3	100.0

n=67, x2, df=6, p=.665

Table D.140.

Cross-tabulation of the Internal Health Locus of Control Scores with Variable *Changes in Condom Usage During Receptive Anal Intercourse with Repeat Partners During a Typical Month This Year as Compared with a Typical Month Three Years Ago* in the Total Population

	Internal health locus of control			
Changes in condom usage	Low	Moderate	High	Row total percent
Not applicable	14	90	121	225
	82.4	77.6	85.8	82.1
Decreased		5	2	7
		4.3	1.4	2.6
Same		6	11	17
		5.2	7.8	6.2
Increased	3	15	7	25
	17.6	12.9	5.0	9.1
Column total	17	116	141	274
percent	6.2	42.3	51.5	100.0

n=274, $\chi 2$, df=6, p=.096

Table D.141.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Changes in Condom Usage During Insertive Anal Intercourse with Repeat Partners* in the Seronegative Population

	Internal health locus of control			
Condom used	Low	Moderate	High	Row total percent
Not applicable	9	63	88	160
	81.8	78.8	81.5	80.4
Same		7	8	15
		8.7	7.4	7.5
Increased	2	10	12	24
	18.2	12.5	11.1	12.1
Column total	11	80	108	199
percent	5.5	40.2	54.3	100.0

n=199, x2, df=4, p=.832

Table D.142.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Changes in Condom Usage During Insertive Anal Intercourse with Repeat Partners* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	5	26	20	51
	71.4	74.3	83.3	77.3
Decreased		1		1
		2.85		1.5
Same	1	1	1	3
	14.3	2.85	4.2	4.5
Increased	1	7	3	11
	14.3	20.0	12.5	16.7
Column total	7	35	24	66
percent	10.6	53.0	36.4	100.0

n=66, x2, df=6, p=.775

Table D.143.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse without Condoms with One-Time Partner During the Past One Month* in the Total Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	17	112	128	257
	94.4	92.6	90.8	91.8
Never		7	9	16
		5.8	6.4	5.7
Once	1	2	4	7
	5.6	1.6	2.8	2.5
Column total	18	121	141	280
percent	6.4	43.2	50.4	100.0

n=280, x2, df=4, p=.688

Table D.144.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse without Condoms with One-Time Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	10	80	108	198
	90.9	94.1	93.1	93.4
Never		4	5	9
		4.7	4.3	4.2
Once	1	1	3	5
	9.1	1.2	2.6	2.4
Column total	11	85	116	212
percent	5.2	40.1	54.7	100.0

n=212, x2, df=4, p=.530

Table D.145.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse without Condoms with One-Time Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	7	32	20	59
	100.0	88.9	80.0	86.8
Never		3	4	7
		8.3	16.0	10.3
Once		1	1	2
		2.8	4.0	2.9
Column total	7	36	25	68
percent	10.3	52.9	36.8	100.0

n=68, x2, df=4, p=.691

Table D.146.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse without Condoms with One-Time Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	10	72	99	181
	90.9	84.7	87.5	86.6
Never	1	9	9	19
	9.1	10.6	8.0	9.1
Once		2	3	5
		2.3	2.7	2.4
Twice		1	1	2
		1.2	0.9	1.0
3-4		1	1	2
		1.2	0.9	1.0
Column total	11	85	113	209
percent	5.3	40.7	54.1	100.0

n=209, x2, df=8, p=.998

Table D.147.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse* ***without*** *Condoms with One-Time Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	6	31	20	57
	85.7	86.1	80.0	83.8
Never	1	5	4	10
	14.3	13.9	16.0	14.7
Once			1	1
			4.0	1.5
Column total	7	36	25	68
percent	10.3	52.9	36.8	100.0

n=68, x2, df=4, p=.766

Table D.148

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse without Condoms with Repeat Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	8	64	98	170
	80.0	77.1	83.8	81.0
Never		15	11	26
		18.1	9.4	12.4
Once		2	2	4
		2.4	1.7	1.9
Twice or more	2	2	6	10
	20.0	2.4	5.1	4.8
Column total	10	83	117	210
percent	4.8	39.5	55.7	100.0

n=210, x2, df=6, p=.098

Table D.149.

Cross-tabulation of the Variable *Receptive Anal Intercourse without Condoms with One-Time Partners During the Past One Month* with Serostatus in the Total Population

	Serostatus of subjects		
	Positive	Negative	Row total percent
Not applicable	59	198	257
	86.8	93.4	91.8
Never	7	9	16
	10.3	4.2	5.7
Once	2	5	7
	2.9	2.4	2.5
Column total	68	212	280
percent	24.3	75.7	100.0

n=280, x2, df=2, p=.164

Table D.150.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Receptive Anal Intercourse without Condoms with Repeat Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	7	25	24	56
	100.0	69.4	88.9	80.0
Never		8	3	11
		2.2	11.1	15.7
Once		1		1
		2.8		1.4
Twice or more		2		2
		5.6		2.9
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.381

Table D.151.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse* ***without*** *Condoms with Repeat Partner During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total
				percent
Not applicable	9	63	91	163
	90.0	75.0	79.8	78.4
Never		15	9	24
		17.8	7.9	11.5
Once		2	5	7
		2.4	4.4	3.4
Twice or more	1	4	9	14
	10.0	4.8	7.9	6.7
Column total	10	84	114	208
percent	4.8	40.4	54.8	100.0

n=208, x2, df=6 p=.277

Table D.152.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Insertive Anal Intercourse **without** Condoms with Repeat Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	7	28	23	58
	100.0	77.8	85.2	82.9
Never		8	4	12
		22.2	14.8	17.1
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=2, p=.332

Table D.153.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Receptive Anal Intercourse **without** Condoms with One-Time Partners This Year as Compared with Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	8	78	106	192
	80.0	94.0	95.5	94.1
Decreased	2	3	2	7
	20.0	3.6	1.8	3.4
Same		2	2	4
		2.4	1.8	2.0
Increased			1	1
			0.9	0.5
Column total	10	83	111	204
percent	4.9	40.7	54.4	100.0

n=204, x2, df=6, p=.115

Table D.154.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Receptive Anal Intercourse* ***without*** *Condoms with One-Time Partners This Year as Compared with Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	6	29	17	52
	85.7	82.9	73.9	80.0
Decreased	1	5	6	12
	14.3	14.3	26.1	18.5
Same		1		1
		2.8		1.5
Column total	7	35	23	65
percent	10.8	53.8	35.4	100.0

n=65, x2, df=4, p=.708

Table D.155.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Receptive Anal Intercourse without Condoms with Repeat Partners This Year as Compared with Three Years Ago* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	8	67	99	174
	72.7	82.7	86.1	84.1
Decreased	3	11	5	19
	27.3	13.6	4.4	9.2
Same		2	9	11
		2.5	7.8	5.3
Increased		1	2	3
		1.2	1.7	1.4
Column total	11	81	115	207
percent	5.3	39.1	55.6	100.0

n=66, x2, df=4, p=.150

Table D.156.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Changes in Receptive Anal Intercourse* ***without*** *Condoms with Repeat Partners This Year as Compared with Three Years Ago* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	6	23	23	52
	100.0	67.6	88.5	78.8
Decreased		7	3	10
		20.6	11.5	15.2
Same		4		4
		11.8		6.1
Column total	6	34	26	66
percent	9.1	51.5	39.4	100.0

n=66, x2, df=4, p=.150

Table D.157.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Number of One-Time Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
One-time	2	14	16	32
	25.0	31.1	25.0	27.4
2-3	2	14	24	40
	25.0	31.1	37.5	34.2
4-9	4	15	18	37
	50.0	33.3	28.1	31.6
10 or more		2	6	8
		4.4	9.4	6.8
Column total	8	45	64	117
percent	6.8	38.5	54.7	100.0

n=117, x2, df=6, p=.734

Table D.158.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Number of One-Time Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
	Low	Moderate	High	Row total percent
One-time		5	3	8
		29.4	16.7	21.1
2-3		6	8	14
		35.3	44.4	36.8
4-9	3	5	5	13
	100.0	29.4	27.8	34.2
10 or more		1	2	3
		5.9	11.1	7.9
Column total	3	17	18	38
percent	7.9	44.7	47.4	100.0

n=38, x2, df=6, p=.282

Table D.159.

Cross-tabulation of Internal Health Locus of Control Scores with the Regrouped Variable *Number of One-time Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
One-time partners	Low	Moderate	High	Row total
				percent
1	2	14	16	32
	25.0	31.1	25.0	27.4
>1	6	31	48	85
	75.0	68.9	75.0	72.6
Column total	8	45	64	117
percent	6.8	38.5	47.4	100.0

n=117, x2, df=2, p=.771

Table D.160.

Cross-tabulation of Internal Health Locus of Control Scores with the Regrouped Variable *Number of One-time Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
One-time partners	Low	Moderate	High	Row total percent
1		5	3	8
		29.4	16.7	21.1
>1	3	12	15	30
	100.0	70.6	83.3	78.9
Column total	3	17	18	38
percent	7.9	44.7	47.4	100.0

n=38, x2, df=2, p=.423

Table D.161.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Any Sexual Activity with Repeat Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
Repeat partners	Low	Moderate	High	Row total percent
No sex/mo.	1	10	20	31
	9.1	11.6	16.8	14.9
No	3	20	26	49
	27.3	23.3	21.8	22.71
Yes	7	56	73	136
	63.6	65.1	61.3	63.0
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=4, p=.841

Table D.162

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Any Sexual Activity with Repeat Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
Repeat partners	Low	Moderate	High	Row total percent
No sex/mo.	2	8	6	16
	28.6	22.2	22.2	22.9
No	2	4	6	12
	28.6	11.1	22.2	17.1
Yes	3	24	15	42
	42.8	66.7	55.6	60.0
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=4, p=.642

Table D.163.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Number of Repeat Partners During the Past One Month* in the Seronegative Population

	Internal health locus of control			
Repeat Partners	Low	Moderate	High	Row total percent
Not applicable	4	30	46	80
	36.4	34.9	38.7	37.0
One	5	38	51	94
	45.4	44.2	42.9	43.5
Two	1	11	16	28
	9.1	12.8	13.4	13.0
Three or more	1	7	6	14
	9.1	8.1	5.0	6.5
Column total	11	86	119	216
percent	5.1	39.8	55.1	100.0

n=216, x2, df=6, p=.975

Table D.164.

Cross-tabulation of Internal Health Locus of Control Scores with the Variable *Number of Repeat Partners During the Past One Month* in the Seropositive Population

	Internal health locus of control			
Repeat Partners	Low	Moderate	High	Row total percent
Not applicable	4	12	12	28
	57.1	33.3	44.5	40.0
One	3	15	10	28
	42.9	41.7	37.0	40.0
Two		5	3	8
		13.9	11.1	11.4
Three or more		4	2	6
		11.1	7.4	8.6
Column total	7	36	27	70
percent	10.0	51.4	38.6	100.0

n=70, x2, df=6, p=.802

Table D.165.

Cross-tabulation of Internal Health Locus of Control Scores with the Regrouped Variable *Number of Repeat Partners in the Past Month* in the Seronegative Population

	Internal health locus of control			
Repeat partners	Low	Moderate	High	Row total percent
One	5	38	51	94
	71.4	67.9	69.9	69.1
Two or more	2	18	22	42
	28.6	32.1	30.1	30.9
Column total	7	56	73	136
percent	6.8	41.2	53.7	100.0

n=136, x2, df=2, p=.962

Table D.166.

Cross-tabulation of Internal Health Locus of Control Scores with the Regrouped Variable *Number of Repeat Partners in the Past Month* in the Seropositive Population

	Internal health locus of control			
Repeat partners	Low	Moderate	High	Row total
				percent
One	3	15	10	28
	100.0	62.5	66.7	66.7
Two or more		9	5	14
		37.5	33.3	33.3
Column total	3	24	15	42
percent	7.9	57.1	35.7	100.0

n=42, x2, df=2, p=.430

Table D.167.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Participation in Receptive Anal Intercourse with One-Time Partners During the Past One Month* in the Total Population

	Internal health locus of control			
Passive anal	Low	Moderate	High	Row total percent
N/A	7	59	63	129
	53.8	57.8	52.5	54.9
Zero	5	35	45	85
	38.5	34.3	37.5	36.2
1		5	8	13
		4.9	6.7	5.5
2	1	2	1	4
	7.7	2.0	0.8	1.7
3-4			3	3
			2.5	1.3
5-9		1		1
		1.0		0.4
Column total	13	102	120	235
percent	5.5	43.4	51.1	100.0

n=235, x2, df=10, p=.529

Table D.168.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Participation in Mutual Masturbation with One-Time Partners During the Past One Month* in the Total Population

	Internal health locus of control			
Mutual masterbation	Low	Moderate	High	Row total percent
N/A	7	59	63	129
	41.3	51.3	46.0	48.0
Zero		4	6	10
		3.5	4.4	3.7
1	3	19	25	47
	17.6	16.5	18.3	17.5
3	3	13	17	33
	17.6	11.3	12.4	12.3
3-4	4	12	18	34
	23.5	10.4	13.1	12.6
5-9		6	5	11
		5.2	3.6	4.1
10-14		1	1	2
		0.9	0.7	0.7
15+		1	2	3
		0.9	1.5	1.1
Column total	17	115	137	269
percent	6.3	42.8	50.9	100.0

n=269, x2, df=14, p=.974

Table D.169.

Cross-tabulation of Internal Health Locus of Control Scale Scores with the Variable *Popper Use During Participation in Sexual Activities with One-Time Partners During the Past One Month* in the Total Population

	Internal health locus of control			
Inhalants/poppers	Low	Moderate	High	Row total percent
N/A	7	59	63	129
	50.0	56.7	49.6	52.7
Zero	3	28	36	67
	21.4	26.9	28.3	27.3
1	2	7	17	26
	14.3	6.7	13.4	10.6
3	2	6	4	12
	14.3	5.8	3.1	4.9
3-4		2	3	5
		1.9	2.4	2.0
5-9		1	3	4
		1.0	2.4	1.6
10-14		1		1
		1.0		0.4
15+			1	1
			0.8	0.4
Column total	14	104	127	245
percent	5.7	42.4	51.8	100.0

n=245, x2, df=14, p=.731

Table D.170.

Cross-tabulation of the Internal Health Locus of Control Scores with the Variable *Participation in Anal Intercourse with Someone Known to Be Seropositive or Sick with AIDS During Past Six Months* in the Total Population

Anal with seropositive AIDS partner	Internal health locus of control: Low	Moderate	High	Row total percent
Never	5	53	61	119
	33.3	52.0	49.2	49.4
Once or more	1	17	8	26
	6.7	16.6	6.5	10.8
Don't know	9	32	55	96
	60.0	31.4	44.3	39.8
Column total	15	102	124	241
percent	6.2	42.3	51.5	100.0

n=241, x2, df=4, p=.032

Table D.171.

Cross-tabulation of the Variable Participation in Anal Intercourse with *Someone Known to Be Seropositive or Sick with AIDS During the Past Six Months* with Serostatus in the Total Population

	Serostatus of subjects		
Anal with seropositive/ AIDS partner	Positive	Negative	Row total percent
Never	16	103	119
	29.1	55.4	49.4
Once or more	10	16	26
	18.2	8.6	10.8
Don't know	29	67	96
	52.7	36.0	39.8
Column total	55	186	241
percent	22.8	77.2	100.0

n=241, x2, df=2, p=.002

Table D.172.

Cross-tabulation of the Variable Participation in Anal Intercourse with *Someone Known to Be Seropositive or Sick with AIDS During the Past Five Years* with Serostatus in the Total Population

	Serostatus of subjects		
Anal with seropositive/ AIDS partner	Positive	Negative	Row total percent
Never	9	92	101
	14.5	48.7	40.2
Once or more	15	29	44
	24.2	15.3	17.5
Don't know	38	68	106
	61.3	40.0	42.2
Column total	62	189	251
percent	24.7	75.3	100.0

n=251, x2, df=2, p=.000

Table D.173.

Cross-tabulation of Internal Health Locus of Control Scores with *Needle-Sharing Behaviour* in the Seronegative Population

Needle-sharing behaviours	Internal health locus of control: Low	Moderate	High	Row total percent
Not applicable	10	77	111	198
	90.9	92.8	94.1	93.4
Never	1	1	4	6
	9.1	1.2	3.4	2.8
Rarely (1-24%)		4	2	6
		4.8	1.7	2.8
Sometimes (25-49%)		1		1
		1.2		0.5
Often (50-74%)			1	1
			0.8	0.5
Column total	11	83	118	212
percent	5.2	39.2	55.7	100.0

n=212, x2, df=8, p=.558

Table D.174.

Cross-tabulation of Internal Health Locus of Control Scores with *Needle-Sharing Behaviour* in the Seropositive Population

Needle-sharing behaviours	Internal health locus of control			
	Low	Moderate	High	Row total percent
Not applicable	6	31	27	64
	100.0	88.6	100.0	94.1
Never		3		3
		3.5		4.4
Rarely (1-24%)		1		1
		2.9		1.5
Column total	6	35	27	68
percent	8.8	51.5	39.7	100.0

n=68, x2, df=4, p=.405

Table D.175.

Cross-Tabulation of Internally Oriented Item #1 of the Health Locus of Control Scale With Serostatus

	Serostatus of subjects		
	Positive	Negative	Row total percent
Low	7	12	19
	10.1	5.6	6.7
Moderate	21	38	59
	30.4	17.8	20.8
High	41	164	205
	59.5	76.6	72.4
Column total	69	214	283
percent	24.4	75.6	100.0

n=283, x2, df=2, p=.021

Table D.176.

Cross-Tabulation of Internally Oriented Item #8 of the Health Locus of Control Scale With Serostatus

	Serostatus of subjects		
	Positive	Negative	Row total percent
Low	22	41	63
	31.4	19.2	22.2
Moderate	27	86	113
	38.6	40.2	39.8
High	21	87	108
	30.0	40.6	38.0
Column total	70	214	284
percent	24.6	75.4	100.0

n=284, x2, df=2, p=.075

APPENDIX E

Graphic Representations of Frequency Distributions

Figure E.1

Frequency Distribution of *Age of Awareness of Homosexual Orientation* in the Total Population (N=280)

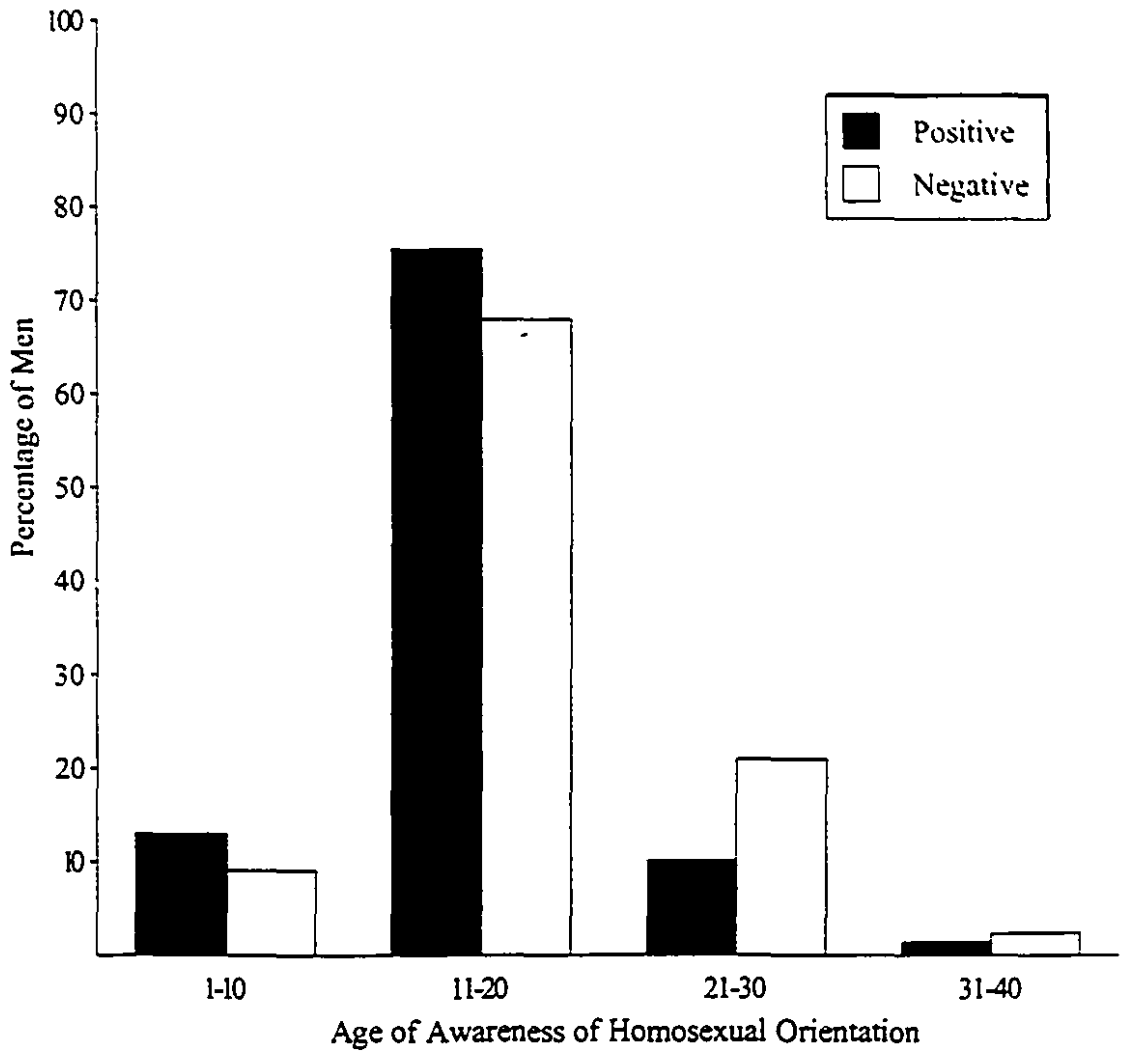

Figure E.2

Frequency Distribution of *Age of First Homosexual Sexual Experience* in the Total Population (N=286)

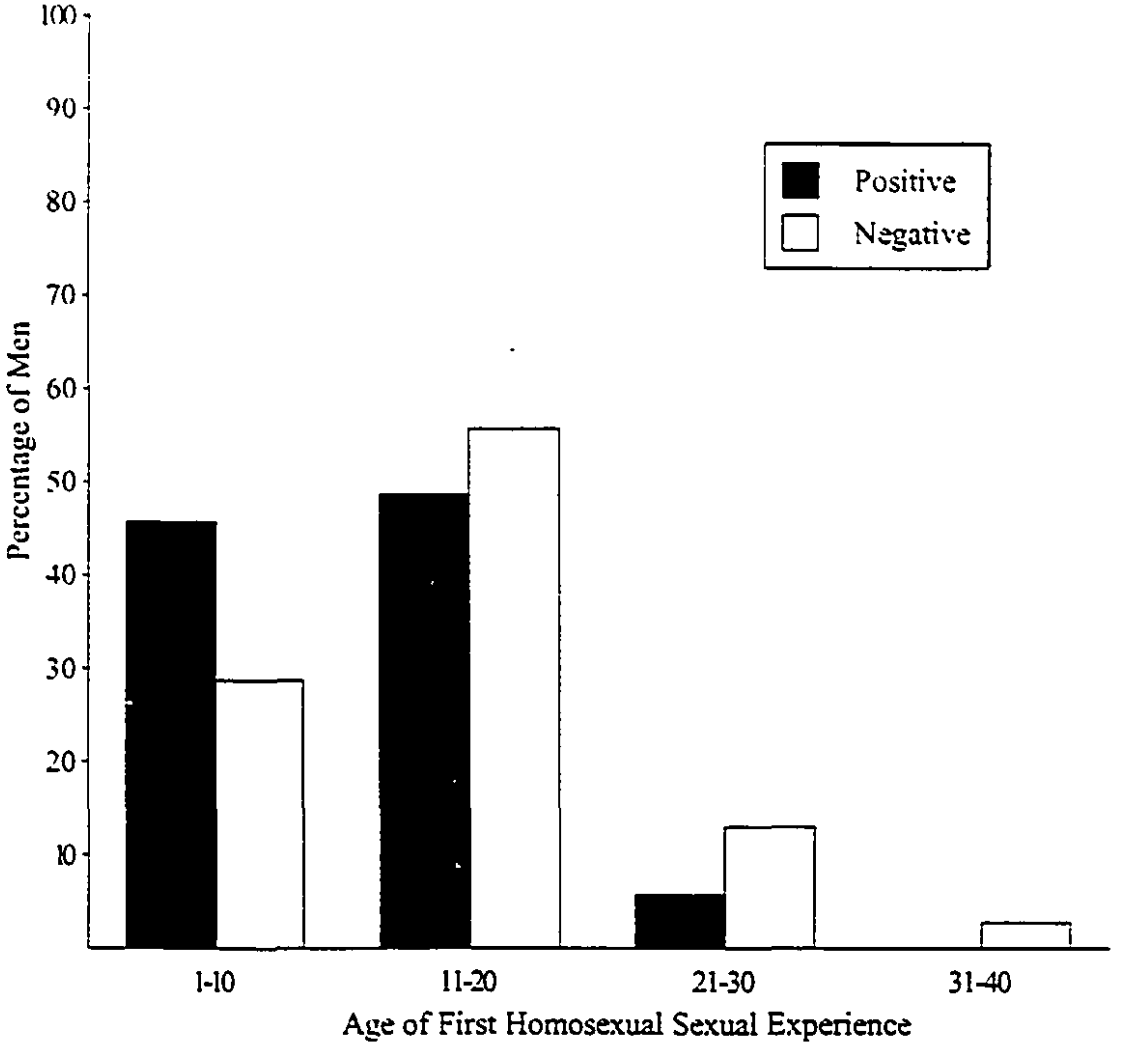

Figure E.3

Frequency Distribution of the Variable *Age of First Anal Intercourse* according to Serostatus in the Total Population (N=279)

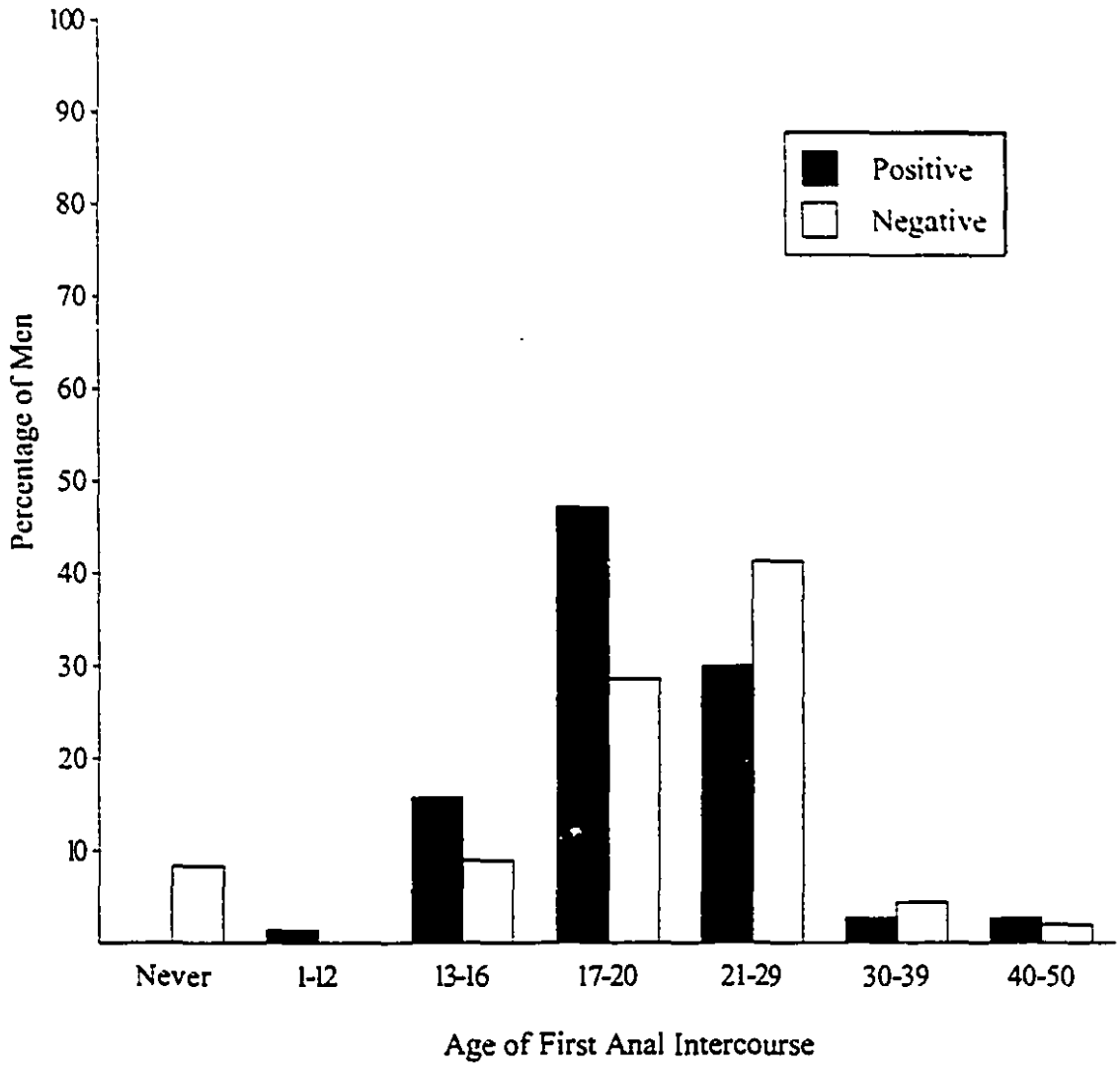

Figure E.4

Frequency Distribution of the Variable *Number of People that One can Trust* according to Serostatus in the Total Population (N=285)

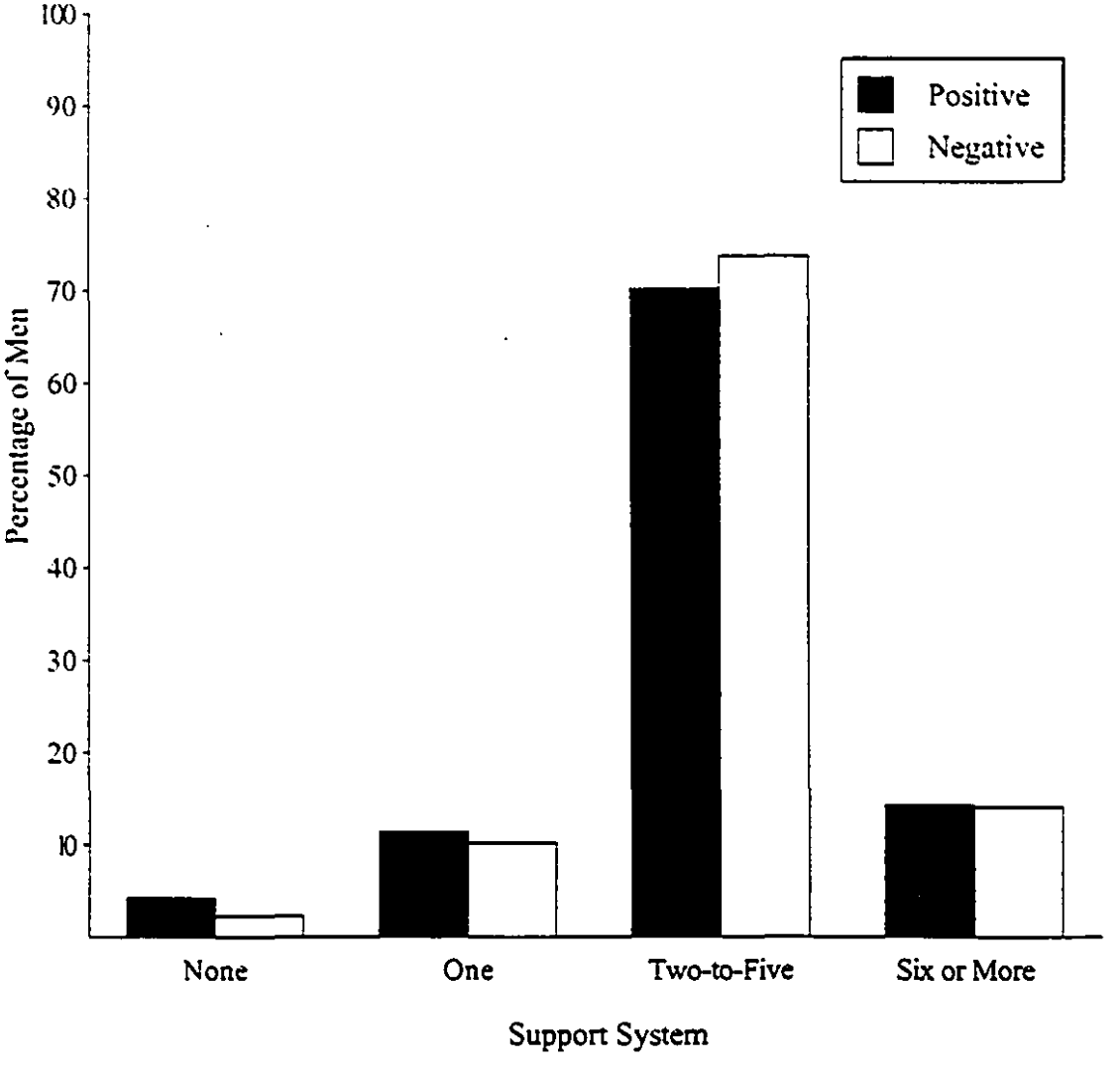

Figure E.5

Frequency Distribution of the Variable *Proportion of Leisure Time with Other Homosexual Men* according to Serostatus in the Total Population (N=284)

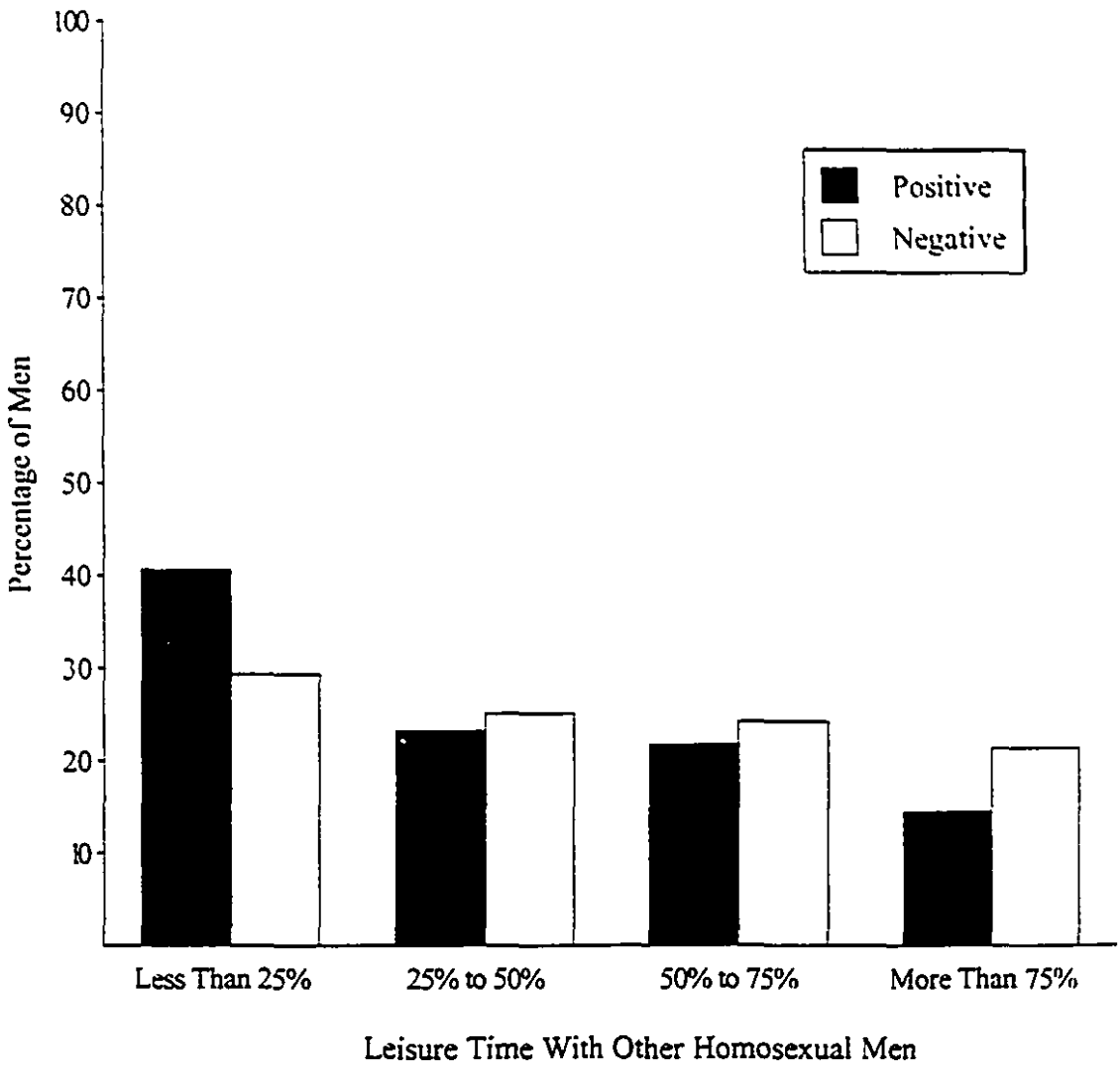

Figure E.6

Frequency Distribution of the Variable *Feelings about Homosexual Preference* with Serostatus in the Total Population (N=286)

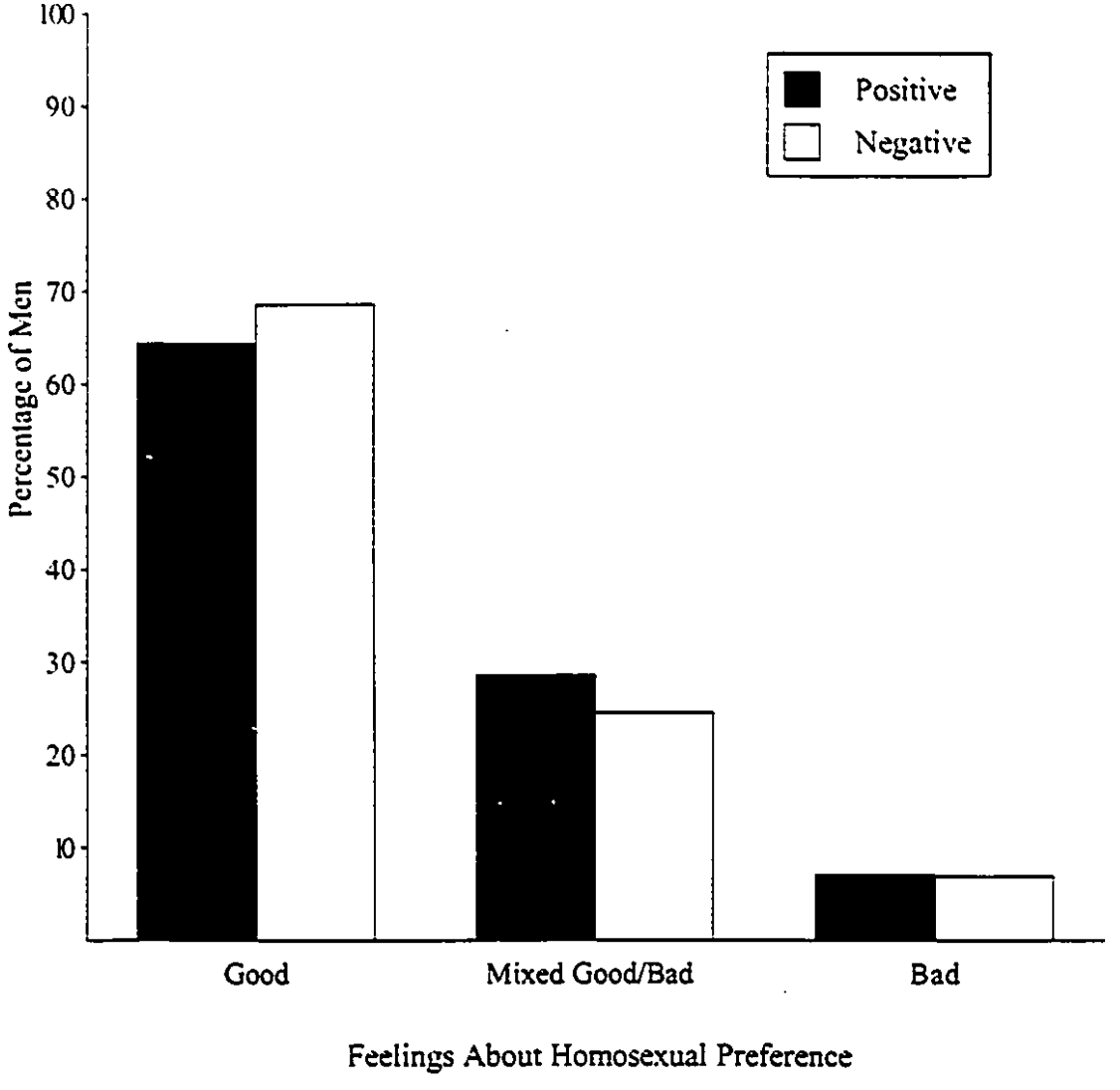

Figure E.7

Frequency Distribution of the Variable *Level of Worry about the Risk of Contracting AIDS* according to Serostatus in the Total Population (N=285)

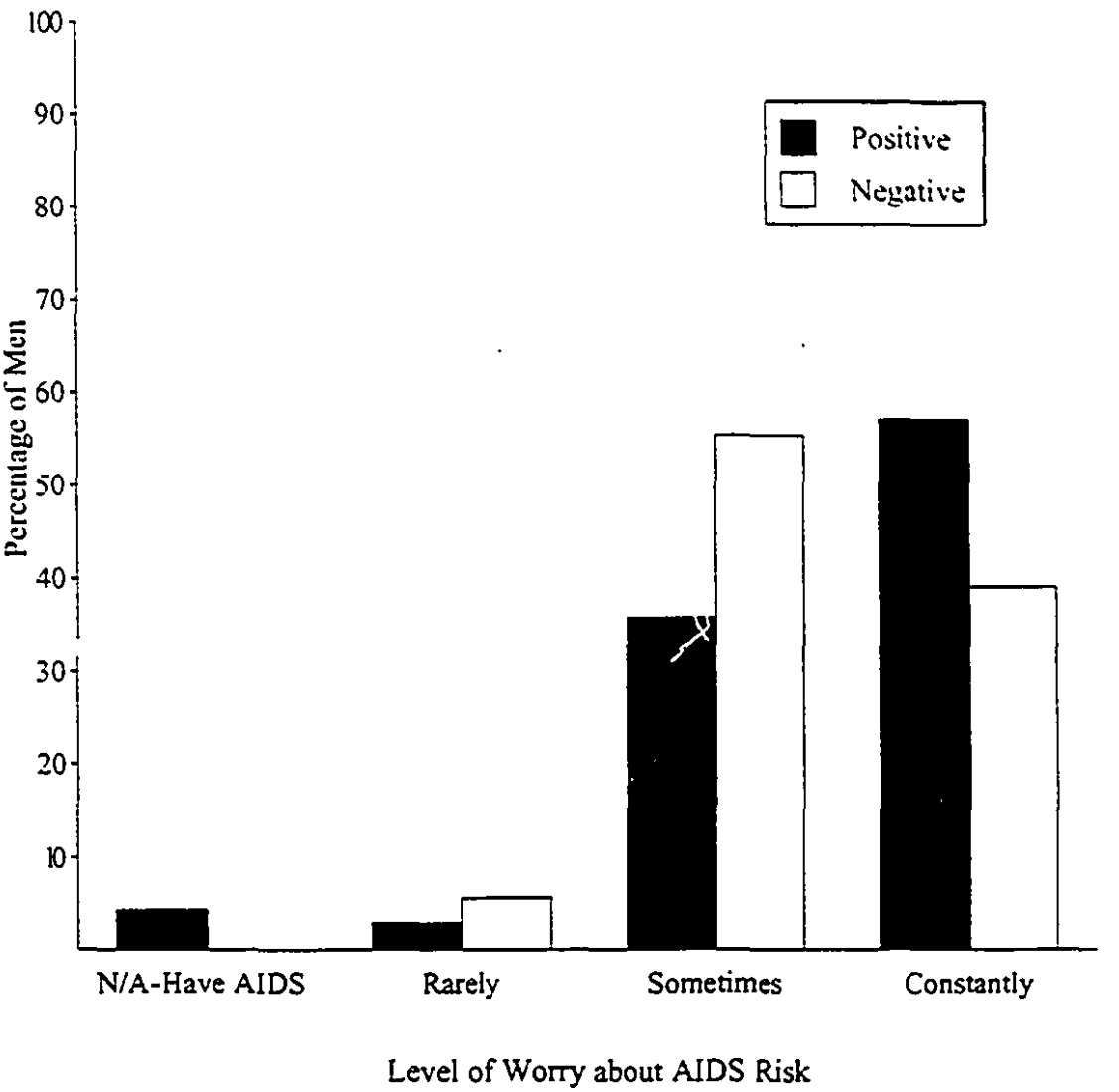

Figure E.8

Frequency Distribution of the Variable *Reason for Clinic Appointment* according to Serostatus in the Total Population (N=283)

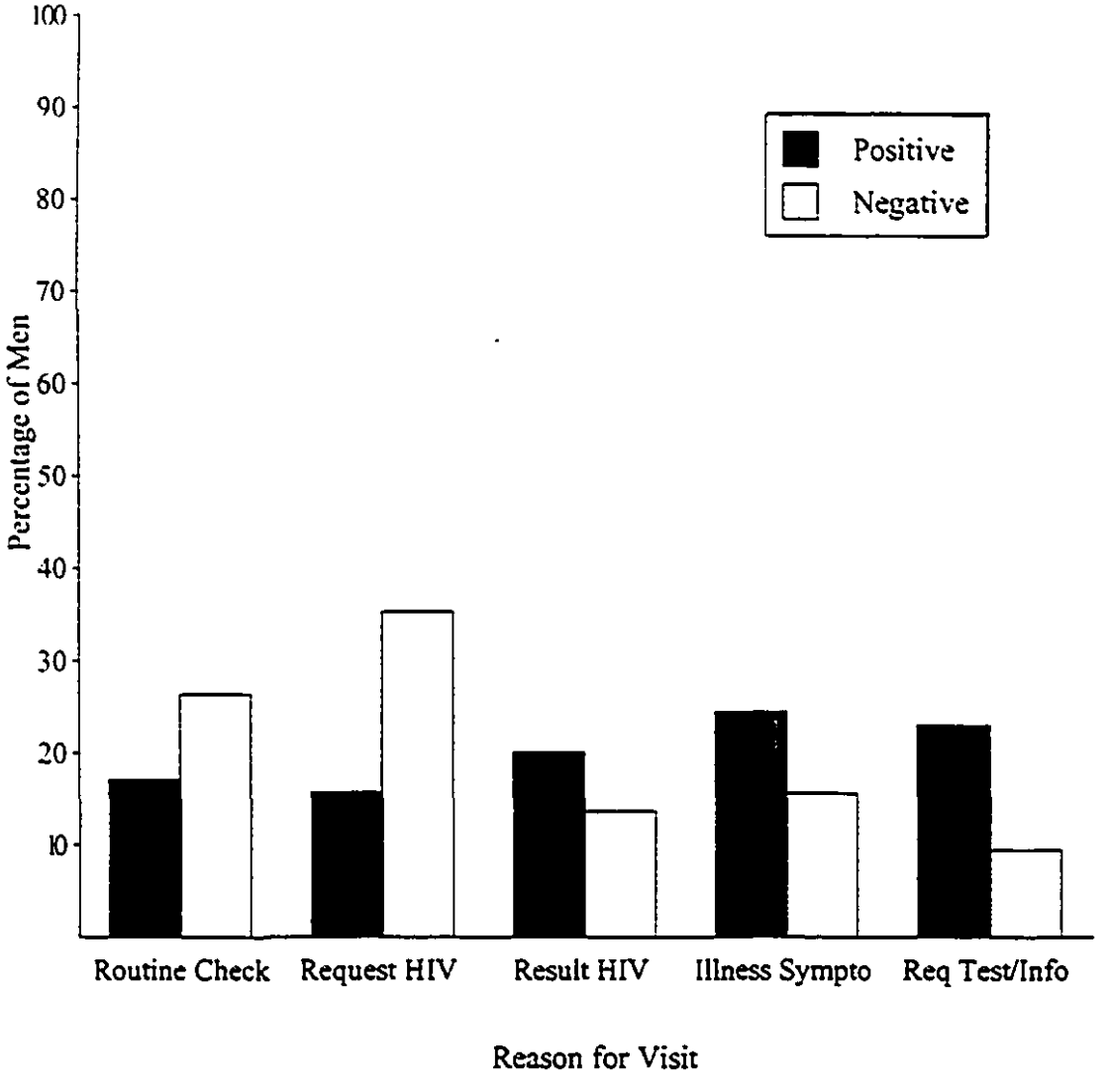

Figure E.9

Frequency Distribution of *Co-factor Sexually Transmitted Diseases* according to Serostatus in the Total Population

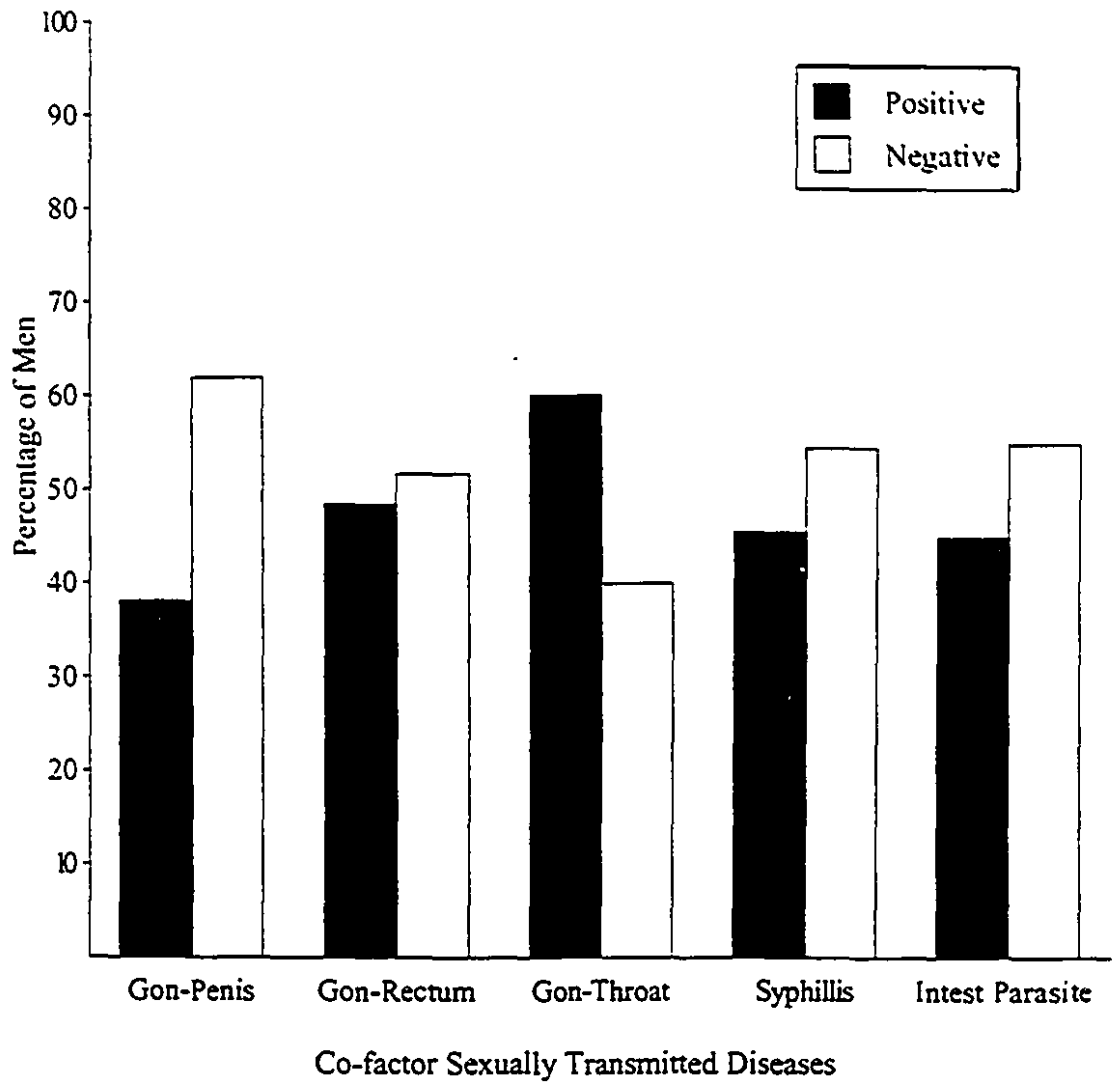

Figure E.10

Frequency Distribution of *Cofactor Diseases* according to Serostatus in the Total Population

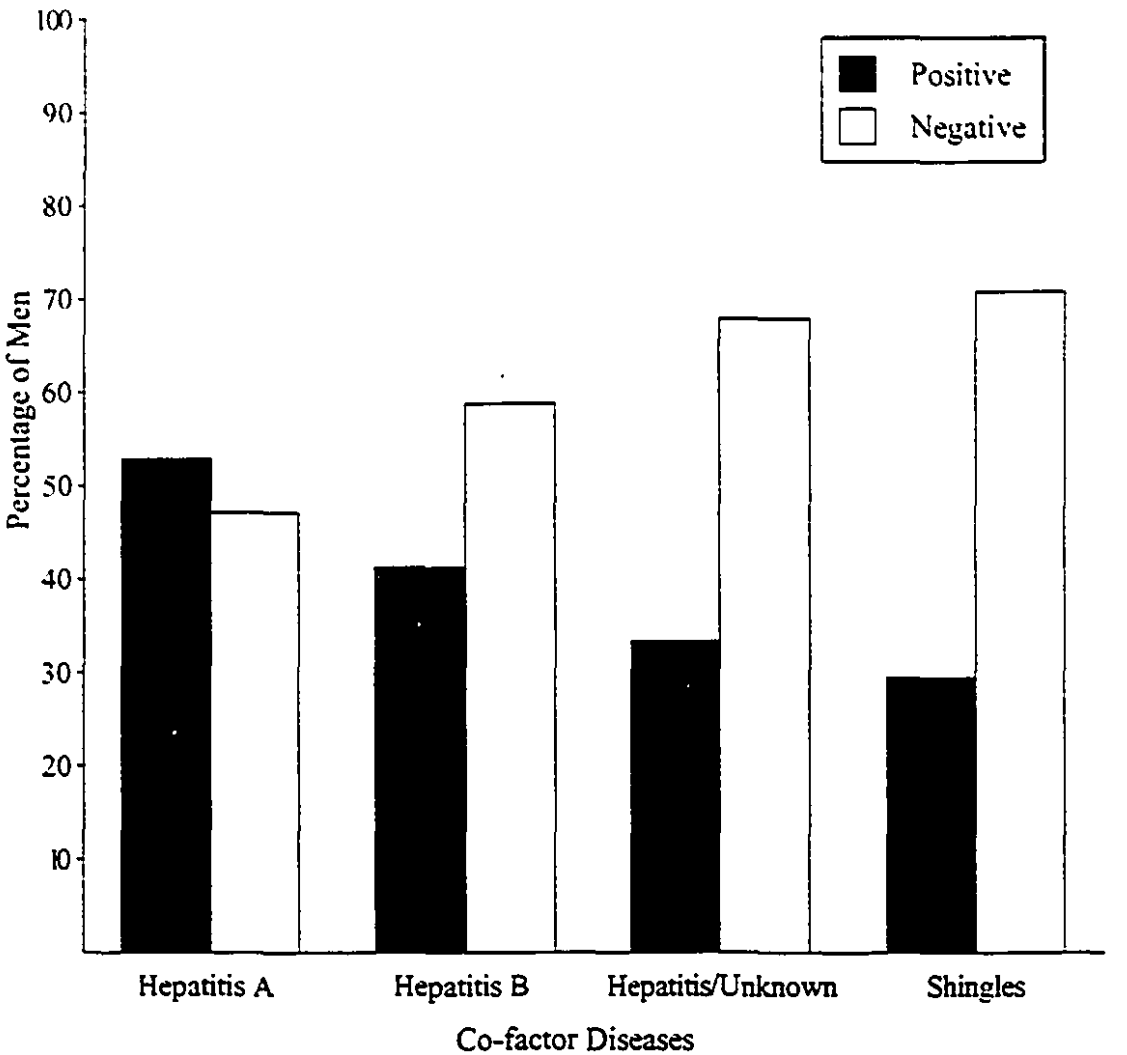

Figure E.11

Frequency Distribution of *Cofactor Sexually Transmitted Diseases* according to Serostatus in the Total Population

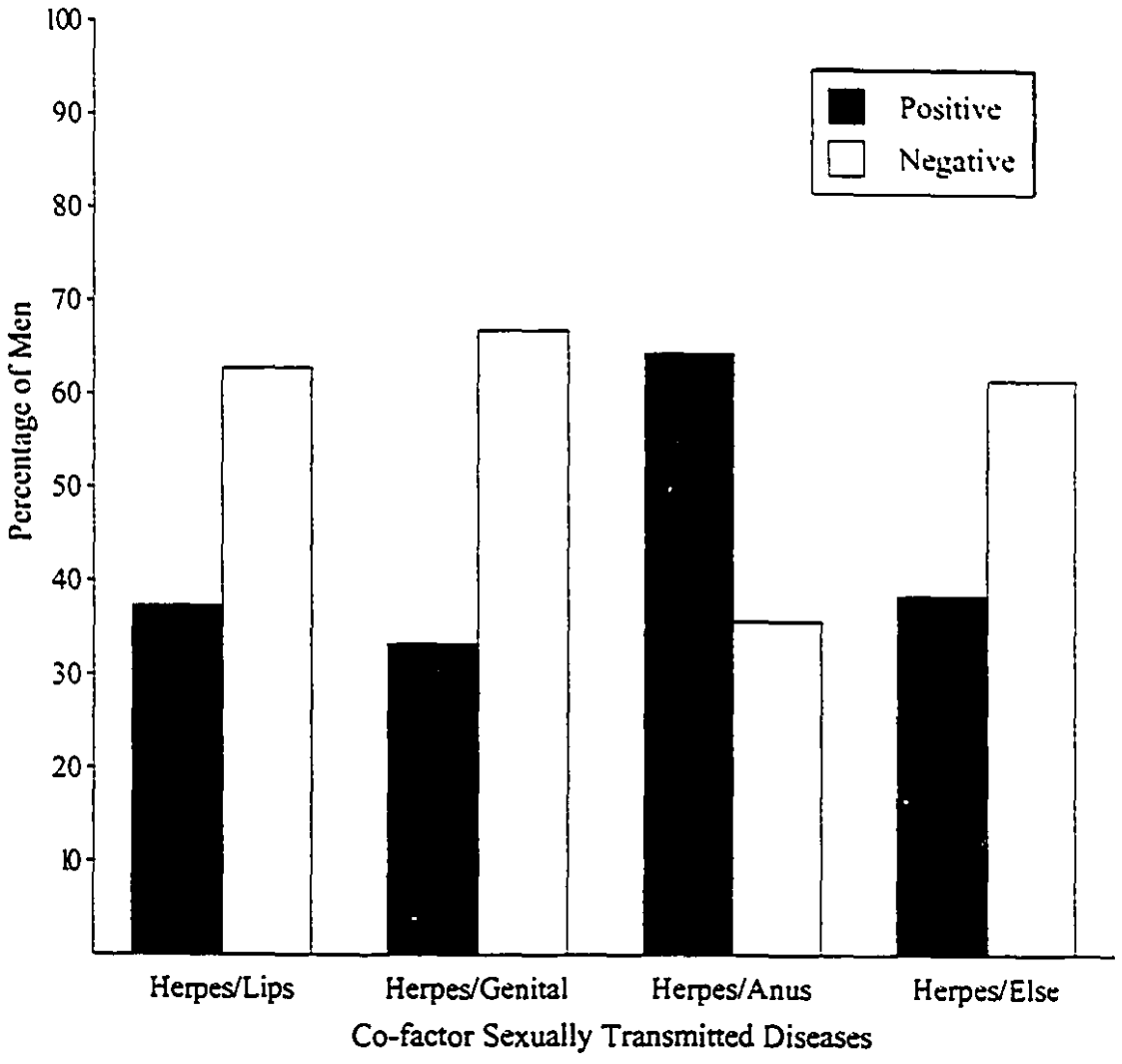

Figure E.12

Frequency Distribution of *Cofactor Sexually Transmitted Diseases* according to Serostatus in the Total Population

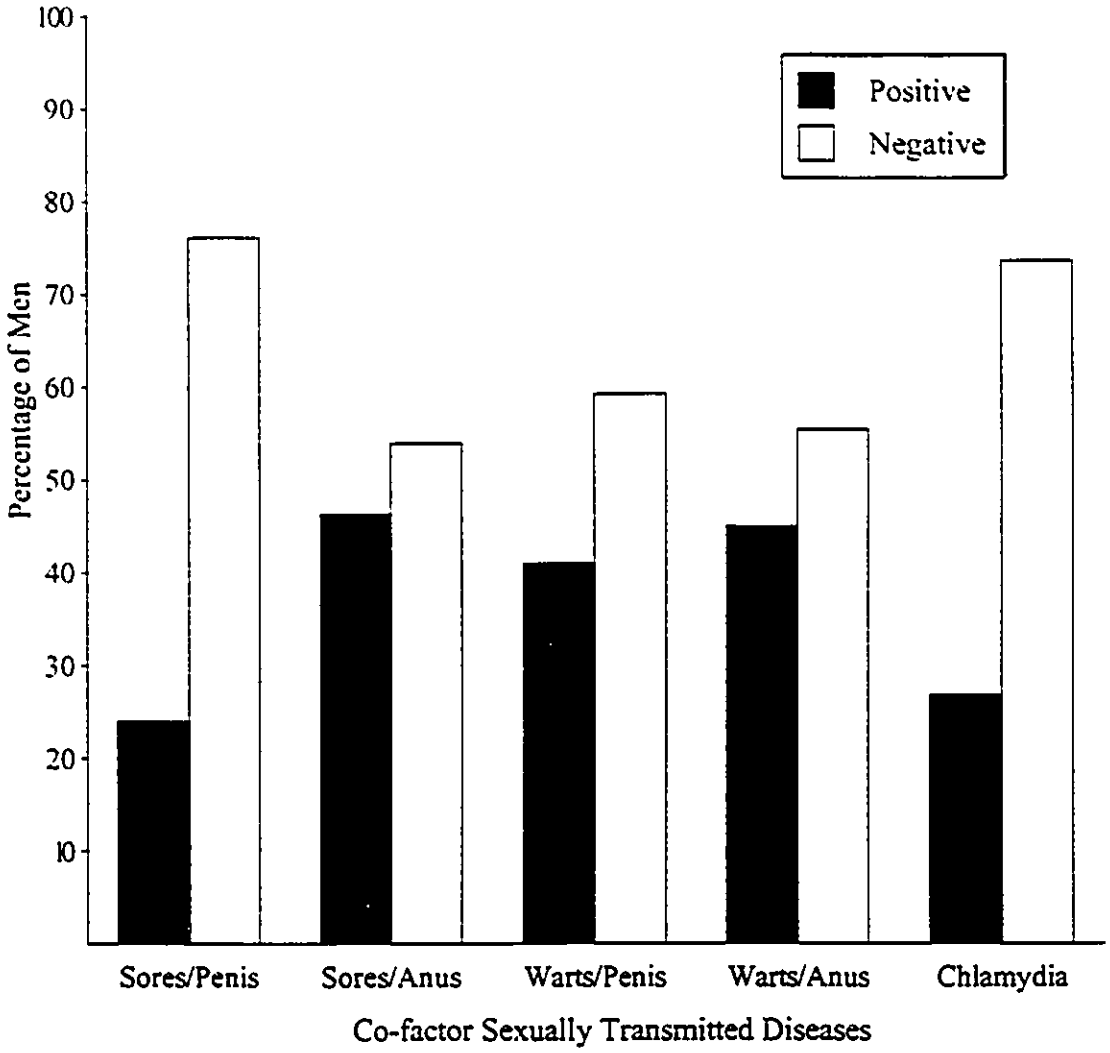

Figure E.13

Frequency Distribution of *Sources of Useful Information about AIDS* in the Total Population

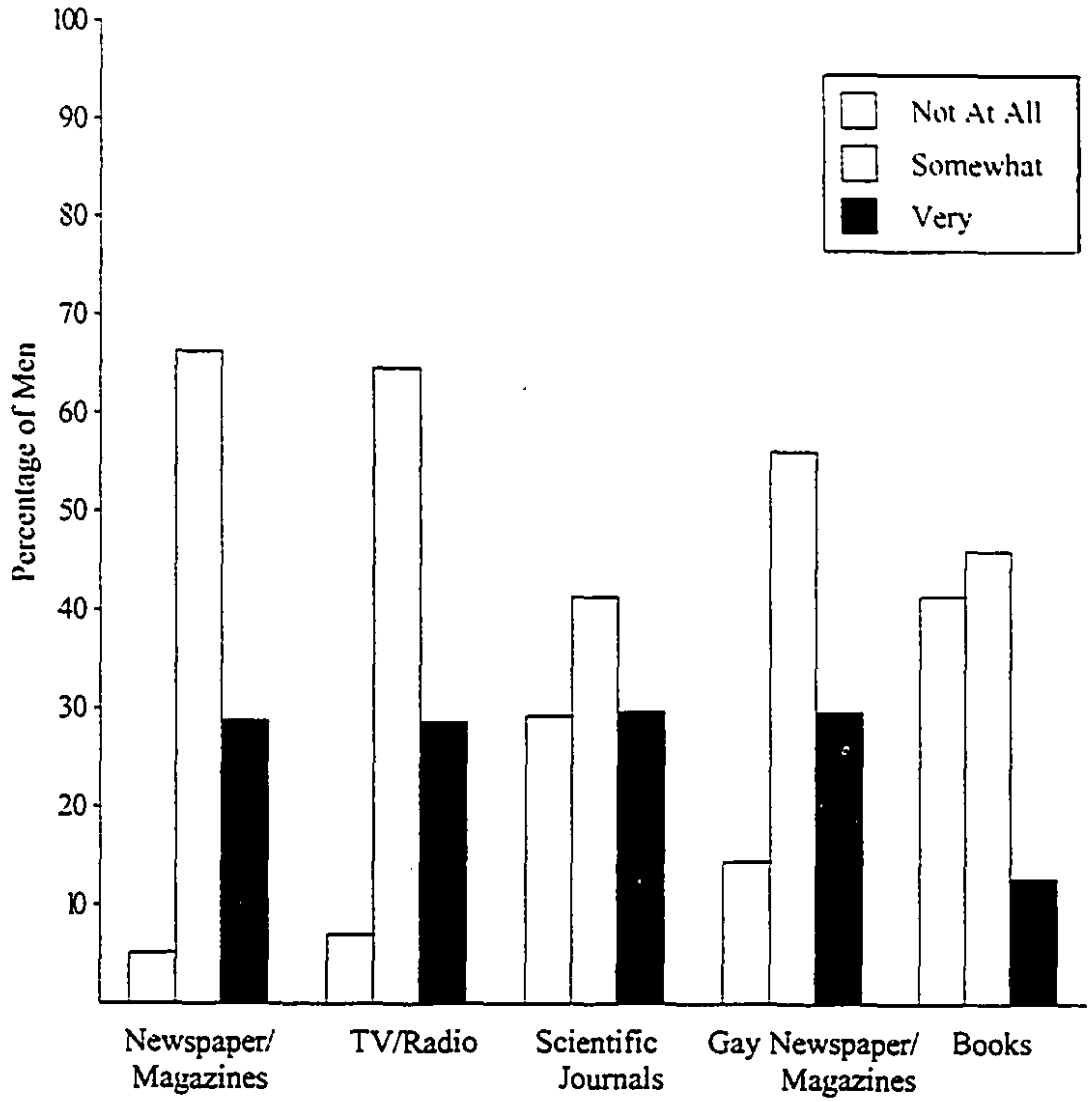

Figure E.14

Frequency Distribution of *Sources of Useful Information about AIDS* in the Total Population

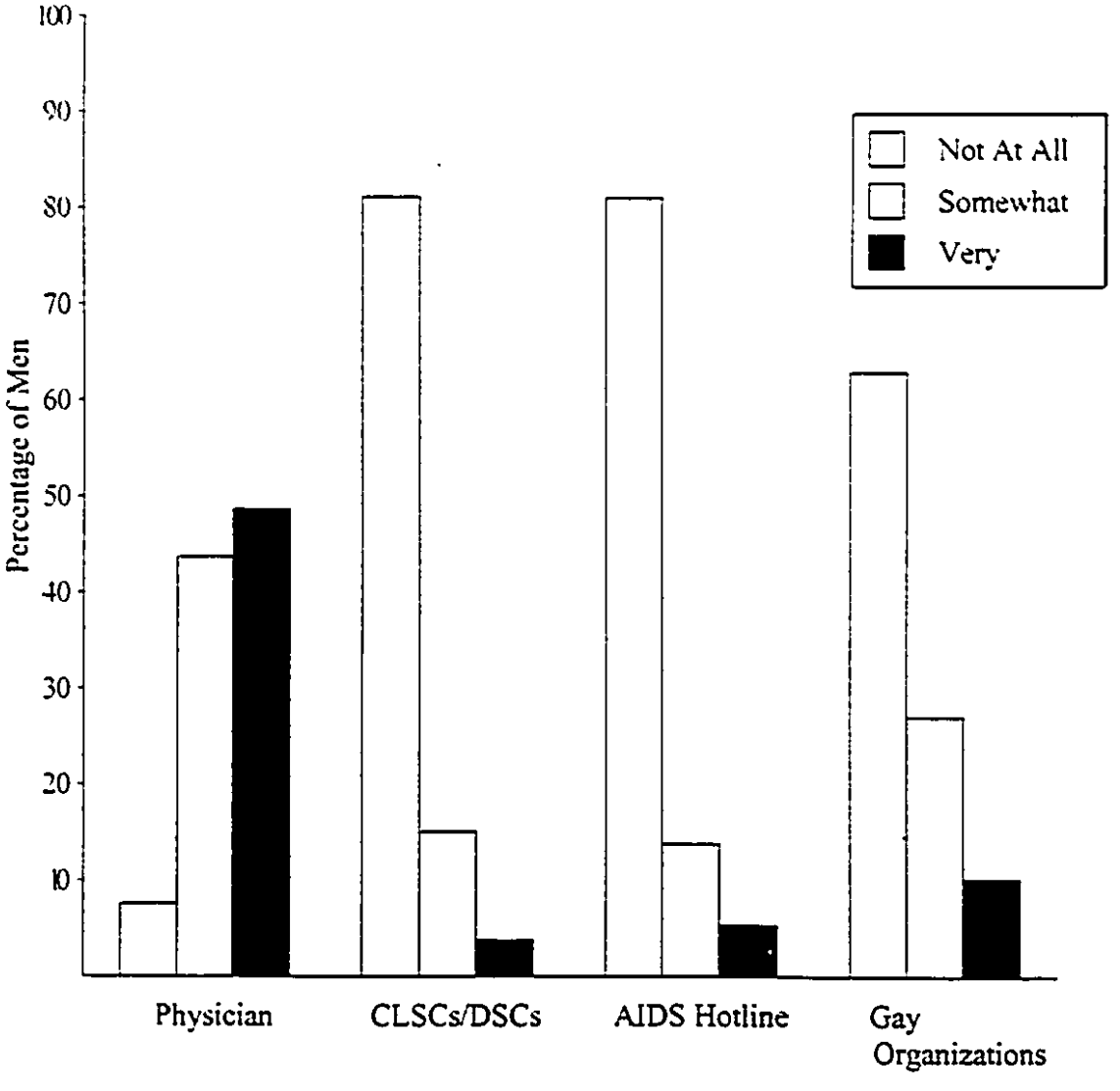

Figure E.15

Frequency Distribution of *Sources of Useful Information about AIDS* in the Total Population

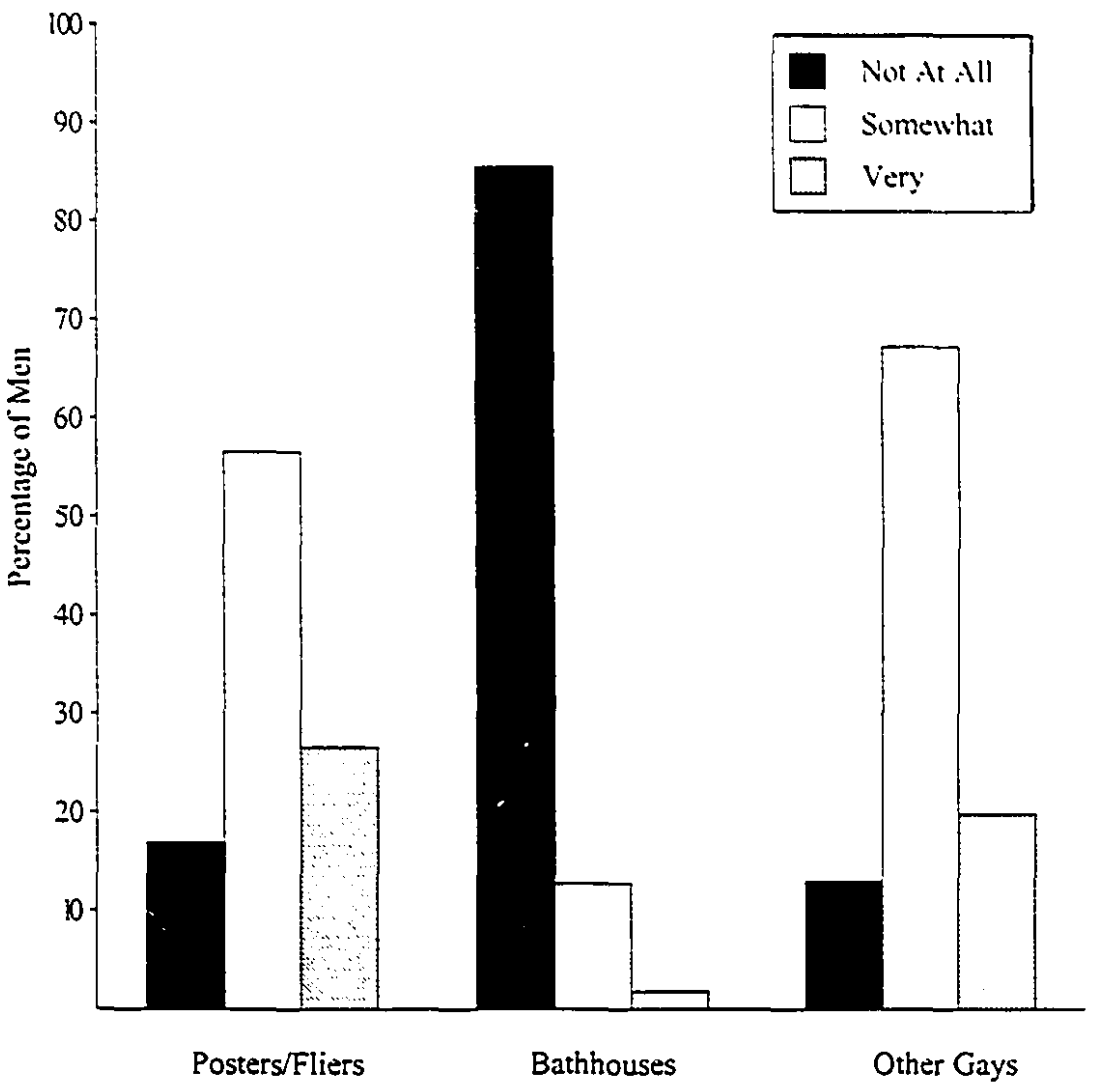

Figure E.16

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

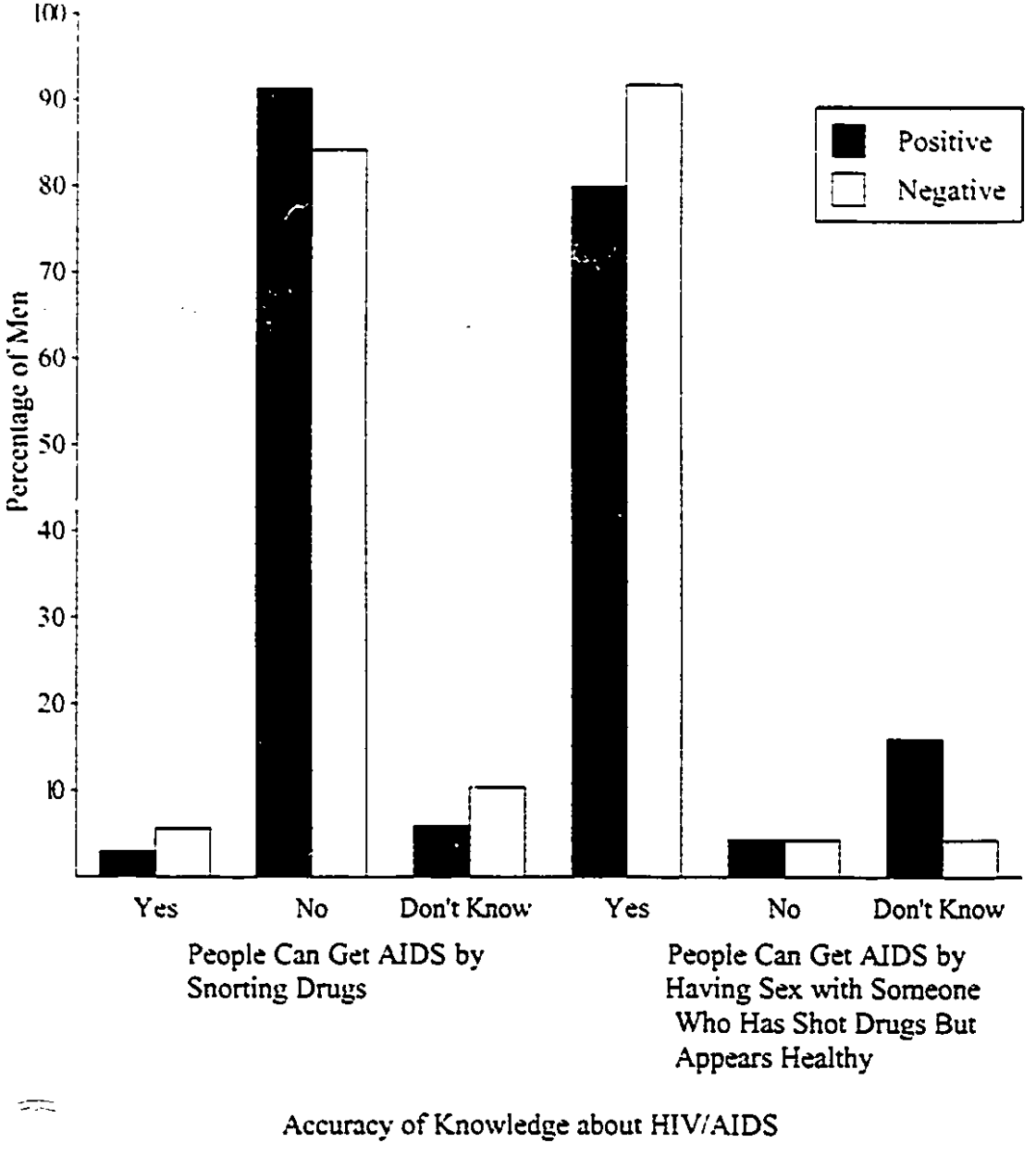

Figure E.17

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

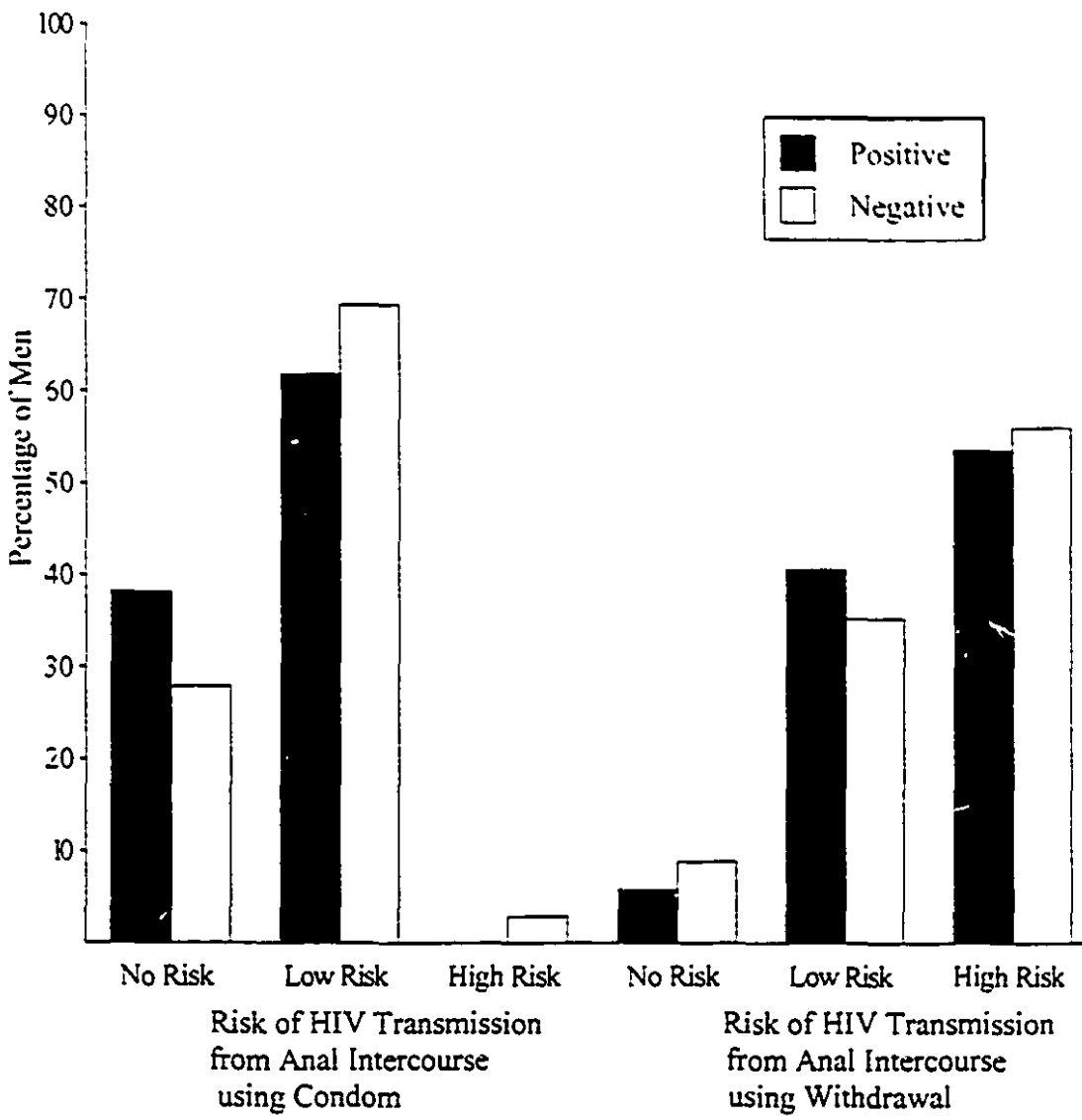

Figure E.18

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

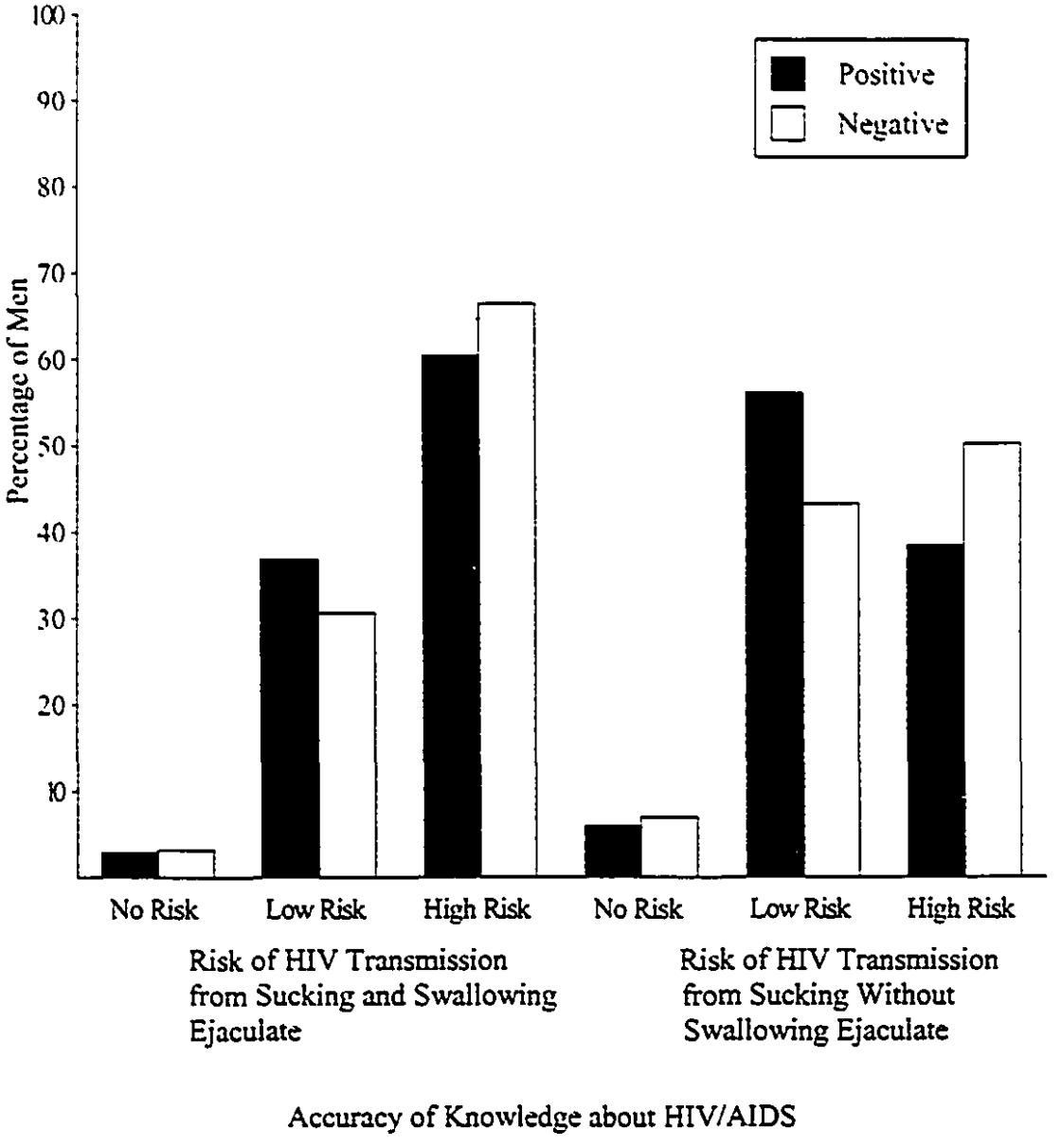

Figure E.19

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

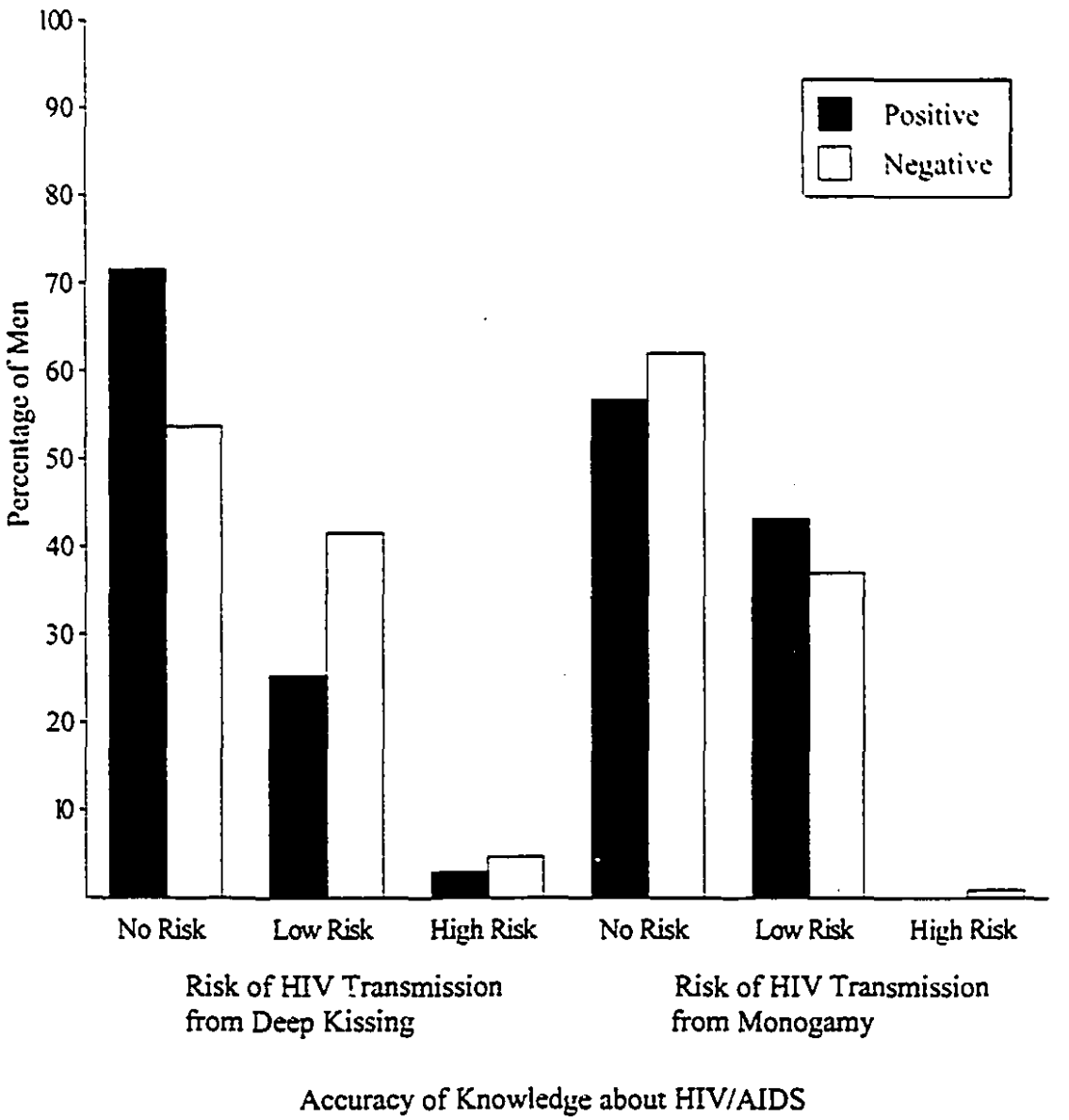

Figure E.20

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

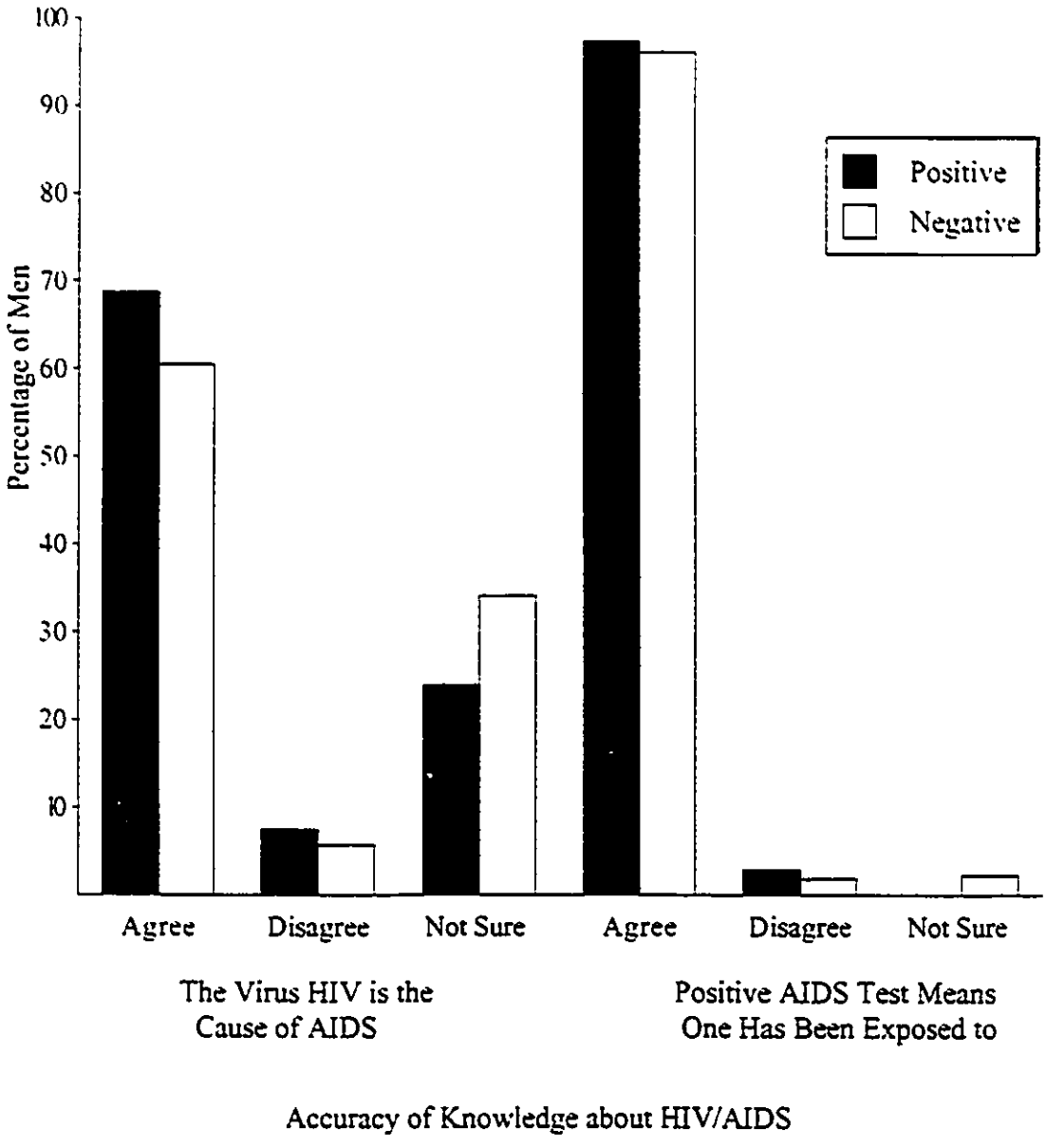

Figure E.21

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

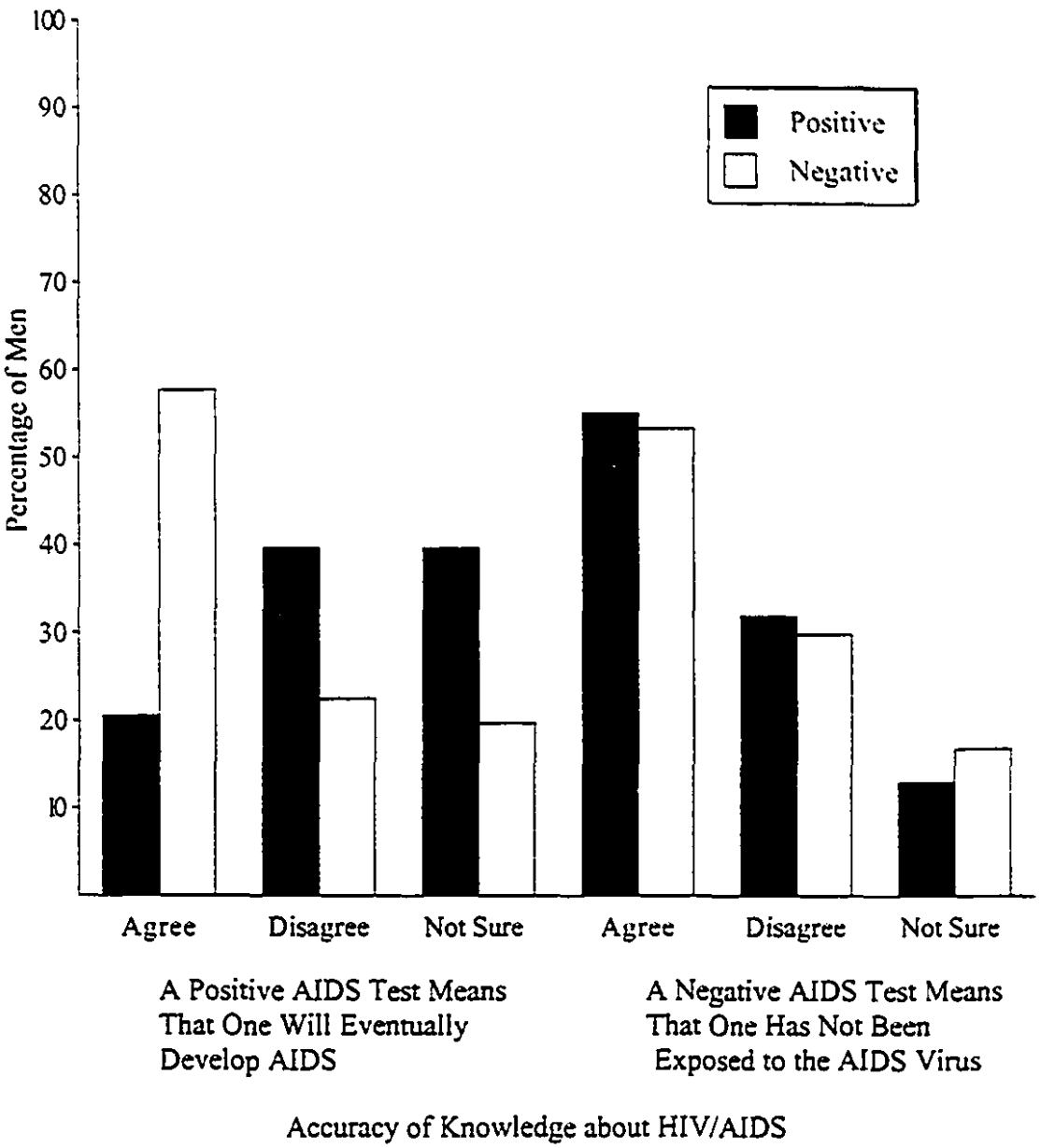

Figure E.22

Frequency Distribution of the Variable *Knowledge about HIV/AIDS Transmission* according to Serostatus in the Total Population

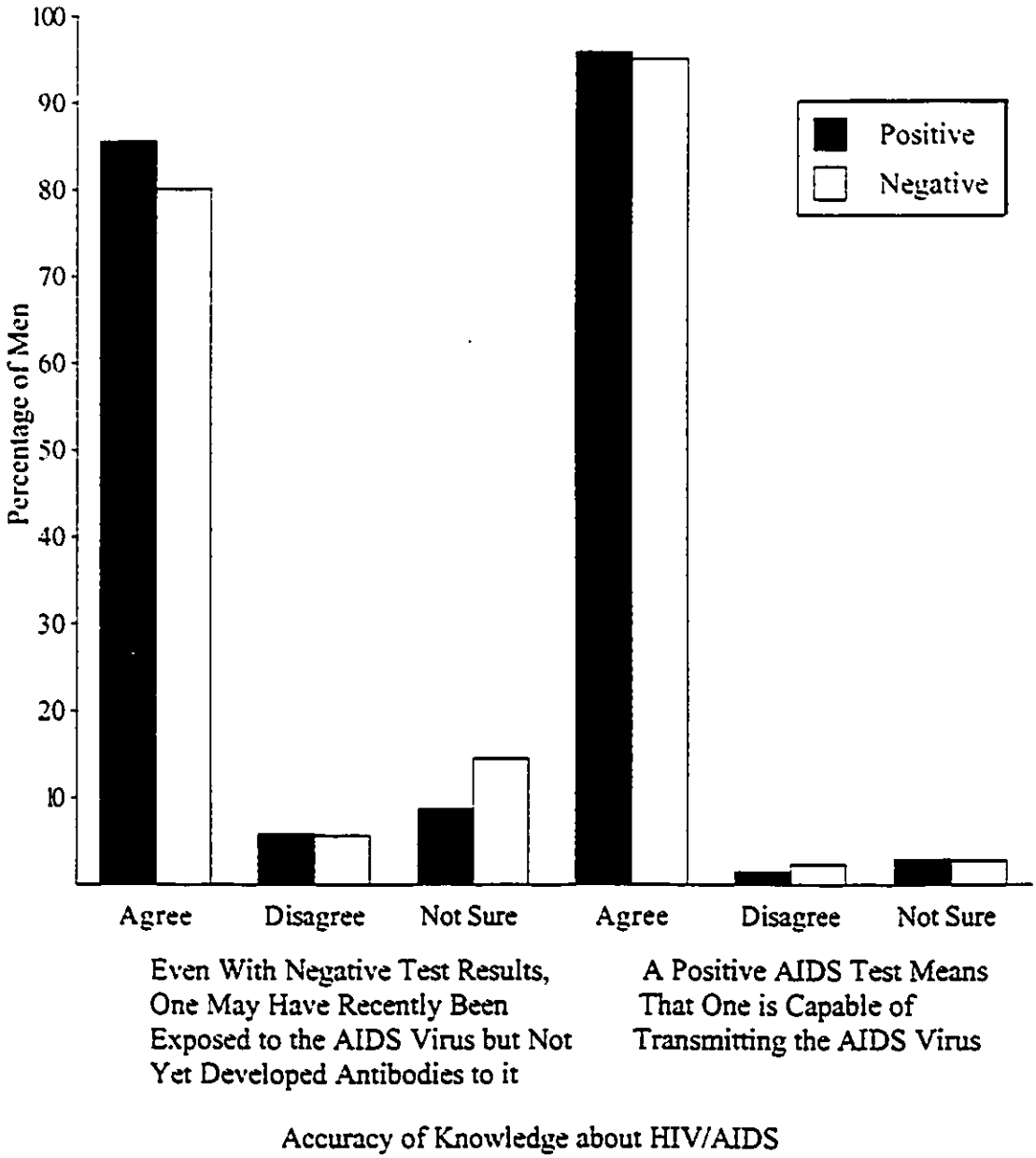

Figure E.23

Frequency Distribution of the Variable *Information and Usefulness of the Campaign "Jouez sur Play Safe"* according to Serostatus in the Total Population

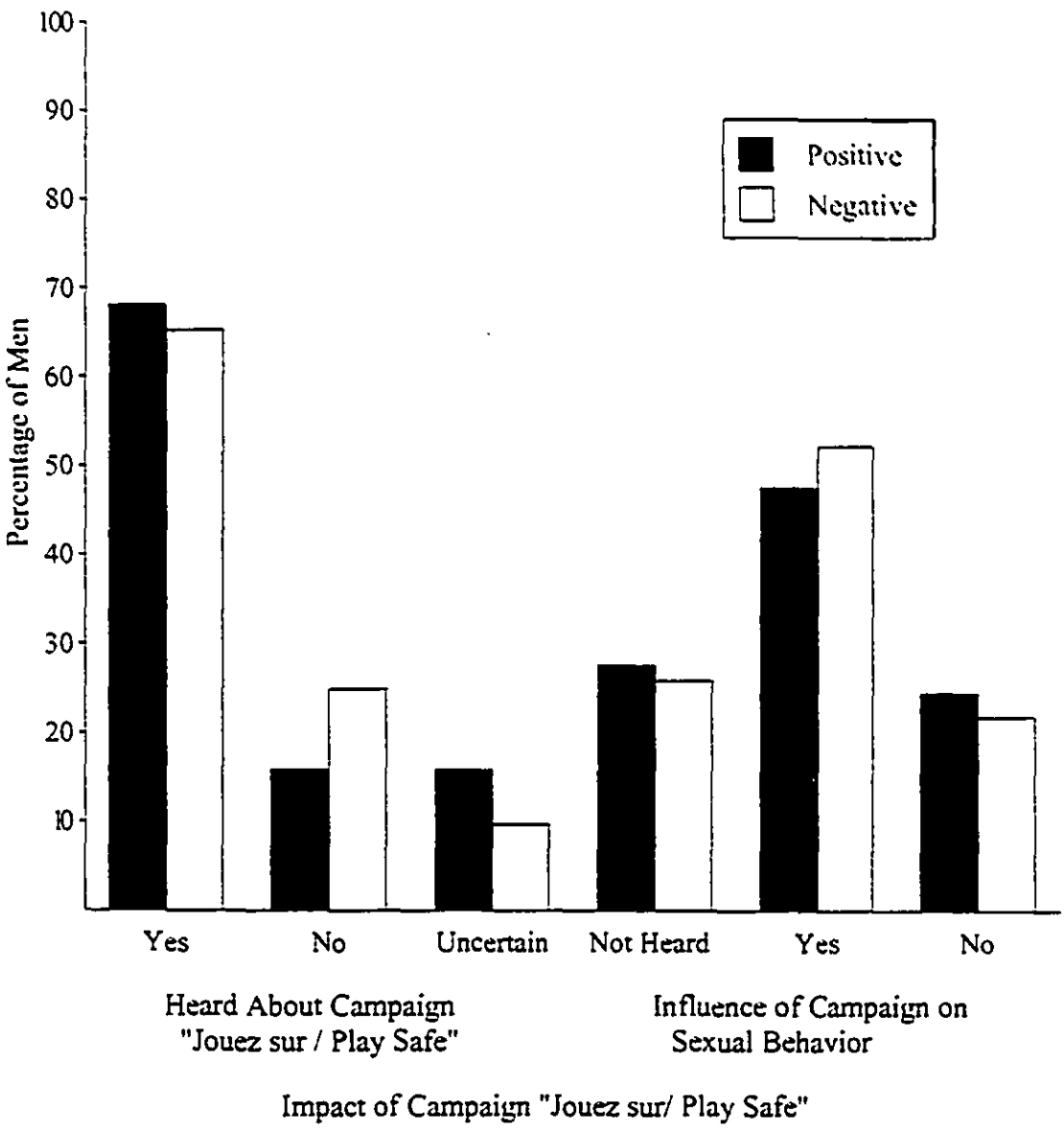

Figure E.24

Frequency Distribution of the Variable *Previous Testing for the HIV Virus* according to Serostatus in the Total Population (N=286)

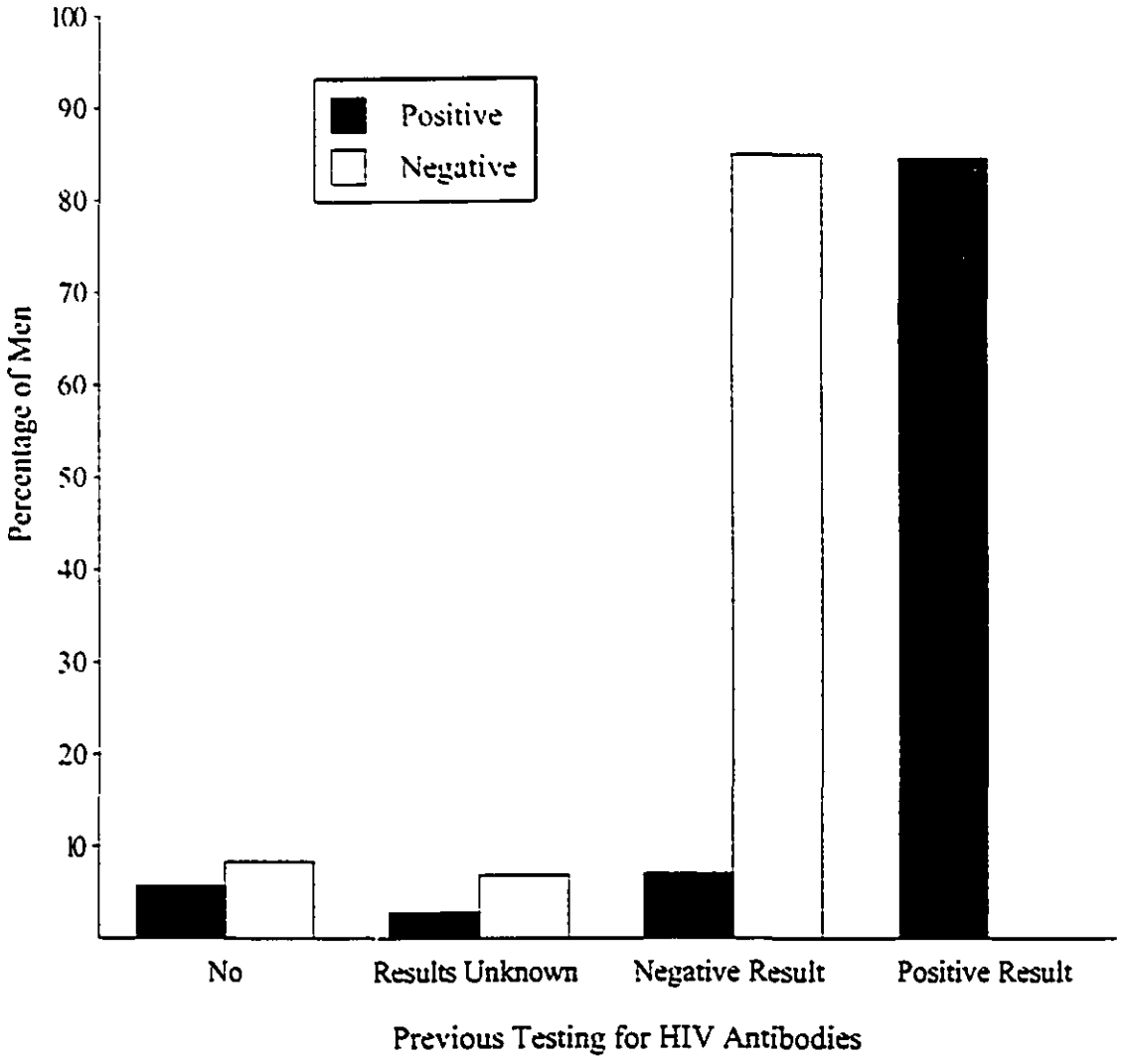

Figure E.25

Frequency Distribution of the Variable *Previous Testing of Primary Partner for the HIV Virus* according to Serostatus in the Total Population (N=279)

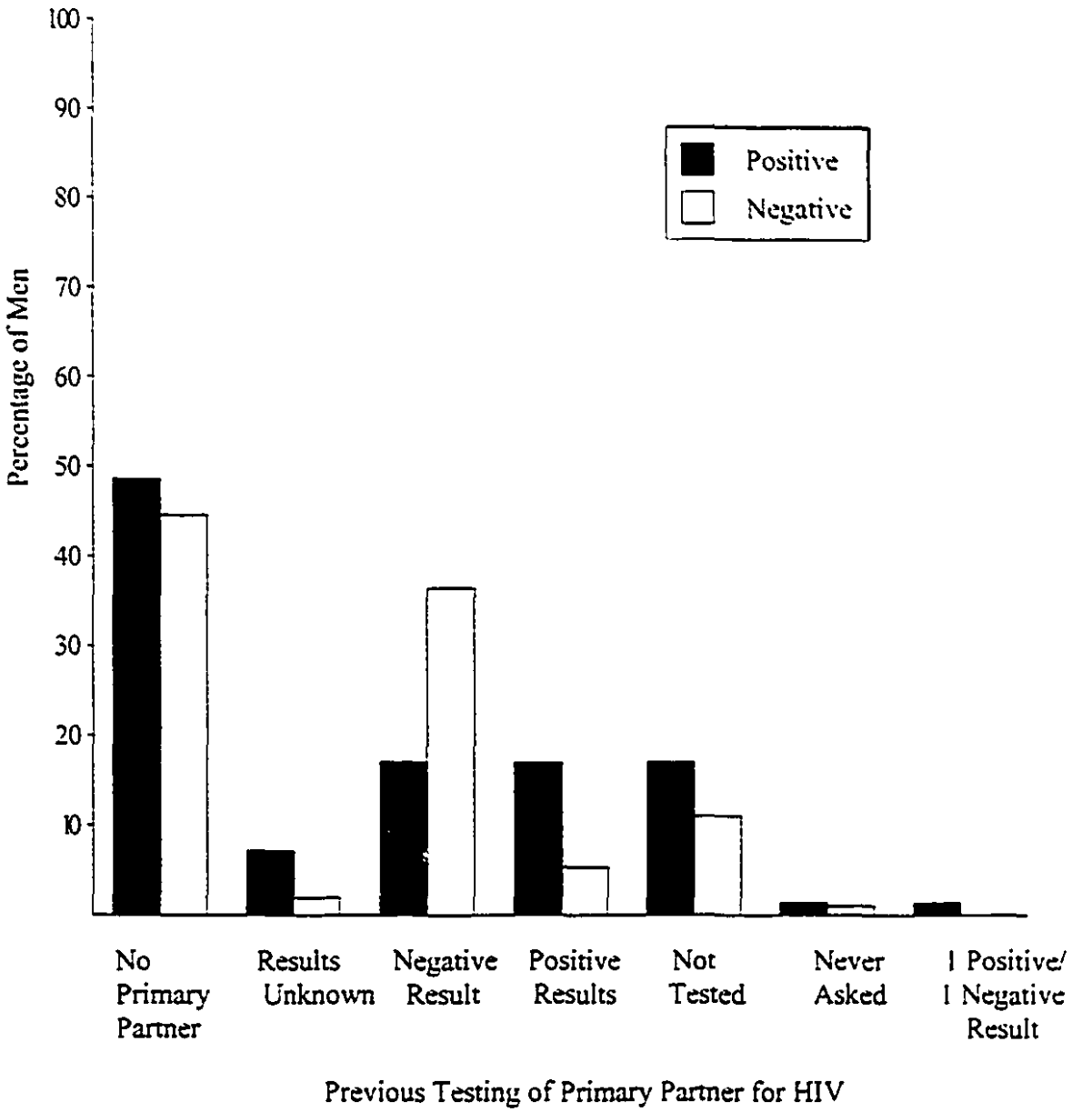

Figure E.26

Frequency Distribution of the Variable *Reason for Desire to Know Results of HIV Test* according to Serostatus in the Total Population (N=277)

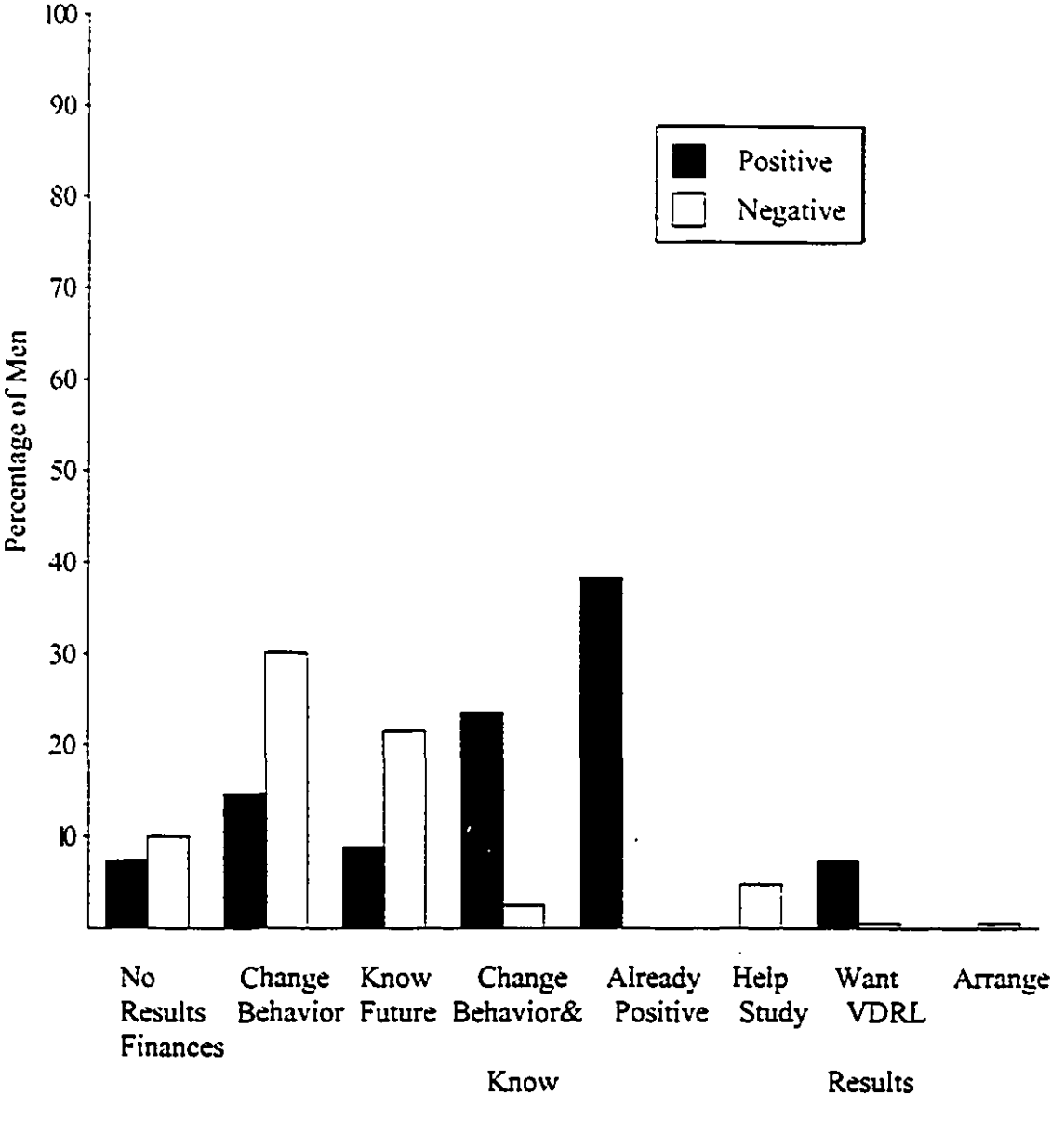

Figure E.27

Frequency Distribution of the Variable *Total Number of Men with whom One has had Anal Intercourse* according to Serostatus in the Total Population

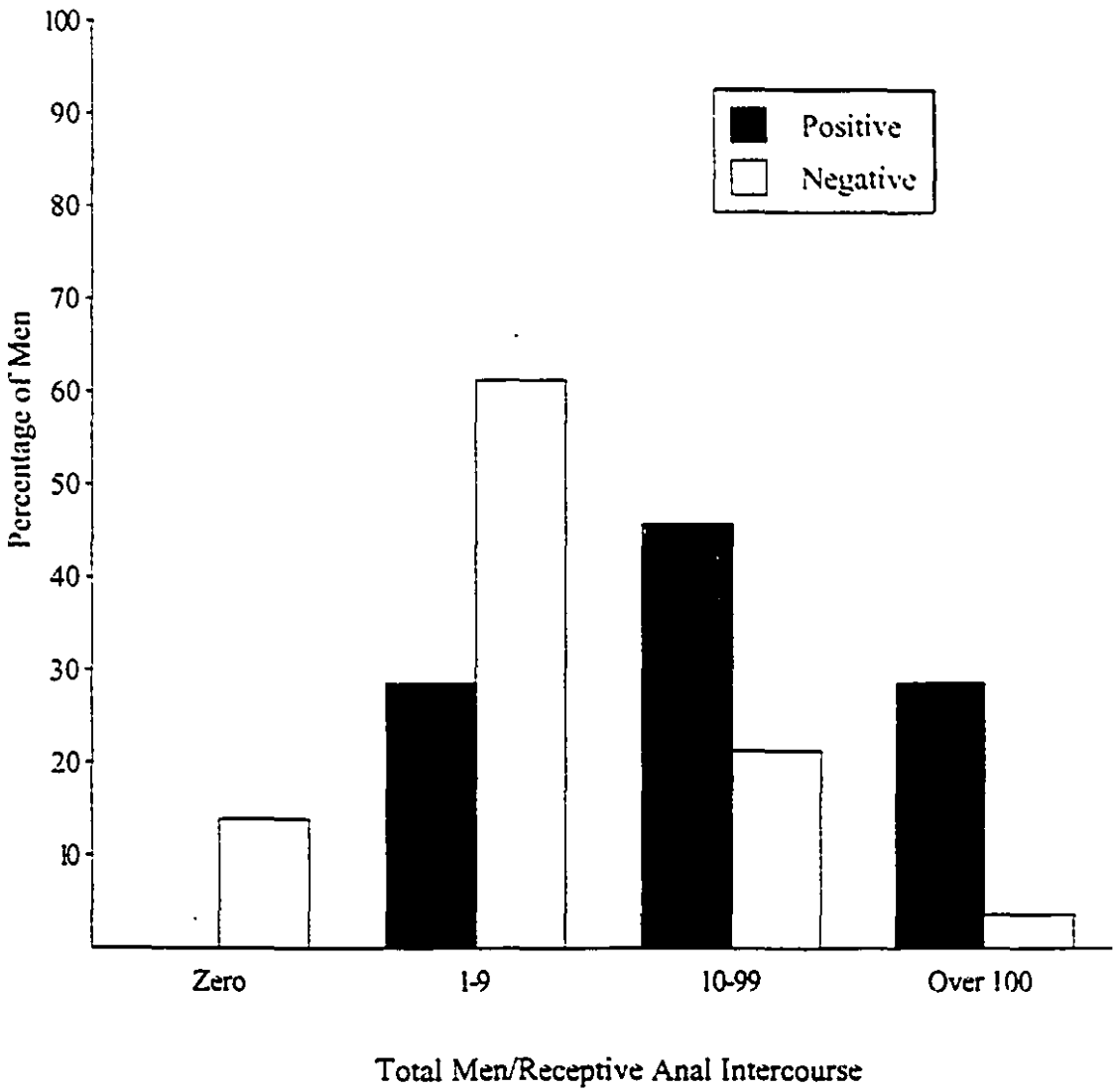

Figure E.28

Frequency Distribution of the Variable *Proportion of Total Men who were One-time Partners* according to Serostatus in the Total Population

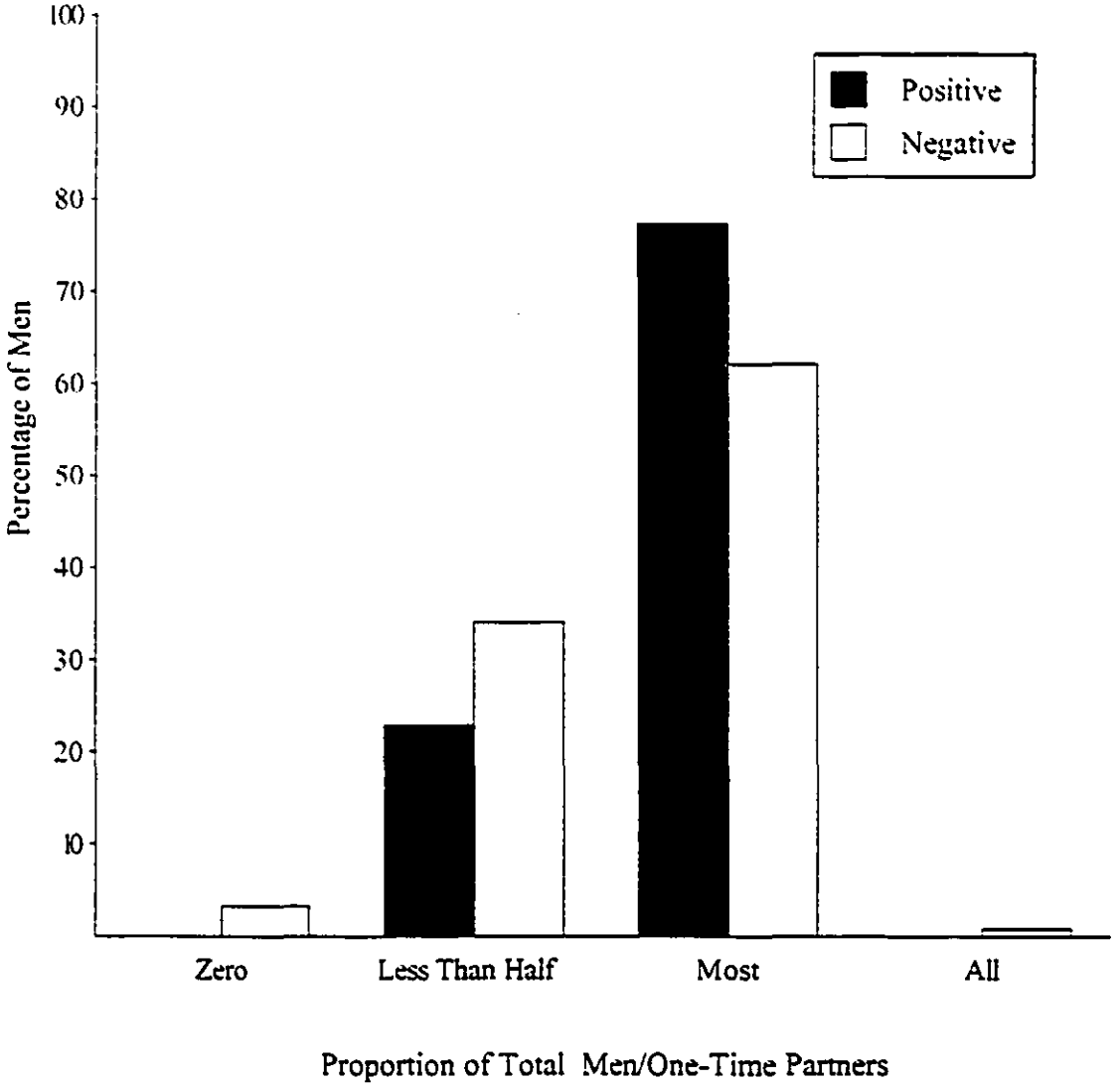

Figure E.29

Frequency Distribution of the Variable *Total Number of Male Partners* according to Serostatus in the Total Population (N=284)

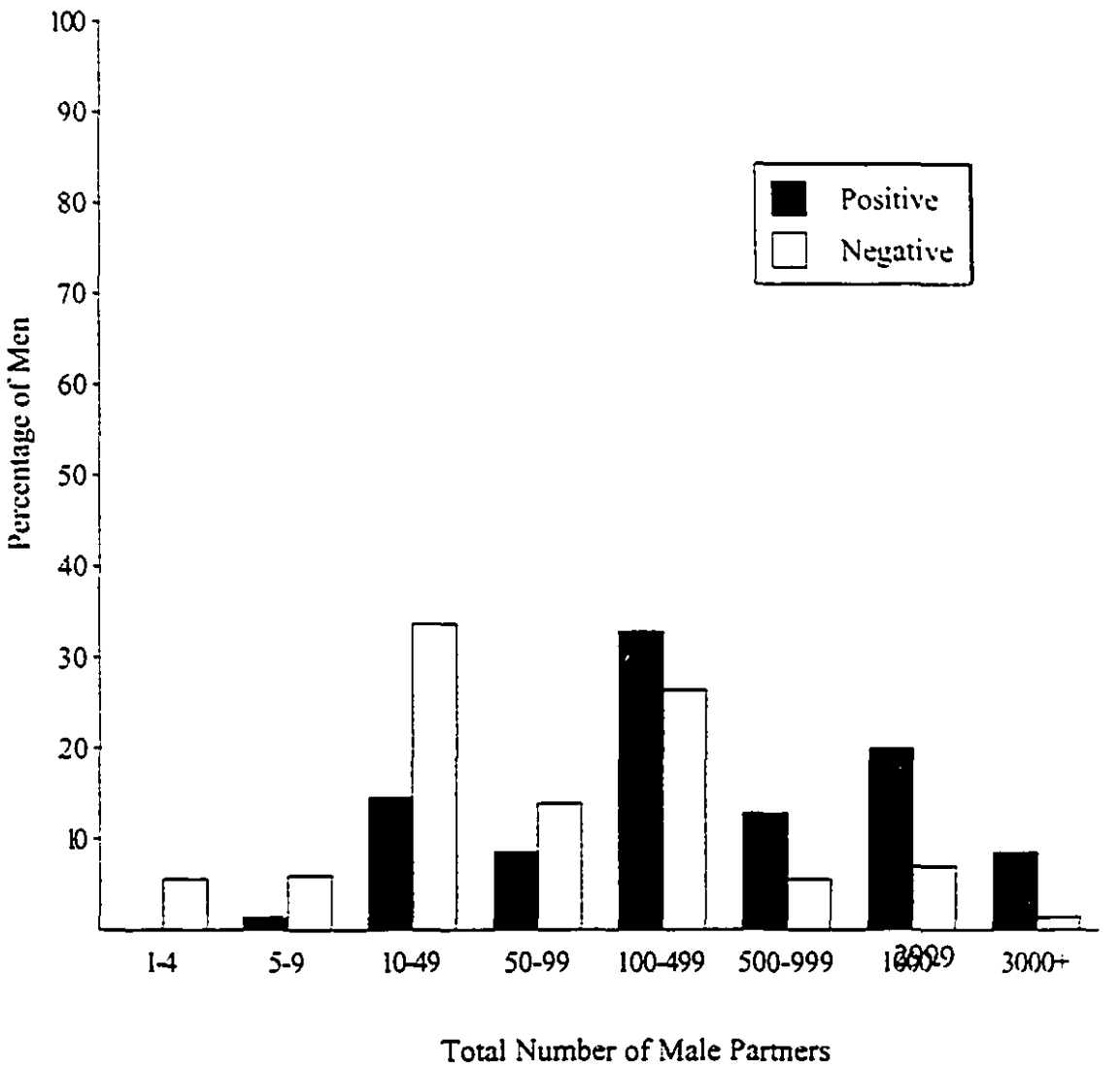

Figure E.30

Frequency Distribution of the Variable *Total Number of Men with whom One had Receptive Anal Intercourse* according to Serostatus in the Total Population (N=286)

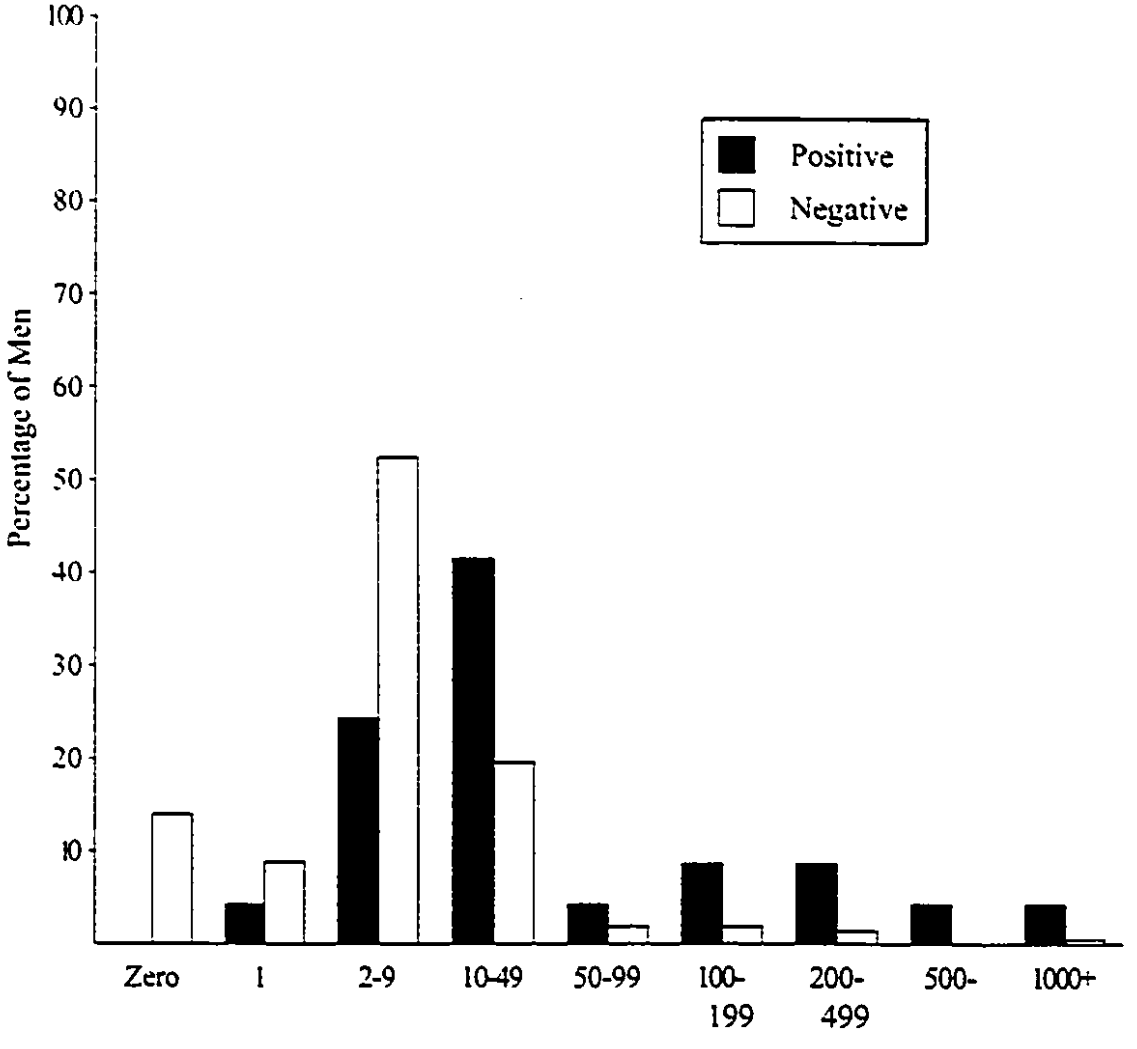

Figure E.31

Frequency Distribution of the Variable *Proportion of Total Male Partners who were One-time Sexual Partners* according to Serostatus in the Total Population (N=285)

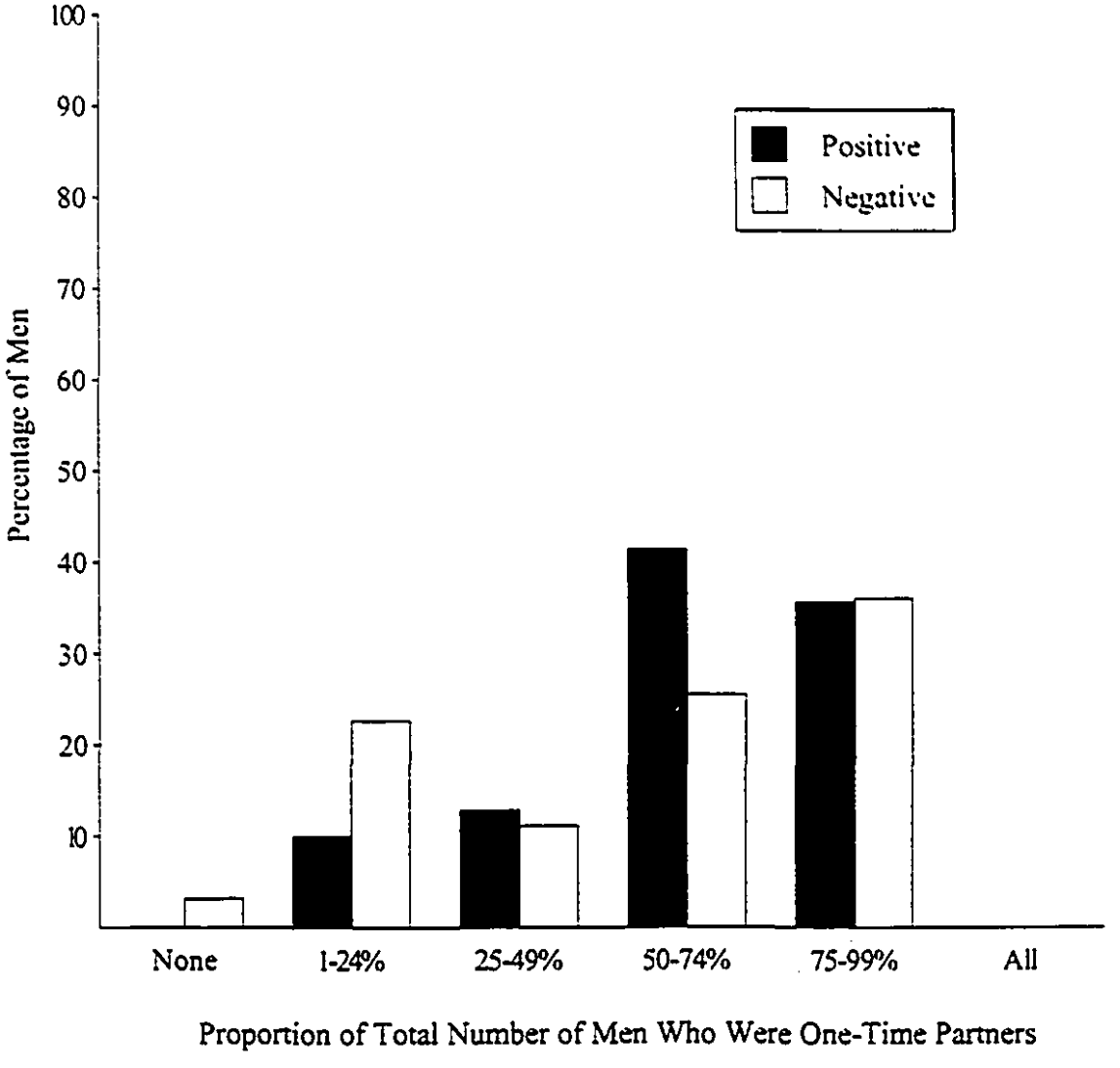

Figure E.32

Frequency Distribution of the Variable *Participation in Anal Intercourse with Repeat Partners during a Typical Month this Year and a Typical Month Three Years Ago* in the Total Population

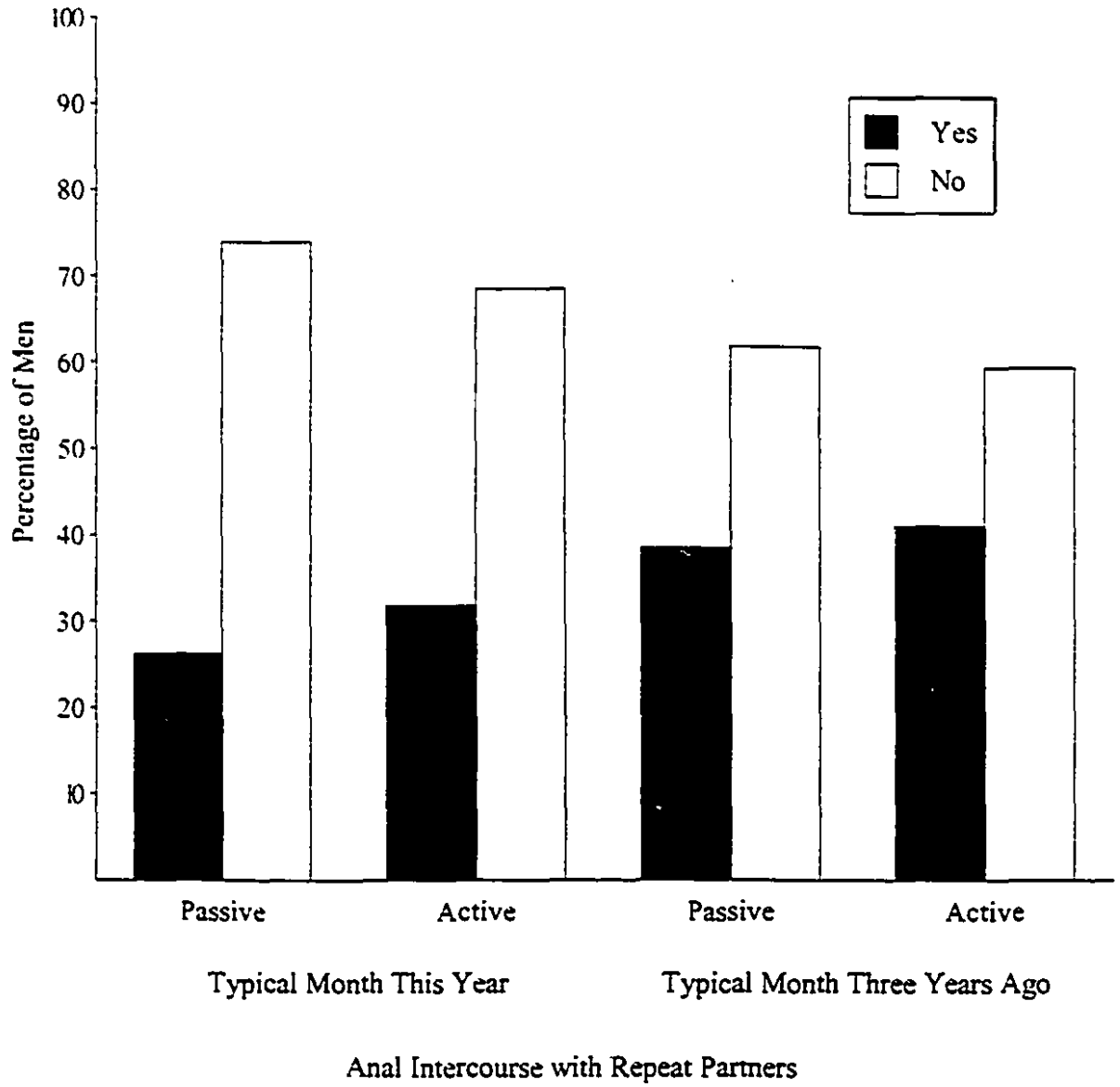

Figure E.33

Frequency Distribution of the Variable *Participation in Anal Intercourse with One-time Partners during a Typical Month this Year and a Typical Month Three Years Ago* in the Total Population

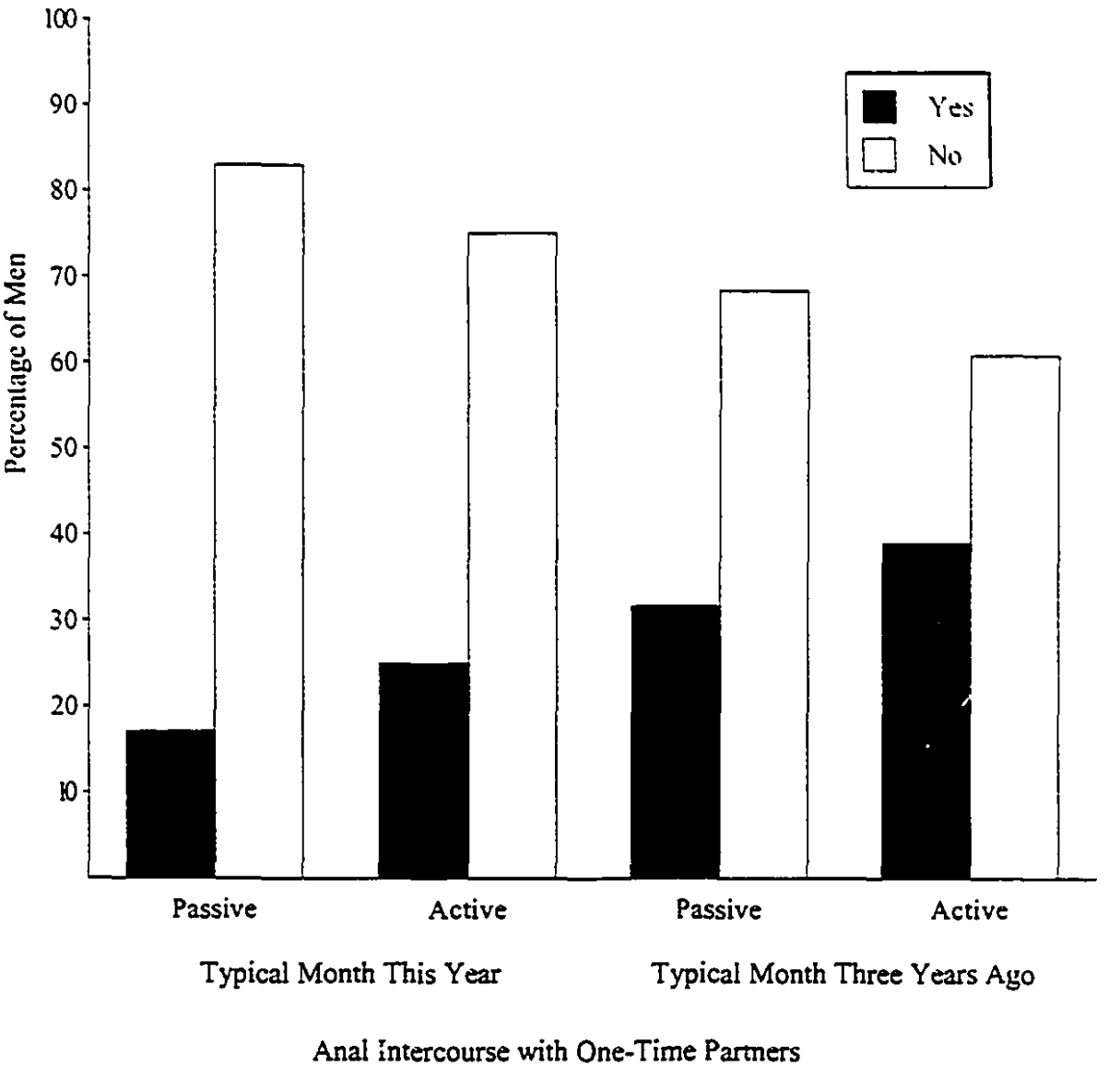

Figure E.34

Frequency Distribution of the Variable *Condom Usage during Anal Intercourse with Repeat Partners in the Past One Month* in the Total Population

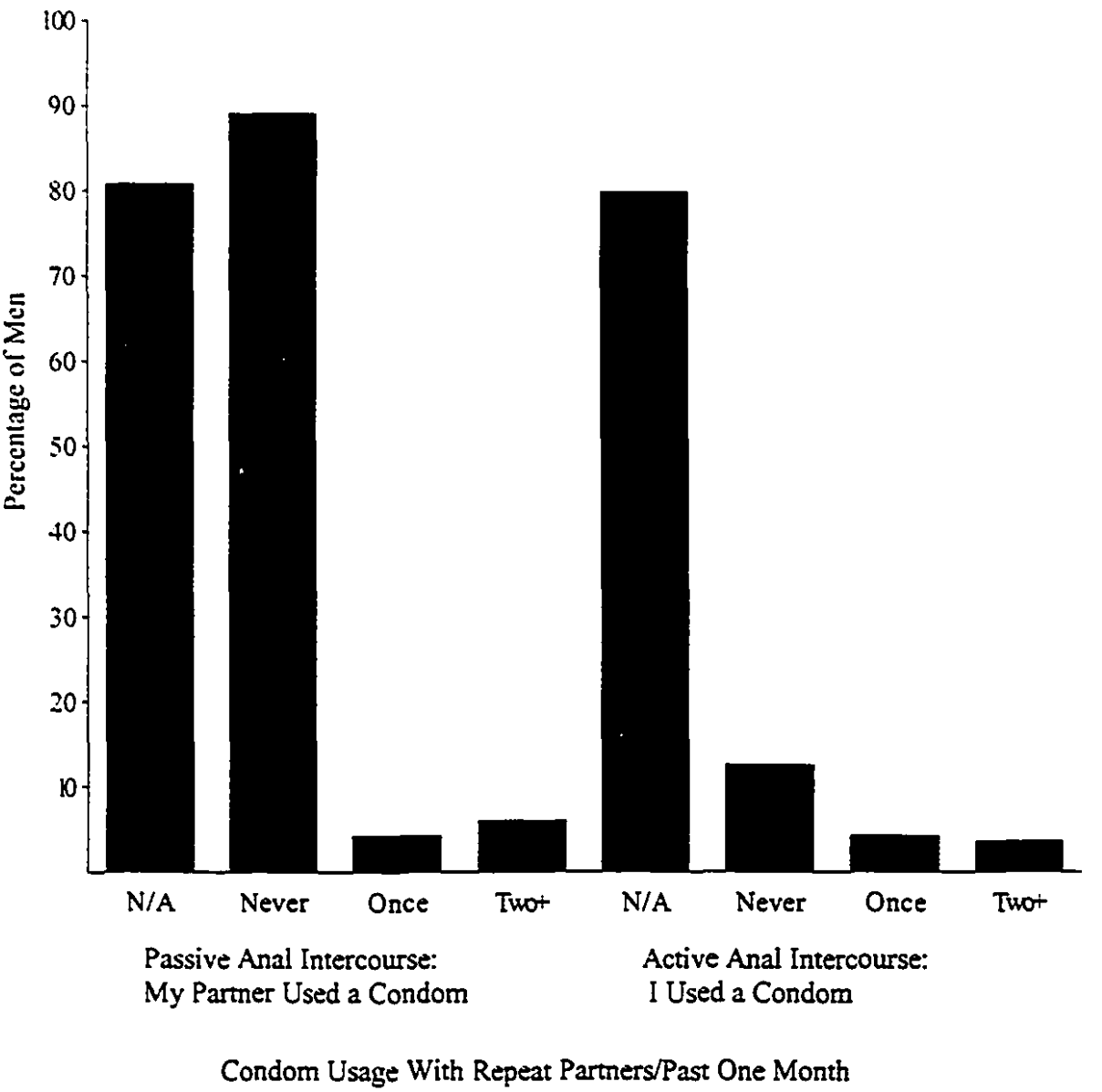

Figure E.35

Frequency Distribution of the Variable *Condom Usage during Anal Intercourse with One-time Partners in the Past One Month* in the Total Population

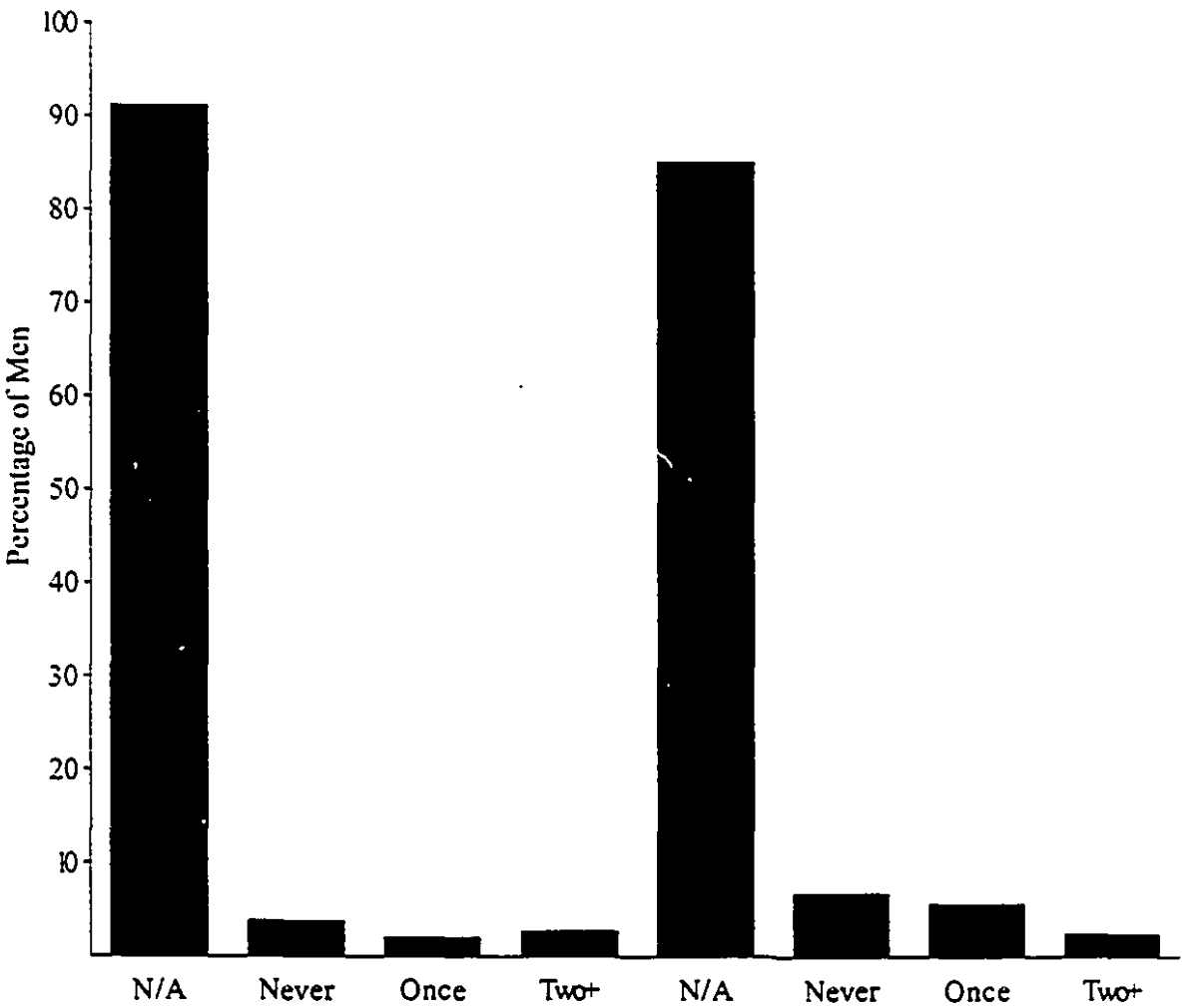

Figure E.36

Frequency Distribution of the Variable *Changes in Condom Usage during Anal Intercourse with Repeat Partners during a Typical Month this Year as compared with a Typical Month Three Years Ago* in the Total Population

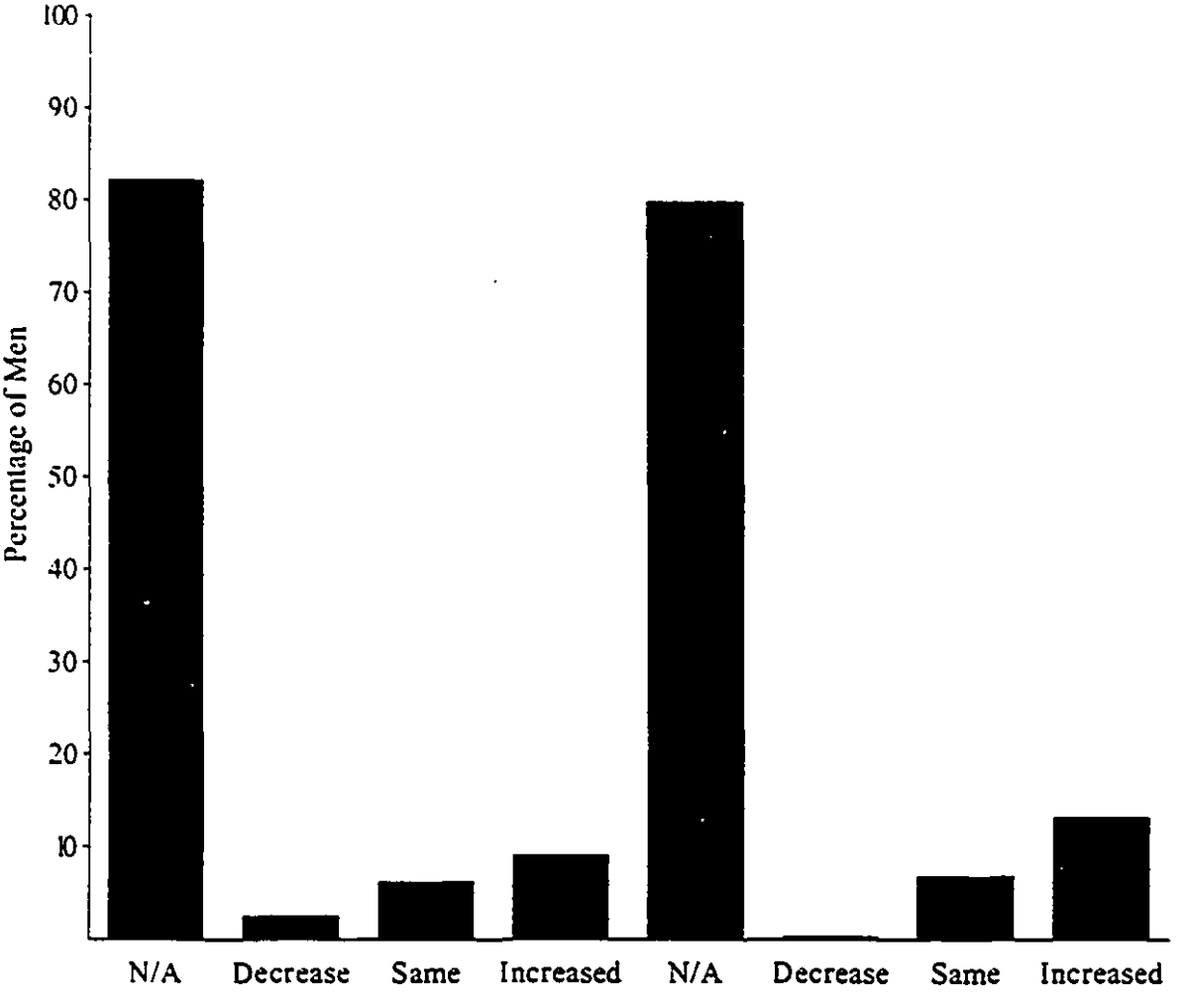

Figure E.37

Frequency Distribution of the Variable *Changes in Condom Usage during Anal Intercourse with One-time Partners during a Typical Month this Year as compared with a Typical Month Three Years Ago* in the Total Population

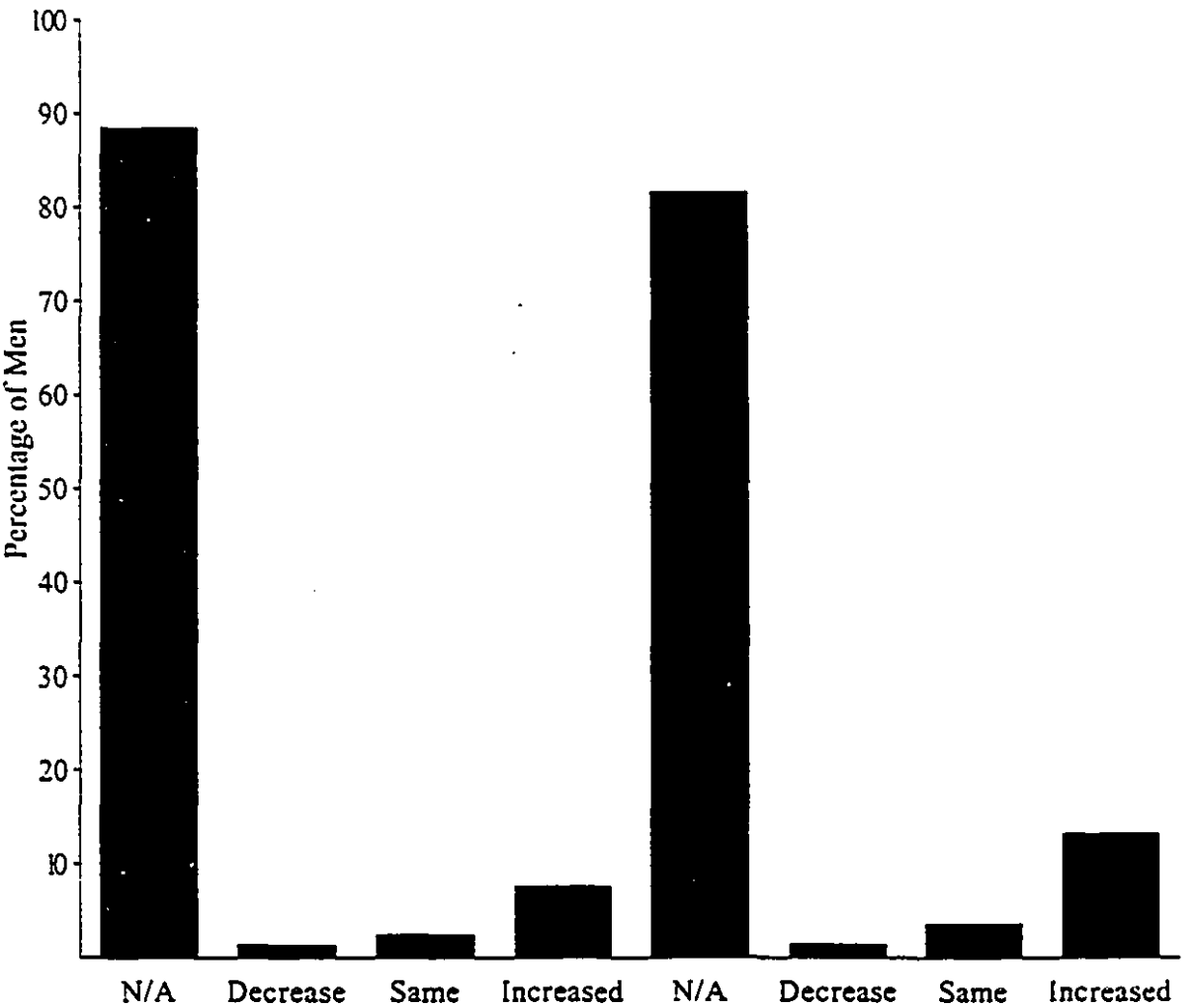

Figure E.38

Frequency Distribution of the Variable *Sexual Activity with One-time Partners during the Past One Month* according to Serostatus in the Total Population

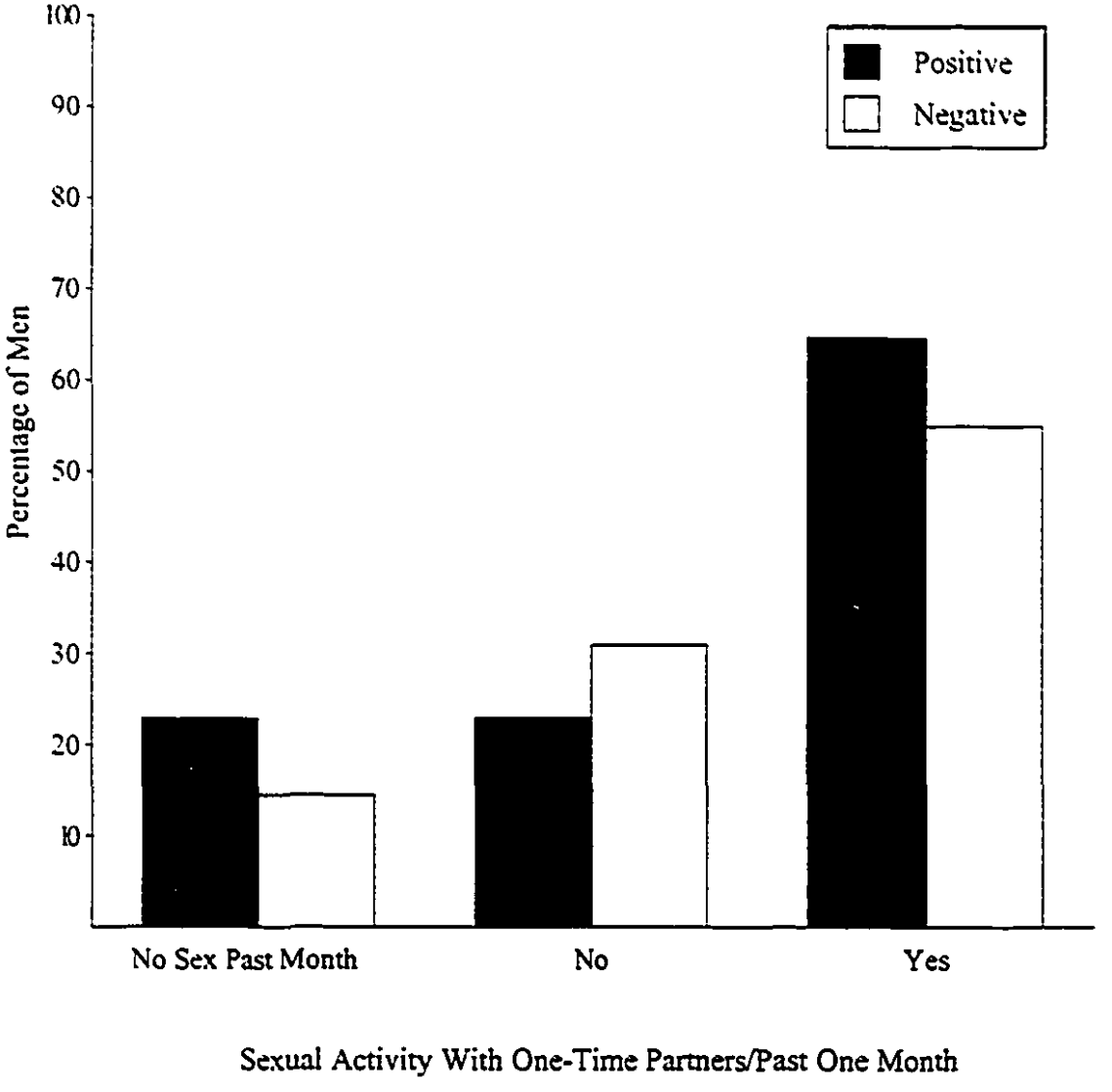

Figure E.39

Frequency Distribution of the Variable *Range of Sexual Activities with One-time Partners during the Past One Month* in the Total Population

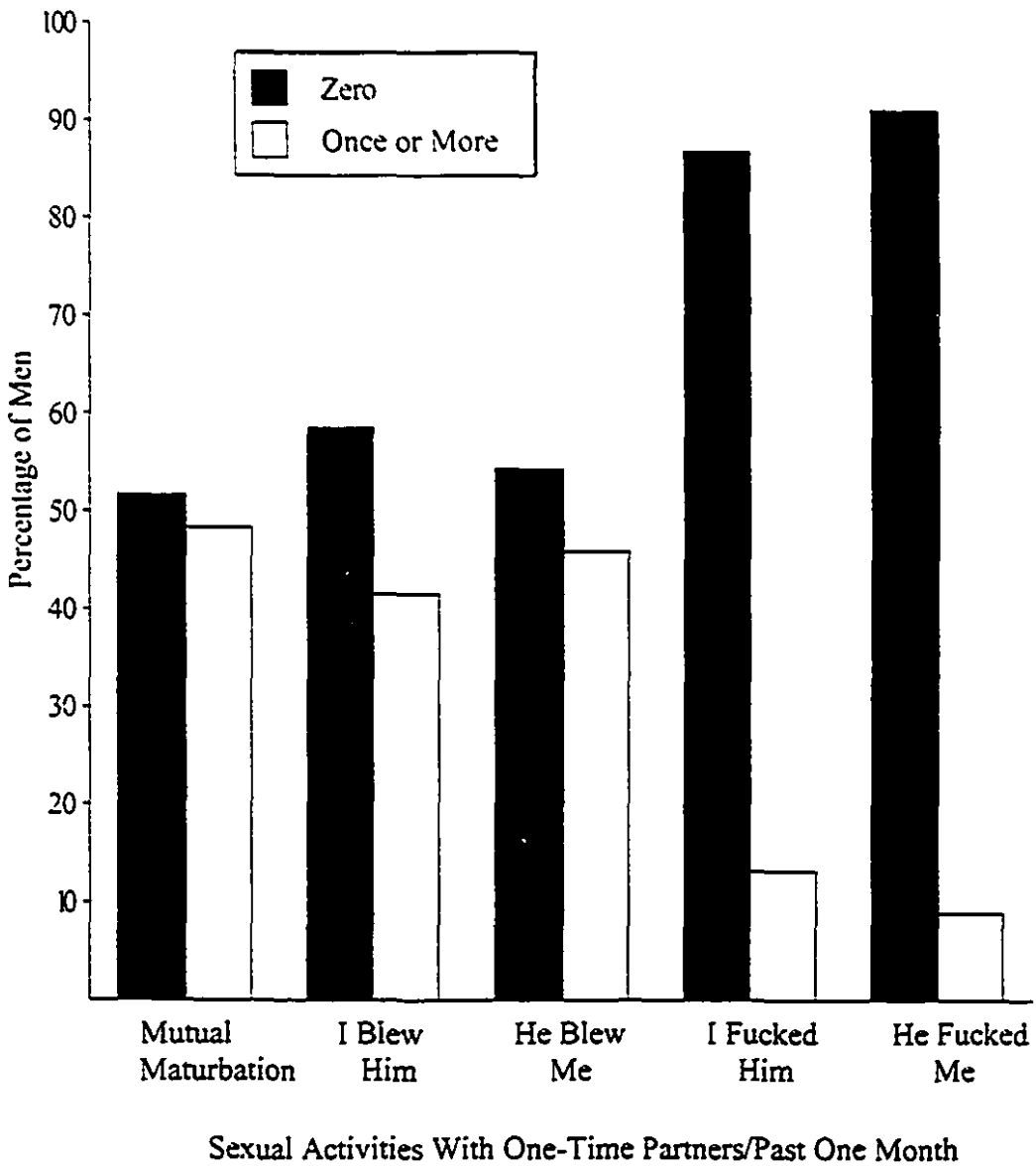

Figure E.40

Frequency Distribution of the Variable *Range of Sexual Activities with One-time Partners during the Past One Month* in the Total Population

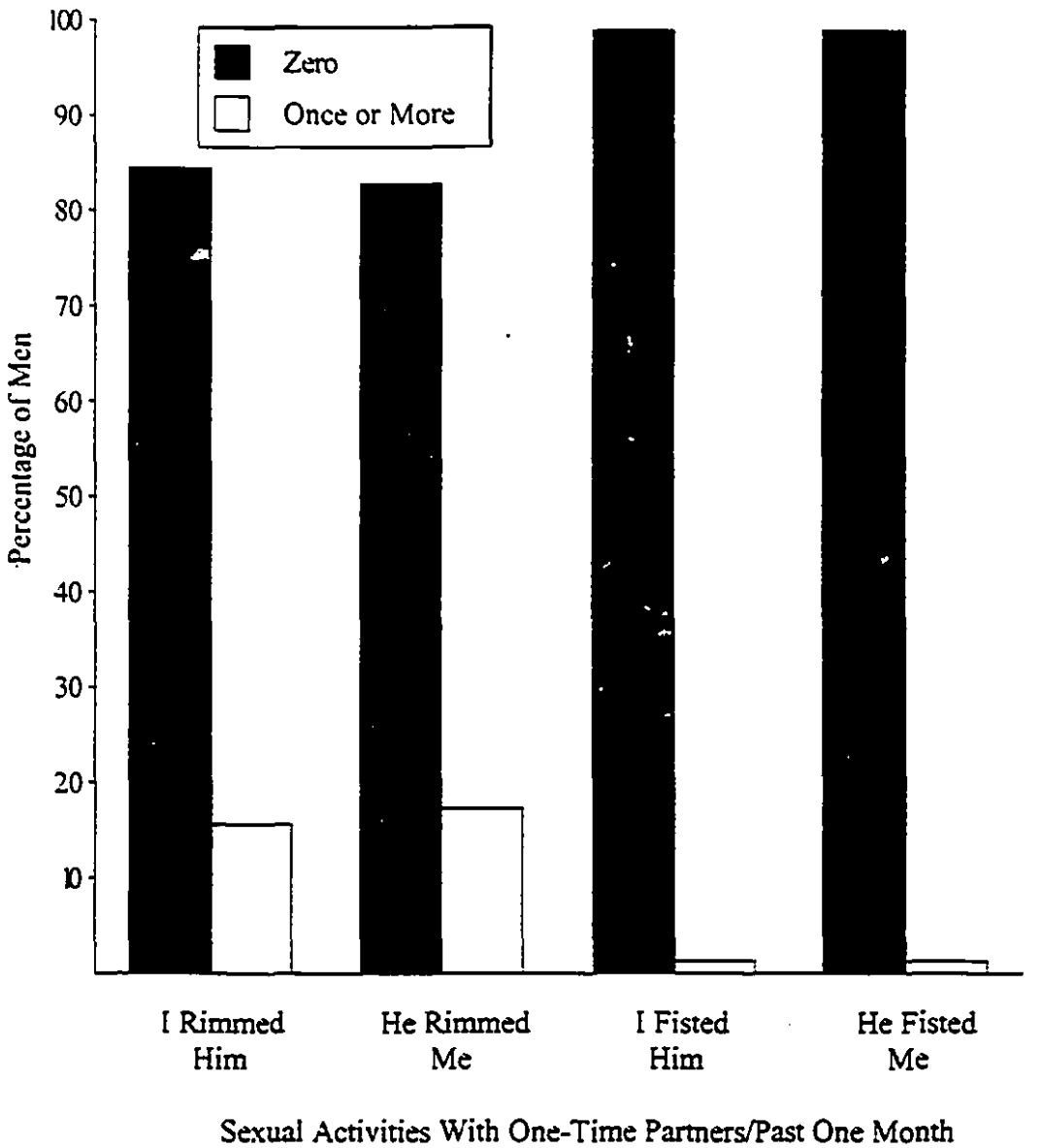

Figure E.41

Frequency Distribution of the Variable *Range of Sexual Activities with One-time Partners during the Past One Month* in the Total Population

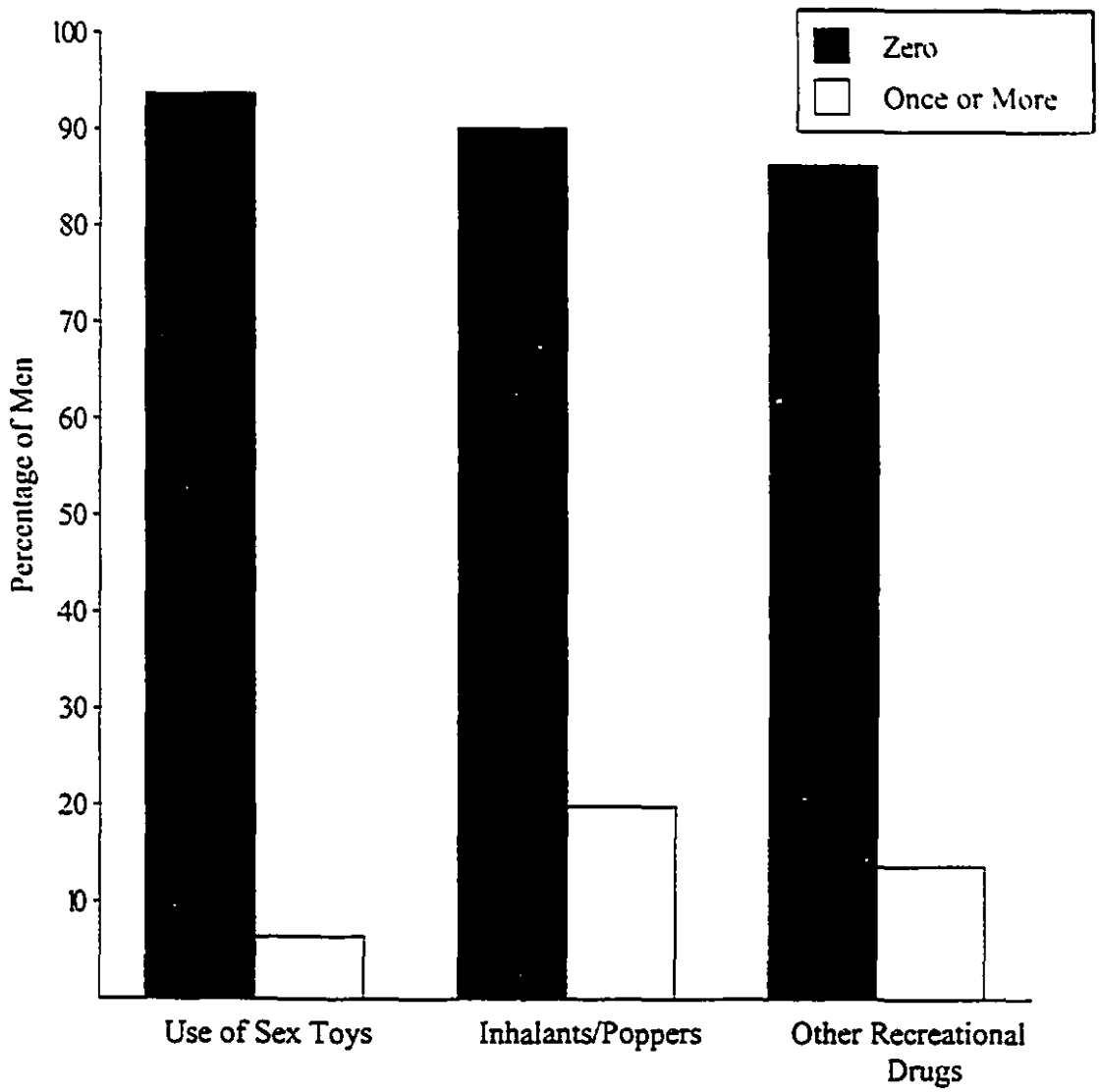

Figure E.42

Frequency Distribution of the Variable *Condom Breakage during the Past Six Months* according to Serostatus in the Total Population (N=241)

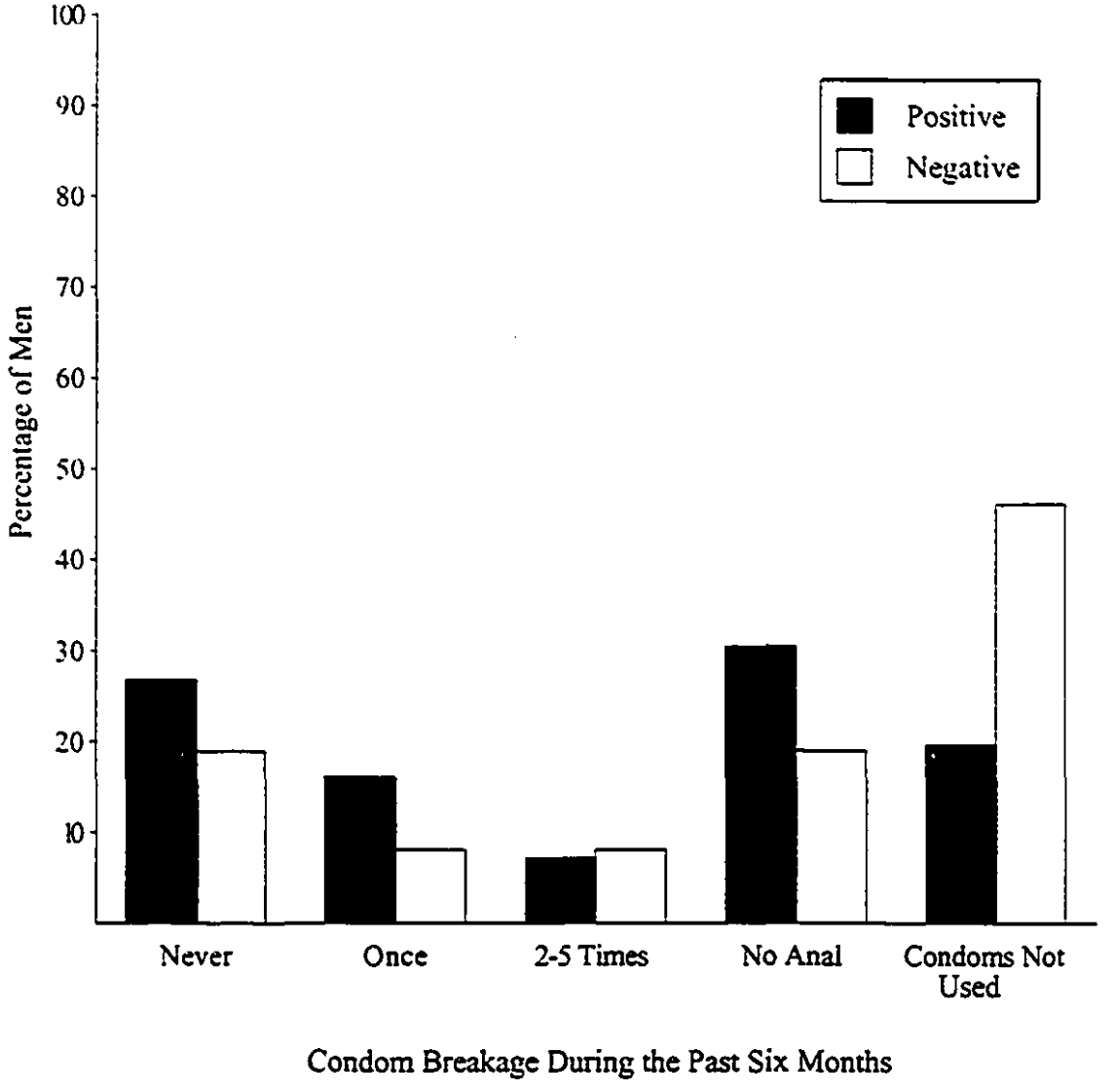

Figure E.43

Frequency Distribution of the Variable *Condom Breakage during the Past Five Years* according to Serostatus in the Total Population (N=192)

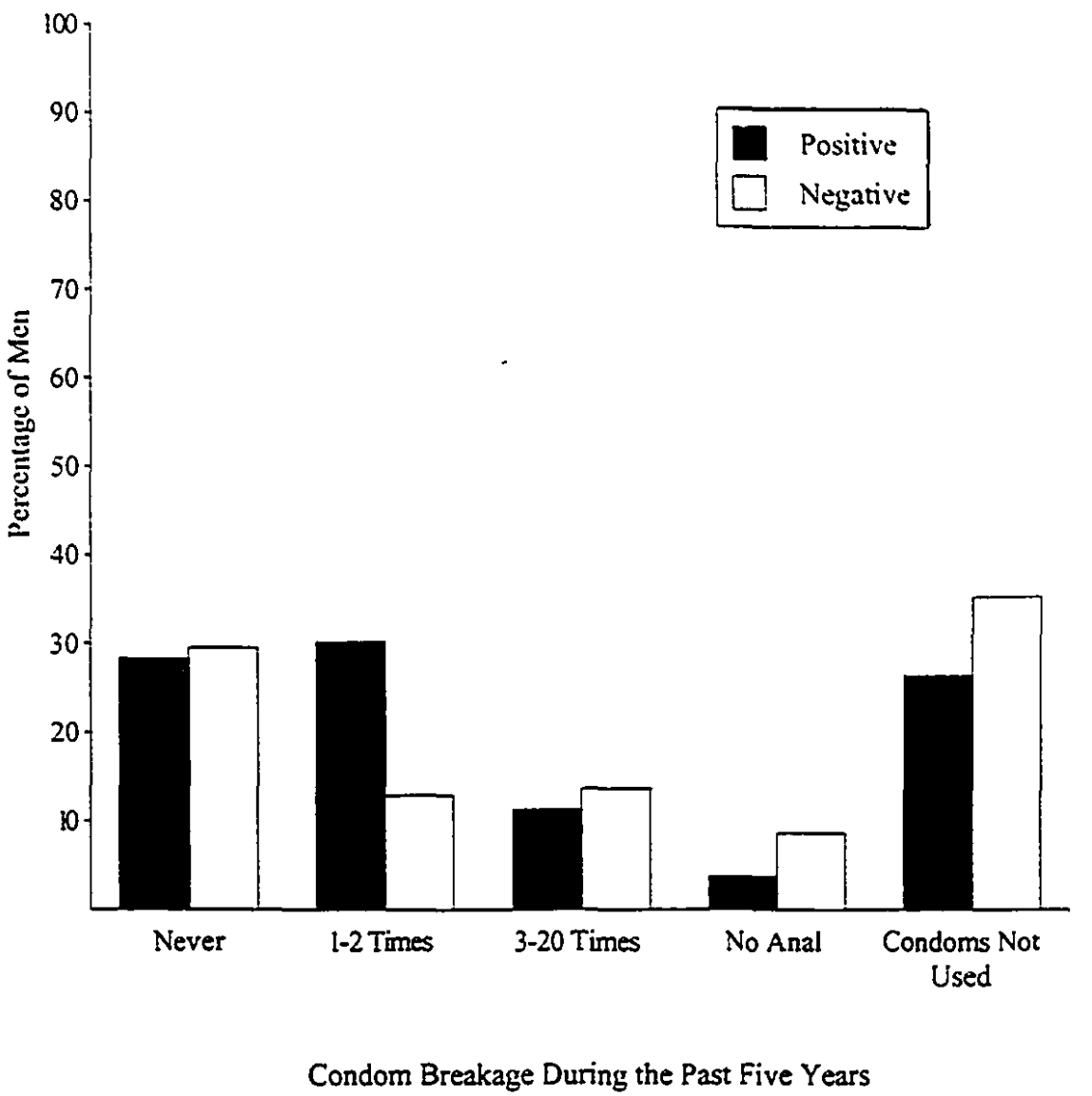

Figure E.44

Frequency Distribution of the Variable *Blood Donation in 1987-1988 and in 1985-1986* according to Serostatus in the Total Population (N=286)