

1989

# An assessment of heterosexuals' perceived risk for HIV infection

Suzanne Heininger  
*San Jose State University*

Follow this and additional works at: [https://scholarworks.sjsu.edu/etd\\_theses](https://scholarworks.sjsu.edu/etd_theses)

---

## Recommended Citation

Heininger, Suzanne, "An assessment of heterosexuals' perceived risk for HIV infection" (1989). *Master's Theses*. 3192.  
DOI: <https://doi.org/10.31979/etd.c332-87kn>  
[https://scholarworks.sjsu.edu/etd\\_theses/3192](https://scholarworks.sjsu.edu/etd_theses/3192)

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact [scholarworks@sjsu.edu](mailto:scholarworks@sjsu.edu).

## INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

**The quality of this reproduction is dependent upon the quality of the copy submitted.** Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

# U·M·I

University Microfilms International  
A Bell & Howell Information Company  
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA  
313/761-4700 800/521-0600



**Order Number 1339618**

**An assessment of heterosexuals' perceived risk for HIV infection**

**Heininger, Suzanne, M.P.H.**

**San Jose State University, 1989**

**Copyright ©1990 by Heininger, Suzanne. All rights reserved.**

**U·M·I**  
300 N. Zeeb Rd.  
Ann Arbor, MI 48106

---



AN ASSESSMENT OF HETEROSEXUALS' PERCEIVED RISK  
FOR HIV INFECTION

A Thesis Presented  
to the  
Faculty of the Department of Health Sciences  
San Jose State University

In Partial Fulfillment of the Requirements for the Degree  
Master of Public Health

By  
Suzanne Heininger  
December, 1989

APPROVED FOR THE DEPARTMENT OF HEALTH SCIENCES

*Kathleen Roe*

Dr. Kathleen Roe

*Sam Radelfinger*

Dr. Sam Radelfinger

*Helen Ross*

Dr. Helen Ross

APPROVED FOR THE UNIVERSITY

*Serena H. Stanford*

## ABSTRACT

### AN ASSESSMENT OF HETEROSEXUALS' PERCEIVED RISK FOR HIV INFECTION

by Suzanne Heininger

The purpose of this study was to assess heterosexuals' perceived risk of becoming infected with the Human Immunodeficiency Virus (HIV) which causes Acquired Immunodeficiency Syndrome (AIDS), and also to identify knowledge, attitude, or behavioral variables which might be associated with perceived risk. In this non-experimental, descriptive study, a written questionnaire was administered to a cross-sectional sample (N = 110) drawn from individuals frequenting bars, health clubs, and singles groups in Contra Costa County, California in 1989.

The mean perceived risk for contracting HIV was .827 (SEM = .087), (0 = no risk, 5 = high risk). Variables which emerged as most strongly associated with perceived risk were: IV drug use, number of sexual partners, fear of getting AIDS, and a relationship with someone at risk for HIV, someone infected with HIV, or someone with AIDS. Assessment of risk perception is fundamental in developing effective AIDS education programs which will motivate necessary behavior changes.



## ACKNOWLEDGEMENTS

I would like to take the opportunity to thank the individuals who contributed their time and expertise in assisting me to prepare this thesis.

Christopher L. Brown, Ph.D.  
Institute of Marine Biology  
University of Hawaii  
P.O. Box 1346 Coconut Island  
Kaneohe, Hawaii 96744

Sam Radelfinger, Ed.D., M.P.H.  
Department of Health Sciences, M.H. 514  
San Jose State University  
One Washington Square  
San Jose, California 95192-0052

Kathleen Roe, Dr.P.H., M.P.H.  
Department of Health Sciences, M.H. 517  
San Jose State University  
One Washington Square  
San Jose, California 95192-0052

Helen Ross, Chair  
Department of Health Sciences  
San Jose State University  
One Washington Square  
San Jose, California 95192-0052

## TABLE OF CONTENTS

	page
CHAPTER ONE	
Purpose . . . . .	1
Problem Statement . . . . .	1
Literature Review . . . . .	4
Research Questions . . . . .	27
Research Objectives . . . . .	28
Definition of Terms . . . . .	28
Assumptions . . . . .	29
CHAPTER TWO	
Methodology . . . . .	31
Results . . . . .	34
CHAPTER THREE	
Discussion . . . . .	44
Implications . . . . .	53
APPENDICES	
A. Letter of Approval from the Committee for the Protection of Human Subjects, Institutional Review Board, San Jose State University	
B. Survey Instrument	
C. Introductory Letter to Organizations	
D. Survey Instrument Cover Letter	
E. Tables	
F. Figures	
REFERENCES	

## CHAPTER ONE

### Purpose

The purpose of this study was to assess heterosexuals' perceived risk of becoming infected with the Human Immunodeficiency Virus (HIV) which is responsible for causing Acquired Immunodeficiency Syndrome (AIDS). A second purpose was to identify knowledge, attitude, or behavioral variables which might be associated with different levels of heterosexuals' perceived risk. Unless heterosexuals perceive themselves to be at risk for HIV infection, it is unlikely that they will initiate behavioral changes to reduce their risk of infection.

### Problem Statement

The number of cases of Acquired Immunodeficiency Syndrome continues to increase every day. Between the reporting of the first case in 1981 and August 1989, 105,990 cases of AIDS in the United States have been reported to the Centers for Disease Control (Centers for Disease Control, 1989). Early in the epidemic, certain groups of individuals at risk emerged. The groups at highest risk included homosexuals, bisexuals, intravenous (IV) drug users, hemophiliacs, and sexual partners of those at risk. The primary modes of HIV transmission were found to be sexual intercourse, sharing needles contaminated with blood, and

perinatal transmission.

Seven percent of cases diagnosed in 1986, not including those identified in the IV drug category, were found to be related to heterosexual transmission (Siegel & Gibson, 1988). According to estimates from current epidemiologic data, a large number of heterosexual infections have been associated with sexual contact with IV drug users and it is predicted that IV drug users will continue to infect large numbers of heterosexuals (Des Jarlais, Friedman & Stoneburner, 1988). In addition, heterosexuals are at increased risk for HIV infection when crossover or overlapping of sexual risk groups occur (ie. bisexuals, hemophiliacs, prostitutes).

The early, and erroneous, identification of AIDS as a gay men's disease led many heterosexuals to believe that "it could never happen to me!" This belief was reinforced by the virus' long incubation period and the public perception that heterosexuals have been minimally affected by the epidemic. However, with estimates of more than 1.5 million people in the United States already carrying the virus, it is certain that a greater number of heterosexuals will become infected with HIV in the next five to ten years (Morbidity and Mortality Weekly Report, 1987). Indeed, heterosexuals may be the next emerging group infected in this epidemic.

Since the early 1980's when the study of AIDS began and the risk for HIV became more evident, a crucial epidemiologic concept resurfaced: it is not the general characteristics of the risk group to which one may belong that place an individual at risk for HIV infection. Instead, it is a set of very specific behaviors, sometimes associated with a particular group of people, that put the individual at risk. This definition of the meaning of "risk group" led to the emphasis on behavior change in AIDS prevention programs. The education and prevention campaigns implemented in the gay community in San Francisco provide an abundance of information on behavior change. Similarly, health education programs for other high risk populations may provide useful information about prevention but, unless the members of the target population perceive themselves to be at risk for infection, they will not use the information to make the necessary behavior changes to reduce their risk of acquiring or transmitting HIV.

The idea that an individual needs to feel personally susceptible or personalize the risk for HIV infection before taking appropriate action to reduce susceptibility stems from the Health Belief Model (Rosenstock, 1974). If heterosexuals do not perceive themselves at risk for HIV infection they may not be making appropriate behavior changes to reduce their risk for HIV infection or

transmission. Heterosexuals need to be targeted to identify and evaluate both their behavioral risk and their perceived risk for HIV infection. A better understanding of their perceptions regarding AIDS and HIV infection is a necessary step in the development of an effective national public health program.

### Literature Review

#### The AIDS Epidemic

As of August 1989, there were 105,990 documented cases of Acquired Immunodeficiency Syndrome (AIDS) in the United States and 182,463 cases worldwide (Centers for Disease Control, 1989). Since 1981, 61,655 deaths have been attributed to AIDS in the United States. Based on projections made in 1988, there will be approximately 365,000 AIDS cases diagnosed in the United States by 1992 (Morbidity and Mortality Weekly Report, 1988a). The number of cases is anticipated to increase by about 10,000 cases per year. AIDS has been reported in more than 127 countries worldwide (Curran et al., 1988).

The total number of AIDS cases does not reflect the large number of individuals with HIV or HIV related conditions. AIDS, a communicable disease, is reportable to the Centers for Disease Control. In contrast, HIV infection is not classified as a disease and, therefore, is not

reported to the Centers for Disease Control. Estimates of the number of individuals carrying the virus are calculated by using the number of reported AIDS cases and data from seroprevalence studies. Seroprevalence refers to the presence of antibodies to HIV, detected through a blood test, and indicates that the person has been infected with the Human Immunodeficiency Virus (Francis & Chin, 1987). Seroprevalence studies are being done among risk groups and among other target groups to estimate the average HIV antibody prevalence in specific populations. It is estimated that at least 1.5 million persons in the United States are infected with HIV (Morbidity and Mortality Weekly Report, 1987).

The AIDS epidemic is now universally recognized as a major health threat and is the leading cause of premature mortality in some areas of the United States (Hearst & Hulley, 1988). The extraordinary social and economic implications of HIV related conditions have already become an unwelcomed reality.

Three modes of transmitting HIV have been well documented in the literature. Transmission may occur by infusion or inoculation of blood, by sexual contact, or perinatally (Hearst & Hulley, 1988). All three types of transmission can be prevented. Transmission via blood may be prevented by screening blood donors and testing blood for

HIV antibodies (Morbidity and Mortality Weekly Report, 1987). Educating intravenous drug users about how to avoid infection will also aid in preventing blood transmission of HIV (Francis & Chin, 1987). Condom usage has been widely recommended for the prevention of sexually transmitted HIV as well as other sexually transmitted diseases (Morbidity and Mortality Weekly Report, 1988b). Because there is a 30 - 50% chance of infected mothers transmitting HIV to their newborns (Morbidity and Mortality Weekly Report, 1987), it is recommended that HIV infected women abstain from pregnancy and any pregnant woman who might possibly be infected should be screened and counselled (Francis & Chin, 1987).

The first documented cases of AIDS were reported to the Centers for Disease Control in 1981 (Curran et al., 1988). From June of 1981 to September of 1982, the Centers for Disease Control reported 593 cases of AIDS; death occurred in 41% of these cases (Morbidity and Mortality Weekly Report, 1982). At that time the only cases of AIDS in the United States were found in gay, white males and AIDS was thought to be a disease only found among homosexuals (Lederman, 1986). Although homosexual and bisexual men remain the major group at risk (Morbidity and Mortality Weekly Report, 1987) and constitute approximately 70% of reported AIDS cases (Centers for Disease Control, 1988),



other groups have emerged. Major transmission categories include: homosexual, bisexual, heterosexual, IV drug use, hemophiliac, transfusion or use of blood product prior to 1985, and perinatal transmission by infected mothers (Morbidity and Mortality Weekly Report, 1988a).

Hemophiliacs and other transfusion recipients represent one and two percent of AIDS cases, respectively (Curran et al., 1988). Since 1985, blood has been screened for HIV, and blood concentrates used in hemophilia have been heat-treated to eradicate the virus. Incidence rates in hemophiliacs and transfusion recipients have been reduced tremendously (Morbidity and Mortality Weekly Report, 1987). There was a 64% increase in AIDS cases among children under 13 years of age between February, 1987 and February, 1988 (Curran et al., 1988). Of the 737 pediatric AIDS cases, 77% were attributed to perinatal transmission of which 70% were related to intravenous drug use in the mother or mother's partner. In August 1989, 21% of adult AIDS cases in the United States were reported in the intravenous drug use (female and heterosexual male) exposure category (Centers for Disease Control, 1989).

The frequency of AIDS cases in Blacks and Hispanics is disproportionately high compared to the United States population (Curran et al., 1988). Twenty five percent of adult AIDS cases are black and 56% of the pediatric AIDS

cases are black children. Hispanics account for 13% of adult and 20% of pediatric AIDS cases. These percentages reflect higher reported incidence rates of AIDS among black and Hispanic intravenous drug users, their sex partners, and infants (Curran et al., 1988).

The heterosexual transmission category represents four percent of the total number of AIDS cases (Centers for Disease Control, 1988). Three percent of AIDS cases are in the undetermined category (Centers for Disease Control, 1988) and most of these are likely to be heterosexually related (Siegel & Gibson, 1988). The heterosexual transmission classification can be estimated to represent about seven percent of total AIDS cases. The heterosexual transmission category is projected to increase to approximately 10% by 1991 (Siegel & Gibson, 1988).

#### Risk Factors and Behavior Change

Historically, documentation of AIDS cases has been categorical in terms of groups at risk. Over the course of the epidemic it has become evident that it is not the risk group that one belongs to that creates the susceptibility to HIV infection but the behaviors that an individual engages in or participates in that place the person at risk.

The experience with AIDS education and prevention programs in the gay community in San Francisco has provided a wealth of information on behavior change. Early in 1984,

one of the first steps taken in the gay community was to define the sexual behaviors that place an individual at high risk for HIV infection taking into consideration various influencing factors including racial, ethnic, and religious backgrounds (McKusick, Conant, & Coates, 1985a). Based on this information, homosexuals were then able to make specific recommendations to their community regarding behavior change and modification.

McKusick and coworkers (1985b) studying men at risk for AIDS in San Francisco surveyed 454 men in November 1983 and in May 1984 regarding their sexual practices the month prior to the survey. The 1983 survey also asked for information about sexual behavior during November 1982, one year prior to the survey. They found substantial changes in reported sexual behavior with someone other than a primary partner. The average number of male partners, other than the primary partner, decreased from 6.3 in November 1982 to 3.9 in May 1984 (McKusick et al., 1985b). Receptive anal intercourse without a condom declined from 1.9 in 1982 to 0.7 in 1984 based on the average number of times the respondent participated in the activity in the month before the survey with someone other than a primary partner. The same changes did not occur in sexual relations with a primary partner. Data from this study showed an overall reduction in frequency of sexual activity with someone other than a

primary partner but a shift from "unsafe" to "safer" sex acts did not appear to be a trend at that time.

Another study showed that between August 1984 and April 1985, the proportion of gay and bisexual men who reported monogamy, celibacy, or unsafe sexual practices only with their primary partner increased from 69% to 81% (Morbidity and Mortality Weekly Report, 1985). Results from these studies and others were used in the planning and implementation of programs designed to encourage gay men to avoid unsafe sexual practices. In San Francisco, homosexuals took the responsibility of making important behavioral changes in their community.

As concluded in another study by the McKusick group, "The responsibility for fostering behavioral change is shared with the heterosexual community" (McKusick et al., 1985a, p. 231). However, before heterosexuals will be ready to make behavioral changes they need to perceive themselves at risk for HIV infection and AIDS. The Morin Model (Puckett & Bye, 1987), a derivative of the Health Belief Model (Rosenstock, 1974) developed in an AIDS prevention program, identifies five factors associated with behavior change. There must be a belief that AIDS is a personal threat and that it does not just happen to other people. Secondly, there must be a belief that certain measures can be taken to reduce the risk of contracting the virus.

Personal efficacy is a third important factor which is characterized by individuals believing that they are capable of making change. Fourth, there must be a sense of satisfaction with the new behavior. Finally, there must be a belief that peer support will be available to establish and maintain the behavior change. The gay community in San Francisco has worked through all five phases of this model as demonstrated in the behavior change studies reviewed earlier. However, heterosexuals are just entering phase one of the model. The key question thus becomes: Do heterosexuals perceive themselves to be personally at risk for AIDS?

Heterosexuals' Perceptions of the  
AIDS Epidemic

The virus causing AIDS is spreading into the heterosexual population in the United States, although the magnitude of propagation is unclear at this time (Lederman, 1986). Epidemiological studies of AIDS in other countries (Lederman, 1986) and studies of male-to-female (Padian et al., 1987) and female-to-male (Redfield et al., 1985) transmission indicate that HIV can be bidirectionally spread via heterosexual contact. Sources of HIV entering the heterosexual population include: individuals becoming infected while traveling to other countries where heterosexual activity is the predominant mode of

transmission, prostitute contact, (Lederman, 1986), contact with intravenous drug users or their partners (Des Jarlais et al., 1988), and sexual interaction with bisexuals.

A study done in Scotland which pretested reactions to a leaflet on AIDS prior to mass distribution to the public found AIDS to be universally associated with homosexuals and intravenous drug abusers and not "ordinary" people (Hastings, Leather & Scott, 1987). The purpose of this study was to evaluate a leaflet which was produced to point out the implications of AIDS for everyone, not just homosexuals or intravenous drug users. The study found that reviewers of the leaflet had strong negative feelings about homosexuals and intravenous drug users and this negativity was transferred to AIDS. The reviewers felt that AIDS had no bearing on them. The study concluded that any kind of public information about AIDS must clearly and emphatically state the risk to "ordinary" heterosexuals in addition to other groups. Material developed for distribution to the public must be based on a clear understanding of consumer perceptions and the group or groups to be targeted.

Data gathered from the National Health Interview Survey (Dawson & Thornberry, 1988), designed to obtain information about AIDS knowledge and attitudes in the public adult population, indicate that 99% of the American adult population has heard of AIDS. Data collected up to December

of 1987 showed that only nine percent of adults thought that there was a high chance of someone they know getting infected with HIV. In a self-assessment of risk for getting HIV infection, 62% said there was no chance that they would acquire HIV, 29% said the chances were low, three percent said their chances were medium, and one percent stated that their risk of becoming infected with HIV was high. This study also pointed out that as of December of 1987, seven percent of the United States adults surveyed reported knowing someone infected with HIV, and seven percent said they have personally known someone with AIDS.

In addition to the above study, a few studies have been done to investigate perceptions, misperceptions, knowledge, attitudes, and beliefs about AIDS in adolescents. In a 1985 Ohio study of perceptions and misperceptions in high school students (Price, Desmond & Kukula, 1985) it was found that the students had very limited knowledge of AIDS. Males were more knowledgeable than females and the majority of the students were not personally worried about getting AIDS.

In contrast, a study by DiClemente and associates found the majority of adolescent students in their San Francisco study (78.7%) were afraid of getting AIDS (DiClemente, Zorn & Temoshok, 1986). The comparison of these two studies may indicate that proximity to an AIDS epicenter where there is a high concentration of information or awareness of the

disease may influence knowledge, attitudes, and beliefs. Between 80 and 90% of the students in the DiClemente study correctly identified modes of transmission; however, only 68% knew that casual contact does not spread HIV infection and 40% were unsure if condoms could lower the risk of HIV infection.

A third study of adolescents in Massachusetts in 1986 (Strunin & Hingson, 1987) found that 70% were sexually active, 15% of the 70% said they were changing their behavior because of AIDS, and only 20% of the 15% altering behavior reported using effective methods of protection. Although knowledge of AIDS in the Massachusetts study was greater than in the San Francisco study one year earlier, knowledge of transmission continued to be limited. Compared to the San Francisco study, a larger proportion, 54%, of students in the Massachusetts study claimed that they were not worried about contracting AIDS.

Findings from a San Francisco study of heterosexuals (Research and Decisions Corporation, 1986) suggested that the epidemic appears to have had little impact on reducing the incidence of risk behaviors, specifically unprotected vaginal sex and unsafe oral sex. The study also indicated that among the heterosexuals at highest risk for HIV infection because of sexual practices, the rate of intravenous substance use was even higher. Although the



data indicated that there was openness to change risk behavior, a lack of urgency to decrease risk was reported. This study also pointed out the confusion caused by the mixed messages which have been sent out to the general public about risk of HIV infection. Reactions of the general public to AIDS information may range from a sense of severe anxiety and concern to a sense of reassurance that AIDS is a disease of homosexuals and drug users but does not affect everyone participating in risk practices or "ordinary people" (Hastings, Leather & Scott, 1987).

Despite the radical increase in AIDS cases, there remains a public uncertainty about the degree of risk for the majority of Americans (Fineberg, 1988). Consequently, efforts have been made to raise awareness and knowledge about AIDS (Fineberg, 1988) including the informational brochure mailed to all United States households between May 26 and June 30, 1988 entitled "Understanding AIDS" (Morbidity and Mortality Weekly Report, 1988c).

The National Health Interview Survey conducted by the Centers for Disease Control is a continuous, cross-sectional household interview survey which aims to assess the general public's knowledge about transmission, prevention, and attitudes of HIV infection (Morbidity and Mortality Weekly Report, 1989). The survey was first conducted in 1987.

The second and most recent National Health Interview

Survey coincided with the AIDS education brochure mailed in May and June of 1988. Preliminary data comparing both the 1987 and the 1988 National Health Interview Survey show that the most substantial increase in knowledge was related to transmission of HIV. The most important gains in knowledge were the percentages of adults who considered it "very unlikely" or "definitely not possible" to transmit HIV through various forms of casual contact. For example, in August 1987, 35% of adults responded it was "very unlikely" that a person could become infected with the virus by working near someone with AIDS, and 18% said it was "impossible." In August 1988, these proportions increased to 40% and 27%, respectively.

### The Epidemiology of Heterosexual

#### HIV Transmission

Research in the last year has broadened the understanding of the patterns by which HIV is transmitted and the risk of heterosexual transmission. There are major geographical variations, both worldwide and within the United States, in the epidemiology of heterosexually acquired HIV. These differences are largely determined by the date the virus was introduced into a given community, by the pattern of sexual and needle sharing behavior, and by the population movements and its effect on sexual behavior

(Johnson & Laga, 1988).

HIV infection is primarily heterosexually acquired in sub-Saharan Africa, the Caribbean, and some parts of Latin America (Johnson & Laga, 1988). Approximately 80% of HIV infection in Africa can be attributed to heterosexual transmission. Evidence for bidirectional heterosexual transmission has now been well established based on biological and epidemiological data collected primarily in Africa (Johnson & Laga, 1988; Padian et al., 1987; Redfield et al., 1985). Studies show that the most significant risk factors for seropositivity (blood tested positive for HIV antibodies) in heterosexual individuals in Africa are: number of sex partners, sex with prostitutes, being a prostitute, being a sex partner of an infected individual, and having a history of other sexually transmitted diseases. Evidence from seroprevalence studies in Africa demonstrates that HIV can spread as rapidly among heterosexuals with multiple sex partners as among homosexuals with similarly high rates of partner exchange in the United States (Johnson & Laga, 1988).

By June of 1988, four percent of all AIDS cases in the United States were attributed to heterosexual transmission (Johnson & Laga, 1988). According to Siegel and Gibson (1988), this figure could be as high as seven percent. Sixty-nine percent of the United States born heterosexual

cases were infected by drug using partners and 13% were infected by bisexual men (Siegel & Gibson, 1988).

Currently, seroprevalence studies are being done to determine estimates of the average HIV antibody prevalence in selected populations (Morbidity and Mortality Weekly Report, 1987). Without these studies there is no way to determine rates of new infection. Seroprevalence studies are focusing on populations which include blood donors, clientele of sexually transmitted disease clinics, pregnant women, and prostitutes (Johnson & Laga, 1988).

Rates of seropositivity in heterosexuals vary depending upon the population and the study itself. Prevalence rates for the HIV antibody among intravenous drug users may be as high as 50 - 60% in major metropolitan areas such as New York City (Morbidity and Mortality Weekly Report, 1987). One study done in a sexually transmitted disease clinic which surveyed heterosexual men and women without a history of IV drug use or known sexual contact with an individual at increased risk indicated a prevalence rate ranging from 0 - 2.6% (Curran et al., 1988). Another study found the prevalence rate among heterosexuals at an HIV testing site in Minnesota to be less than one percent (Henry, et al., 1988). Siegel, Grodsky, and Herman (1986) report that HIV prevalence in the heterosexual population with no known risk factors is 0.045%. The risk from a single unprotected

exposure to an infected partner ranges from 0.01% (Fineberg, 1988) to less than one percent (Henry, et al., 1988).

An example of how populations interact and spread the virus from higher risk groups to lower risk groups has been observed in New York City. Once HIV has infected a local group of IV drug users, the IV drug users can become the principal source of heterosexual transmission within the area. In New York City in 1987, 87% of the cases of heterosexual transmission occurred from IV drug using individuals to their non-IV drug using sexual partners (Des Jarlais, 1988).

Most research and educational efforts have attempted to clearly and succinctly define their target populations. Given the nature of human behavior this is not as easy as it seems. Populations at risk, whether the risk be high or low, interact and overlap. This movement is a factor for risk in itself (De Gruttola & Mayer, 1988). Spread of the virus in currently low-risk populations will depend on the rate of sexual partner change and on the mixing between groups with high-risk and low-risk behavior patterns (Johnson & Laga, 1988).

There are a number of risk factors which must be considered in the heterosexual population. Information and knowledge may be factors in risk. Promiscuity, having more

than one sexual partner, and contact with persons in identified risk groups are risk factors for HIV infection in this population (De Grutolla & Mayer, 1988). Sexual contact with individuals at risk for or having a history of other sexually transmitted diseases, as well as participating in unprotected sexual intercourse, can put one at risk for HIV infection (Siegel, et al., 1986). Lack of circumcision and use of oral contraceptives have been associated with susceptibility to HIV infection (Johnson & Laga, 1988). Other risk factors include ignorance of the partner's history of risk behavior and the role which drugs and alcohol play in influencing risk behavior (Keeling, 1987).

#### Modifying Risk Behaviors

To date, little effort has been focused on risk perception, definition of risk behaviors and risk itself, or how to change behavior in the general population (Fineberg, 1988). Campaigns to educate intravenous drug users have been uncoordinated and controversial. Similarly, it has been very difficult to introduce an effective campaign addressing sexual transmission issues among heterosexuals.

Nelkin (1987) suggests that, first, information must be appropriately developed for target groups by identifying groups at risk and assessing each group for the range and variety of behavior including sexual and needle sharing behaviors. Second, the information must be distributed

through credible and trusted sources within the targeted community. Third, information is necessary but information alone is not sufficient. Social reinforcement within the community is necessary to maintain behavior change. It is also important to consider language, social dynamics, rituals, and practices of these diverse target groups.

Nelkin (1987) provides many relevant insights for AIDS prevention and the social sciences. She says that prevention of AIDS will rely on the ability to effect changes in behavior and life-style. Risk perceptions are shaped by social and cultural biases that make communication in health education more complicated. Although most studies of behavioral risk modification stress the extreme difficulty in modifying behavior, efforts to modify behavior to reduce risks are based on assumptions about the importance of education and media information.

Useful principles have emerged in past studies of risk behavior involving alcoholism, cigarette smoking, and harmful dietary habits (Nelkin, 1987). The media has been found to be a useful tool in communicating information to the public to change consumer behavior. Some of these changes were made in reducing consumption of fatty meats to decrease dietary cholesterol, and to heighten awareness concerning adverse effects of birth control pills and intrauterine devices. However, as Nelkin (1987) points out,

these examples of behavioral responses were all in areas where alternative choices were available and no major change in life-style was required.

In other cases, the media did not produce the desired influence on behavior (Nelkin, 1987). In the 1950's when the availability of the Salk polio vaccine was announced by the media, few people wanted the vaccine at that time. In 1964, the Surgeon General announced the link between cigarette smoking and cancer. This gained significant media attention; nevertheless, little change in smoking habits was noted at that time.

As pointed out by Siegel and Gibson (1988), many barriers exist to the modification of sexual behavior in heterosexuals. Heterosexuals will not alter behaviors that place them at risk if they do not perceive themselves to be at risk, vulnerable, or susceptible to HIV infection. One of the major barriers is the mixed messages that the media presents to the public on a daily basis. Should individuals maintain total abstinence from sex and drugs or is it acceptable to have sex or use drugs but to do it more safely than they have in the past (Keeling, 1987)?

People do seek information through the media but they use this information mainly when it coincides with reinforcement by social situations, beliefs, attitudes, support, or pressure from their reference groups



(Nelkin, 1987). Keeling (1987) comments that the essence of health education about HIV infection combines the building of awareness with the acceptance of risk in order to motivate changes in behavior. Preventing transmission depends on individual behavior choices concerning the most intimate, private, and vulnerable of human interactions (Keeling, 1987).

In studying college students, Keeling (1987) identifies several inhibitors of risk reduction as they are related to HIV transmission and similar issues of behavior change. Innocence, experience or lack of experience particularly regarding sex, drugs, or alcohol, and developmental issues can play roles in risk reduction behavior. Recreational drugs may influence judgement or alter decision making abilities. The inability to accept one's sexuality has been found to be a barrier in adequate contraception and Keeling (1987) points out that this could similarly be a barrier in taking appropriate measures to prevent the spread of HIV. Invincibility is another element inhibiting risk reduction. It promotes the denial of any personal risk from HIV infection. Resistance to using condoms is still another factor. When considering the use of condoms, the intimidation and threat of possibly losing the relationship around this issue may pose a greater risk than the potential risk of HIV transmission. Peer pressure, societal

influences, and self-esteem may also be inhibitors of risk reduction behaviors.

In a study looking at risk perception and knowledge at a college in Maryland in 1987 researchers found that although knowledge was high, there was little personalization of risk or behavior change as a result of this knowledge (Freimuth et al., 1987). Though students in this study accurately rated the relative risk of certain behaviors and overestimated the risk of other behaviors, they did not personalize the risk of AIDS. On a 6-point scale (one being no risk), greater than three-fourths of the students rated their own risk of being exposed to AIDS as a one or two (the lowest end of the scale). In estimating the probability that they had been exposed to AIDS, at least 80% estimated their chance to be either zero or 10%.

#### The Importance of Risk Perception

People tend to underestimate familiar risks and to overestimate unfamiliar risks (Douglas & Wildavsky, 1982). Surveys show that the public, in general, tends to overestimate the risk of AIDS. This continues to challenge public health officials in adjusting public perceptions to the rapidly changing scientific information about AIDS. Unless accurate and reliable information is available, people will tend to interpret information in highly selective ways (Nelkin, 1987) .

The perception of risk is a social and cultural process (Douglas & Wildavsky, 1982). There are social and cultural factors which elevate some risks and depress others. Various social principles direct behavior which affects the judgement or interpretation of what dangers should be most feared, what risks are worth taking, and who should be allowed to take them (Douglas & Wildavsky, 1982). Risks are encountered by individuals on a daily basis. Decisions and choices about whether or not these risks should be taken are a necessary part of life.

There is an important distinction between voluntary and involuntary risks (Douglas & Wildavsky, 1982). Voluntary risks are taken knowingly and they are familiar to the individual. Involuntary risks are imposed by society and may be hidden. People underestimate familiar risks, overestimate unfamiliar, involuntary, invisible, and potentially catastrophic risks (Nelkin, 1987). Cost-benefit analysis is an effort to compare risks by placing their costs and benefits on a common plane (Douglas & Wildavsky, 1982). Decisions are made to take the risk when the benefits out-weigh the costs. Time is a factor in making choices about risk. Costs or benefits which result immediately or in the future influence the acceptance or denial of the risk.

In the literature reviewed above, individual risk

perception has been the primary focus. Group or community risk perception is also a very important factor which must not be neglected in discussing risk and risk communication. Risk communication is a complex and interactive process involving the messenger, the message, and the receiver (Fessenden-Raden, et al., 1987). Individuals' reception of risk information is, in part, influenced by their perceptions of the responses of people around them. In addition to individual risk perception, groups or communities have their own perception of a given risk and this perception can vary from community to community. Strengths and weaknesses in the government and the group's level of trust in the government can influence the community's perception of risk. In the same way, trust in the information source about risk can sway the group's perceptions. Individual and group perceptions of risk may change over time. Fessenden-Raden, Fitchen, and Heath (1987) found that the initial shock of a health threat seemed to lose its urgency over time.

Assessing risk perception is imperative in designing AIDS education programs for heterosexuals. Unless heterosexuals perceive themselves, both individually and as a group, to be at risk for HIV infection, it is unlikely that they will change their sexual behavior to reduce their risk for HIV infection. Throughout the 1980's the non-IV

drug using heterosexual population has not been seriously considered a group at risk for HIV infection. In addition, the overall lack of concern and feeling of susceptibility for exposure to HIV continues to prevail in this group. However, the interaction and overlapping of higher and lower risk groups contributes to an increased risk for HIV exposure in heterosexuals. Recreational IV drug use, sexual activity with multiple sex partners, and sexual contact with homosexuals, bisexuals, and IV drug users knowingly or unknowingly are major factors which increase heterosexual risk for HIV infection. Heterosexuals need to be targeted to evaluate both their perceived risk and their behavioral risk for HIV infection. A better understanding of heterosexual perceptions regarding AIDS and HIV infection is a necessary next step in the development of AIDS education programs.

#### Research Questions

This study was designed to address the following questions:

1. To what extent do heterosexuals perceive themselves to be at risk for HIV infection?
2. What knowledge, attitude or behavioral variables are associated with heterosexuals' different levels of perceived risk for HIV infection?

### Research Objectives

This study was designed to meet the following objectives:

1. Collect data about risk perception for HIV among heterosexuals;
2. Assess the need for risk perception education among heterosexuals;
3. Generate data to utilize in the design of heterosexual AIDS education programs.

### Definition of Terms

#### Heterosexuals:

Individuals identifying themselves as heterosexual, attracted to the opposite sex, not identifying self as homosexual or bisexual. Indicated by the respondent's choice of sexual preference in question 5 on the questionnaire.

#### At risk:

The element of susceptibility. The term "at risk" was used in several questions on the questionnaire. Question 6 inquires about the extent to which the respondent feels "at risk" for becoming infected with HIV. Question 7 asks about activities which may place them "at risk" for contracting HIV. Questions 9 - 14 ask participants if they feel they

are "at risk" and the level of that risk if they participate in any of the range of activities listed. Question 24 asks if respondents know someone "at risk" for getting AIDS.

**HIV infection:**

The condition of having contracted the Human Immunodeficiency Virus which is referred to in question 6 on the questionnaire.

**Risk perception:**

The individual understanding of susceptibility or vulnerability. This is referred to in question 6. Risk perception is not exclusively individual, it is also influenced by peers, society, and culture.

**Safer sex practices:**

Sexual activities which do not involve the exchange of body fluids. Respondents are asked about safer or unsafe sexual practices in items 9 - 14 on the questionnaire.

**Assumptions**

This study was designed and implemented with the following assumptions:

1. Sites selected for sampling would be largely heterosexual, therefore enabling an adequate

sample of heterosexuals.

2. People who identify themselves as heterosexual really are, thus giving a valid sample.
3. The study group would, at a minimum, be familiar with the terms AIDS (Acquired Immunodeficiency Syndrome) and HIV (Human Immunodeficiency Virus).
4. The study group would have at least minimal knowledge of HIV transmission, specifically that sexual intercourse and sharing needles are factors in transmitting HIV.
5. The participants would be able to read and understand the questions on the survey.
6. The participants would provide honest responses to the questionnaire.



## CHAPTER TWO

## Methodology and Results

This study was designed to address the following questions:

1. To what extent do heterosexuals perceive themselves to be at risk for HIV infection?
2. What knowledge, attitude or behavioral variables are associated with heterosexuals' different levels of perceived risk for HIV infection?

This study was designed to meet the following objectives:

1. Collect data about risk perception for HIV among heterosexuals;
2. Assess the need for risk perception education among heterosexuals;
3. Generate data to utilize in the design of heterosexual AIDS education programs.

MethodologySubjects

A cross-sectional sample was drawn from individuals frequenting bars, health clubs, and various singles groups and singles church groups in Contra Costa County, California. Bars, health clubs, and other groups socially

identified as "homosexual" were excluded to ensure that the majority of participants in the study were heterosexual. The aim of the study was to collect data from at least 100 consenting heterosexual adults. Sources for the sample were identified by using the local telephone book, word of mouth, and singles publications.

It was assumed that bars, health clubs, and singles groups would provide a sample of sexually active, primarily heterosexual, single adults. This population was targeted because, with the exception of prostitutes, it may have a high proportion of individuals engaging in high risk behaviors. Contra Costa County provided a useful geographic and cultural base for the study. A heavily populated suburban county approximately twenty miles across the bay from San Francisco, it was assumed that residents would be well aware of the AIDS epidemic. However, it was also assumed that due to the relatively small number of AIDS cases in the county, a total of 323 from February 1982 through June 1989 (Contra Costa County Department of Health, 1989), and the more conservative family oriented ambience, study subjects might resemble a larger population of middle to upper middle class American heterosexual adults.

The specific bars, health clubs, singles groups, and singles church groups were selected on the basis of the club or group's willingness to participate in the study and the

accessibility of that particular club or group to the researcher. Randomization in the selection of clubs or subjects was neither practical nor necessary. The primary sampling objective was to achieve comparable numbers of men and women. Approval from the San Jose State University Human Subjects Institutional Review Board was obtained prior to beginning data collection (Appendix A).

### Methods

This non-experimental, descriptive study used a written questionnaire to assess the perceived risk and self-reported behavioral risk of HIV infection among a sample of heterosexual adults (Appendix B). A letter introducing the study was sent to the manager of each potential bar, health club, or singles group (Appendix C). In a few cases, when the address was not available, a telephone call was made to the manager of the organization prior to sending the introductory letter. A follow-up telephone call was made to the manager approximately one week after sending out the letter of introduction to confirm participation in the study. When necessary, a meeting was arranged with the manager of the organization to describe the study in more detail and then confirm participation. After the logistics were worked out, the questionnaire was distributed to the organizations' clientele.

Data was collected during March, April, and May of

1989. Questionnaires and pens were placed on a counter or at the registration desk for potential participants. A cover letter was attached to each questionnaire describing the study and stressing that participation in the study was anonymous and voluntary (Appendix D). The respondents were provided a response box or similar method for returning questionnaires that insured that there was no connection between them as individuals and their responses on the survey. Follow-up procedures, such as providing information on results of the study, were worked out with each individual organization.

Data from the questionnaires was analyzed using CRISP statistical software (CRUNCH Software, Oakland, CA). For data entry purposes, the response for each nominal item was assigned a number. Ordinal and interval items were entered as indicated in the questionnaire. Responses to open-ended questions were categorized by the researcher and then treated as nominal responses. Blank answers were omitted from all calculations. Responses were analyzed for frequency, distribution, and, when appropriate, correlation between variables.

### Results

A total of twenty-six organizations were contacted by telephone and/or by mail. Seventeen of the organizations

were health clubs, six were bars, and three were singles groups. Seven (41%) of the health clubs agreed to participate in the survey, 10 decided not to participate. Only one bar (17%) agreed to participate in the survey, while the other five declined. Two singles groups (67%) participated and the third decided not to. A total of approximately 200 questionnaires were distributed. In the 10 participating organizations, 110 respondents completed questionnaires.

#### Sample

The average age of participants in the survey was 30.8 years. The youngest was 15 years old, the oldest was 60 years old, and the median age was 42.5 years. More females than males participated. 58% of the respondents were female ( $n = 64$ ) and 42% were male ( $n = 46$ ). One hundred nine of the participants reported that they were heterosexual. One respondent reported to be bisexual. Race and ethnicity were not relevant for the study; therefore, they were not included in the questionnaire. Table 1 displays a summary of the responses to all questionnaire items. Questions 7, 15, and 25 were open-ended questions and will be addressed later in this analysis.

#### Knowledge, Risk, Partners, IV Drug Experience

On a scale from zero to five (0 = no information, 5 = well informed), the mean response when rating "knowledge

of AIDS" in question 4 (Q4) was 3.845 (SEM = .094). When asked the extent to which they felt "at risk for becoming infected" with HIV (Q6), on a scale from zero to five (0 = no risk, 5 = high risk) the mean response was .827 (SEM = .087). In describing "sexual relationships" over the past year (Q8), six percent said they had no sexual partners, 61% said they were monogamous, and 32% had multiple (more than one) partners. Two respondents did not answer this question.

The mean response of participants reporting IV drug experience (Q17) (coded as yes = 1, no = 2) was 1.945 (SEM = .022). In other words, 94.5% (n = 104) of the respondents said that they had not used IV drugs and 5.5% (n = 6) of the respondents said that they had used IV drugs. Of those participants who reported IV drug experience, the mean response to sharing needles (Q18) (coded as yes = 1, no = 2) was 1.943 (SEM = .032) favoring a "no" response. All three of the six participants with IV drug experience who responded to the frequency of IV drug use (Q19) (coded as daily = 1, weekends = 2, occasionally = 3) answered "occasionally" (M = 3.000, SEM = .000).

#### Risk of Particular Behaviors

Questions 9 - 14 asked the respondents to indicate the extent to which they feel they are "at risk for getting the AIDS virus" if they participate in the indicated behaviors (0 = no risk, 5 = high risk). All of the participants

answered question 9; the mean risk reported for getting the AIDS virus (HIV) by "casual contact" was .127 (SEM = .047). In question 10, risk from "deep kissing," the mean response was .915 (SEM = .118) for 106 respondents. All but one person answered question 11 where the mean risk from participating in "intercourse without a condom" was 3.908 (SEM = .161). There was a mean of 1.952 (SEM = .145) in risk for participating in "intercourse with a condom" (Q12), (n = 105). The mean calculated for risk from participating in "oral sex" (no barrier), (Q13) was 3.238 (SEM = .170) for the 105 who answered the question. In question 14, "having unprotected sex with exchange of body fluids with someone that may be infected with the AIDS virus," the mean score of the 107 respondents was 4.626 (SEM = .102).

Risk Behaviors (Q7) and Behavioral Changes to Reduce Risk (Q15)

There was a mixture of responses to questions 7 and 15 and not everyone responded to these questions. A summary of responses to both can be found on Tables 2 and 3. In question 7, "if you feel that you may be at risk, what kinds of activities do you participate in that may place you at risk for contracting the AIDS virus," 47% (n = 52) gave at least one response to this question, 43% (n = 47) did not respond at all, and 10% (n = 11) indicated that the question was not applicable ("n/a"). The three most frequently

mentioned activities which respondents engage in that place them at risk were: 1) unprotected sex or not using a condom ( $\underline{n} = 10$ ), 2) not knowing the sex history of a partner ( $\underline{n} = 9$ ), and 3) sex ( $\underline{n} = 8$ ). Nine of the respondents answered "none," indicating that they do not feel that they participate in activities which place them at risk for HIV.

To question 15, changes made to reduce risk of getting the AIDS virus, 83% ( $\underline{n} = 91$ ) responded, 14% ( $\underline{n} = 15$ ) did not respond at all, and three percent ( $\underline{n} = 4$ ) indicated "n/a." Thirty-three percent ( $\underline{n} = 30$ ) of those who responded answered "none" indicating that no behavior change was made. Monogamy ( $\underline{n} = 24$ ) and at least some use of safe sex or condoms ( $\underline{n} = 21$ ) were the most frequently mentioned responses. These responses are displayed in Table 3.

#### Attitudes about AIDS

When respondents were asked if they think "AIDS is a serious health problem" (Q20) the mean score was 4.727 ( $\underline{SEM} = .073$ ) on a scale from zero to five (0 = not at all, 5 = very serious). Ninety-three percent of the participants responded to the question "Who gets AIDS?" (Q25), (Table 4). Of the respondents answering this question, 40% said that anyone can get AIDS. Other categories of frequent responses included: those who engage in IV drug use or needle sharing, homosexuals, those who have unprotected sex, transfusion recipients, and people who have unprotected sex



with an HIV infected person.

#### Experience with HIV/AIDS

At least 93% of the participants answered questions 22, 23, and 24 regarding experience with AIDS (Table 1 and 5). Each of these questions had only two possible answers (coded as yes = 1, no = 2). The mean response to knowing "someone with AIDS" (Q22) was 1.718 (SEM = .043) indicating that most respondents do not know someone with AIDS. In question 23, knowing "someone infected with the AIDS virus (HIV positive)," the mean response was 1.757 (SEM = .042) indicating that most respondents do not believe that they know anyone who is HIV positive. The mean response for knowing "someone at risk of getting AIDS" (Q24) was 1.350 (SEM = .047).

#### Perceived Risk

Question 21 asked if the respondent is "afraid of getting AIDS." Fifty-one of the 110 participants said that they are afraid of getting AIDS, 52 answered "no," and seven were undecided. The last item on the questionnaire asked participants to indicate what they felt their chance was of getting AIDS (Q26). All but two people answered this question. The answer selections were: no chance (1), small chance (2), moderate chance (3), and high chance (4). The mean response to this question was 1.833 (SEM = .058) indicating that most of these individuals feel that they

have "no chance" to a "small" chance of getting AIDS. While roughly half of the respondents (46%) reported being "afraid of getting AIDS," the overwhelming majority felt very little risk of getting the disease.

#### Correlations with Perceived Risk (Q6)

After reviewing the preliminary results, presented in Table 1, it was decided to concentrate on potential correlations with the variable in question 6, perceived risk of HIV infection, since this question represented the key concept of the study. The correlation statistic used was Pearson's Correlation Coefficient. Correlations of the variables in questions 1,2,4,5,8,12,13,16,17,21,22,23,24, and 26 with perceived risk (Q6) may be found in Table 6. Tables 7 through 11 display the range of response categories for selected questions from that list and their respective mean values on question 6, perceived HIV risk. These tables suggest potential relationships between particular responses and a trend toward higher or lower perceived risk. The strength, direction, and the level of statistical significance of the original correlation are indicated at the bottom of each table.

There was not a statistically significant correlation between age (Q1) and perception of risk (Q6) for HIV infection ( $r = -.2312$ ,  $p = .0683$ ). As shown in Figure 1, there was, however, a trend indicating a possible

relationship to age. The younger participants seemed to respond that they were slightly more at risk. No correlation was found between gender (Q2) and perceived risk (Q6). Males and females showed no notable differences in levels of perceived risk (Table 7). The mean answer for question 6 was slightly higher among female participants (.844) than among male participants (.804).

There were several respondents in each selection category for question 8 which dealt with number of sexual partners in the past year (Table 8). The highly significant correlation ( $r = .3660$ ,  $p = .0032$ ) of question 8 and question 6 indicates that the survey group sensed a positive relationship between the number of sex partners one has and the degree to which they perceive themselves to be at risk for HIV infection. Table 8 shows that perceived risk was higher in respondents with multiple sexual partners. In Figure 2, perceived risk is shown as a function of number of sexual partners. The trend is obvious: having more partners is related to greater perceived risk.

Another mixture of responses was found in changing habits (Q16), (Table 9, Figure 3), although only 76 (69%) participants answered this question. No statistical correlation was found between changing habits (Q16) and perceived risk (Q6), ( $r = .0359$ ,  $p = .7799$ ). The highest perceived risk was in the response category for "frequently"

changing behavior to reduce risk. The mean answer on question 6 in this category was 1.417 which is almost a twofold difference relative to the "always" (.771) and "never" (.850) categories. Those who did not answer this question had the lowest perceived risk ( $\bar{M} = .588$ ).

The relationship between experience with IV drugs and risk perception is displayed in Table 10 and Figure 4. Individuals who answered "yes" to IV drug use (Q17) responded that they felt that they were more at risk for HIV infection. There was a highly significant correlation between perceived risk (Q6) and IV drug use (Q17), ( $r = - .3900$ ,  $p = .0016$ ). Respondents who said that they used IV drugs have close to three times the index of perceived risk ( $\bar{M} = 2.167$ ) compared to those who answered "no" ( $\bar{M} = .750$ ) to IV drug experience.

There were significant correlations ( $p < .05$ ) between perceived risk (Q6) and questions 22, 23, and 24 relating to experience with AIDS. Table 11 clearly indicates that perceived risk was almost twice as high in individuals who "know someone with AIDS" ( $\bar{M} = 1.161$ ), "know someone infected (HIV positive)" ( $\bar{M} = 1.231$ ), or "know someone at risk of getting AIDS" ( $\bar{M} = 1.015$ ) compared to those who do not have personal experience with AIDS. These three questions related to personalization of AIDS or HIV. Thirty-one (28%) of the respondents knew someone with AIDS and 26 (24%) knew

someone infected with HIV. Sixty-seven (65%) answered that they knew someone at risk for getting AIDS.

Based on the information provided in Tables 7 through 11, Table 12 shows higher and lower risk perception subgroups. The subgroups were composed by reviewing the distribution of high and low means of the core variables in relation to question 6, perceived risk. The groups which had a higher perception of their risk for HIV infection were those with IV drug experience, those who frequently made changes to reduce their risk for HIV, those individuals who said that they had multiple sexual partners, and individuals who know someone infected with HIV or know someone with AIDS. The subgroups in which a lower perceived risk was observed were those who claimed that they had no sexual partners in the past year and respondents who said that they did not know someone at risk for getting the AIDS virus (HIV).

## CHAPTER THREE

### Discussion and Implications

#### Discussion

Overall, the results of this study suggested that in the Contra Costa County sample, heterosexuals had a low perception of risk for becoming infected with HIV. Although they felt that they were knowledgeable about AIDS, only half of the participants felt vulnerable or afraid of contracting the virus. Clearly, those individuals who know someone infected with HIV or know someone with AIDS had a higher perceived risk for contracting HIV. However, overall the risk perception in this sample group remained low.

This profile supports similar findings in other studies of comparable groups. For example, Freimuth and her colleagues (1987) found that even though AIDS knowledge was high there was little personalization of risk as a result of this knowledge. The National Health Interview Survey of the general population in the United States also showed a low perception of risk for HIV infection (Dawson & Thornberry, 1988). The study of heterosexuals in San Francisco by the Research and Decisions Corporation (1986) found that although there was some awareness of risk for HIV, there was lack of urgency to change behavior.

The sampling strategy for this study was to administer

the survey in organizations where there were large numbers of heterosingles because, among heterosexuals, they were more likely to be engaging in higher risk behaviors. Surprisingly, given the stereotypes of singles groups and health clubs, there were more monogamous respondents than multiple partner respondents, 60% vs. 32%, respectively. If more than one bar had agreed to participate, the sample might have reflected a larger number of heterosexual single adults who more frequently engage in higher risk activity.

The core of the analysis was the testing of the relationship between key study variables and question 6, the extent to which the respondent felt "at risk for becoming infected" with HIV. Rather than correlating each questionnaire response to all of the other responses, this approach best fit the study's stated objectives.

The younger participants seemed to be responding that they were at slightly more risk for HIV (Figure 1). The younger participants may not have been married or in monogamous relationships which could create a greater sense of risk if they have more than one sexual partner. This is a disease of the 1980's which has had its greatest impact on individuals between the ages of 20 and 40; consequently, it was not surprising to see a trend towards higher risk perception in young adults.

Males and females showed no significant differences in

levels of perceived risk (Table 7). Female risk perception ( $\bar{M} = .844$ ) was only slightly higher than that of males ( $\bar{M} = .804$ ). The lack of a sex-dependent association was probably due to the primarily non IV drug using, heterosexual profile of this group. If the sample had been randomly selected with a mix of sexual orientations, a gender difference in the mean perceived risk may have been observed. For instance, given the epidemic's impact on gay men, if homosexual men had been included in this survey a greater male than female risk perception would have been expected.

There is apparently no simple relationship between degree of behavior change and risk perception as illustrated in Table 9, Figure 3. Question 16 asked about frequency of behavior change to reduce risk (in the past year) and when correlated with question 6 regarding perceived risk the findings were quite interesting. Only 76 participants answered question 16. The highest perceived risk was found in those who said that they had "frequently" or "sometimes" changed their behavior in the past year. The lowest risk perception was in those respondents who "never" or "always" made behavior changes or those who did not answer this question. Perhaps respondents who did not answer this question were also in the "monogamous" or "no partner" categories and felt no need to modify their behavior.



Similarly those who responded that they "never" made changes may have also been in a very low or no risk situation. Respondents who said that they "always" changed their behavior may have felt safer since they have reduced their risk and, as a result, have a lower risk perception for HIV. Those respondents who answered as "frequently" or "sometimes" making behavior changes remain the most vulnerable because they have been inconsistent in modifying their behavior. Overall, it seems that the risk perception in these two response categories was lower than what might have been expected if respondents have continued to engage in risk activities even some of the time.

Respondents with IV drug experience had the highest perception of risk for HIV compared to other subgroups within the surveyed population. It was surprising that there were six (5.5%) respondents who had experience with IV drugs. Given the suburban, primarily middle class, white collar location of the survey, it was very unexpected to have more than a couple, if any, respondents with IV drug experience. Several explanations are possible: IV drug use may be more common in the general population, recreational (weekend) IV drug use may be more common in the general population, or someone who uses IV drugs is not necessarily someone found in a drug den in a large city, they may be your neighbor in suburbia. The point here is that risk

behavior for HIV is no longer "out there" or happening to "someone else." It is in nice neighborhoods and it can be found among family, friends and "ordinary" people.

It is interesting to note the differences in the mean level of perceived risk (0 = no risk; 5 = high risk)

associated with "intercourse without a condom" (Q11),

~~( $\bar{M}$  = 3.908,  $SEM$  = .161) and "unprotected sex with someone"~~

who may be HIV positive (Q14), ( $\bar{M}$  = 4.626,  $SEM$  = .102).

Based on what is known about transmission of HIV, both of these activities might be considered unsafe and it would seem that individuals might have indicated a more equivalent level of risk. Respondents may have answered this question based on their own personal situations (ie. monogamy, HIV negative status of a partner, etc.) which may reflect the difference in the mean responses. Having "intercourse without a condom" with someone and having "unprotected sex" with someone are essentially the same activity. However, it is interesting to note that adding "infected with the AIDS virus" to the second item raises the mean level of risk.

The correlations presented in Table 6 show the importance of various factors as they contributed to perceived risk. As expected, the strongest correlation ( $r$  = .6337,  $p$  = .0001) was seen between Questions 6 and 26, perceived HIV risk and chance of getting AIDS. Based on the strength of correlations found in Table 6, certain variables

emerged as most strongly associated with perception of risk: IV drug use, number of partners, fear of getting AIDS, and relationship with someone at risk for HIV, someone infected with HIV, or someone with AIDS were factors which contributed to the heightened sense of risk.

The strongest correlation ( $r = .6337$ ,  $p = .0001$ ) was seen between perceived risk of HIV (Q6) and chance of getting AIDS (Q26), suggesting that the respondents felt that the risk of becoming infected with HIV is basically the same as that of getting AIDS. This conclusion was underscored by the strong similarity of answers to questions 22 and 23, suggesting that most people equate having AIDS with being HIV positive. Although studies have shown that knowledge and awareness of HIV seem to be increasing, there is still an existing confusion about the meaning of HIV as it relates to AIDS. The virus (HIV) attacks the T-cells of the immune system which in turn suppresses the immune system causing the disease, AIDS (Francis & Chin, 1987). The fact that someone could be harboring the virus and potentially transmitting it to others without the appearance of being "sick" is not always apparent to individuals practicing higher risk behaviors.

Those individuals who know someone with AIDS or someone who is HIV positive indicated a higher risk perception (Table 5). It is doubtful that they perceived their risk to

be higher because of casual contact; the mean response for the entire survey group on risk associated with casual contact (Q9) was .127 (SEM = .047), (0 = no risk, 5 = high risk). A plausible explanation for this higher perceived risk among those who know someone exposed to the virus is personalization. Knowing someone with HIV or AIDS may cause individuals to reevaluate their own risk. HIV does have an impact on the lives of "ordinary" people.

A question inquiring about the respondents' own HIV antibody status would have been useful. For instance, if someone had been practicing higher risk behavior but tested negative, their risk perception for HIV might have been lower if they have since changed their behavior to reduce their risk.

It is interesting to note the resistance encountered when various organizations were contacted regarding participation in this study. In declining to participate in the study some of the comments by the organizations were as follows: "not interested," "too busy, let the other health clubs do it," "we're mostly family oriented - not at risk," "I don't like that kind of stuff in my health club," "I agree with what you are doing, but I just can't put something like that out for my members right now," "No!, absolutely not," "No!, too personal for my clientele," and "no, doesn't apply to this group" (singles group).

These comments suggest that many people and organizations continue to feel that AIDS is someone else's problem and that someone else will take the responsibility for it. It is difficult to collect information about risk and initiate risk reduction programs when these barriers continue to surface. In contrast, the organizations that did agree to participate were not overly enthusiastic but at least they were willing to allow their clients to participate in the survey. Despite claims of increasing knowledge and awareness about AIDS in our society today there continues to be a certain stigma associated with this disease and an overwhelming reluctance to get involved.

It would be presumptuous to generalize the findings of heterosexuals in the sample to the broader heterosexual population in the United States because of the lack of randomization or stratification in the sampling method. In addition, AIDS knowledge and awareness is probably greater in this area, given the close proximity to San Francisco, and may not be comparable to that in other parts of the country. Since data was collected on-site at organizations without supervision, it is impossible to know what percentage of members in the organization participated. Thus, it is not known how representative the sample is of the organization, much less the larger population. Information was not collected regarding those who did not

participate and why they chose not to be involved.

Nevertheless, it can not be ignored that certain characteristics of this sample of heterosexuals resemble the broader heterosexual population of the United States.

Contra Costa, a primarily conservative, white, middle class, suburban county of San Francisco where the incidence of AIDS is much lower than that of San Francisco, does parallel many other communities across the country.

Another limitation of this study is the phenomenon of self-selection in survey participants. Self-selection into the study may have influenced the representativeness of the sample, thus limiting generalizability. Some people like taking surveys and will take the time to complete the questionnaire and other people would rather not be bothered. Varying salience or revulsion towards taking an AIDS survey most likely influenced participation in the survey. In addition, the personal nature of the questions may have dissuaded potential participants.

Although, there was not a 100% response rate for each of the survey questions, at least 94% of the respondents answered 20 of the questions. Two of the questions pertained only to individuals with IV drug experience. Question 16 regarding behavior change had a lower response rate of 69%. It directly related to answers in the open-ended question above it and 91 respondents answered that

question. There were a total of three open-ended questions where the response rate ranged from 47% to 94%.

While the limitations mentioned above are minor weaknesses in this study, they do need to be pointed out. Randomization would have been the ideal, but there also is a certain relevance to looking at a sample population such as this one. The problems with self-selection are not unique to this survey. Overall, both recruitment and response rate were very good.

#### Implications

Acquired Immunodeficiency Syndrome is a major threat to the health of our society. Each individual needs to be able to recognize his or her individual risk for becoming infected with HIV. It is clear that sexual intercourse and sharing of contaminated needles are primary modes of HIV transmission. Heterosexuals participate in both of these activities but because they are in a group which currently shows a low infection rate they may not perceive themselves in danger of encountering HIV.

The ambiguity of information presented to the general public contributes to heterosexuals' vulnerability by giving a false sense of security that they are not in a high risk group. Educating heterosexuals about AIDS and preventing the transmission of HIV will be ineffective until their risk perception has been fully explored.

Without a sense of susceptibility, it is likely that information provided on prevention will not be utilized. This study explored how heterosexuals perceive themselves to be at risk for HIV infection. It has provided insight into risk perception, misinformation, and barriers to changing perception. Without this kind of information, education and prevention efforts will be ineffective and we can expect a significant propagation of HIV into the heterosexual population.

The low perception of risk for HIV infection found in this small sample of heterosexuals may be a good indicator of how other primarily heterosexual, mainstream Americans perceive their risk for HIV. As pointed out earlier, a thorough understanding of how individuals and groups perceive themselves to be at risk and the necessary identification of risk activities are fundamental to motivating behavior change. Research exploring risk perception is germane to the initial planning of AIDS education and prevention programs for heterosexuals, as well as everyone else.

#### Implications for Research

This study could be strengthened by using a larger, randomly selected sample of heterosexuals. Targeting heterosexual singles frequenting bars or nightclubs where there might be cofactors, such as drugs and alcohol, would



provide a more accurate indication of perception in higher risk heterosexuals. In addition to survey questions related to the use of IV drugs and the sharing of needles, a section of questions identifying sexual practices would be useful.

The identification of risky sexual practices among heterosexuals has not been taken seriously. Entire studies could focus on this area alone. If the homosexual community had not so meticulously identified their sexual practices prior to beginning major AIDS education campaigns they would not have been able to make appropriate risk reduction recommendations (McKusick, et al., 1985a). We can not be so naive as to think that heterosexuals do not engage in some, most, if not all, of the higher risk sexual practices which have been identified within the gay community (ie. anal intercourse, manual rectal penetration, sexual activities involving trauma creating ports of entry for semen or blood, etc.). Coupled with the assessment of risk perception, the identification of sexual risk practices in heterosexuals is necessary before we can adequately address risk reduction guidelines for heterosexuals.

Further spread of HIV in currently low-risk populations will depend on the rate of sexual partner exchange and the crossover between high and low risk groups. Thus, in addition to the suggestions for behavioral research mentioned above, seroprevalence studies need to be

continued, as well as the collection of quantitative information on rates of partner exchange and prevalence of high risk behavior in heterosexuals.

In this small sample of low-risk heterosexuals in a suburban community, 5.5% of the respondents had IV drug experience and there was one bisexual respondent out of 110. These findings raise the question of how prevalent is the use of IV drugs and the sharing of needles in the so called lower risk heterosexual population? And what about bisexuality? The literature has very little information on the prevalence of bisexual activity. How much longer can heterosexuals, as a group and as individuals, continue to deny that these and other risk activities do occur in their arena? How much longer can heterosexuals wait before they assume responsibility for their behavior in this epidemic? If health educators continue to reiterate that heterosexuals are at low risk for HIV infection does the meaning of "low risk" then translate to "no risk"? Further research is needed to explore and document these more private aspects of human interactions.

#### Implications for Practice

Assessing risk perception in groups and individuals is essential in planning AIDS education programs. As pointed out in this study, heterosexuals, particularly single heterosexuals, are vulnerable to miscalculating their risk

for HIV. Bars, health clubs, and singles groups are ideal settings for implementing AIDS education programs for heterosingles. Before educators can reach singles in these settings, AIDS awareness needs to be increased among leaders of these organizations which will in turn adjust their perception of the AIDS epidemic. Once this perception gap has been narrowed, AIDS education and prevention programs can be directed towards singles who may be practicing risk behaviors. AIDS education could be part of the entertainment in bars and night clubs. In health clubs and singles groups, AIDS education could be offered in conjunction with other health related seminars. Marketing risk reduction is an important function of AIDS education and prevention programs.

The goal of AIDS education programs is to prevent the spread of HIV infection which is significantly dependent upon individual behavior choices concerning the most intimate, personal, and vulnerable of human interactions (Keeling, 1987). AIDS education and prevention is extremely difficult because of the diversity in the behavior and the groups involved.

The Morin Model (Puckett & Bye, 1987) was successfully used in the gay community in San Francisco to guide educators in motivating behavior change. If employed in the heterosexual community it could be equally applicable. The

model has five steps which progress chronologically as follows: a realistic perception of one's own risk, a belief that certain risk reduction measures can be taken, a belief that change is possible, a sense of satisfaction with the new behavior, and a belief that peer support will be available to establish and maintain the behavior change.

Once the level of perceived risk for HIV has been established and risk behaviors have been identified, health educators can begin to develop and implement AIDS education programs in the heterosexual community. Risk reduction guidelines need to be presented as attractive methods of preventing exposure to HIV and the acceptance of these guidelines will need to be continually reinforced in a positive way. The process of changing behaviors and norms in individuals and society requires time and peer support to maintain the behavior change. The significance of this epidemic must be realized, as well as the urgency to motivate behavior change.

APPENDIX A

Letter of Approval from the Committee for the  
Protection of Human Subjects,  
Institutional Review Board,  
San Jose State University



---

## SAN JOSE STATE UNIVERSITY FOUNDATION

March 22, 1989

Ms. Suzanne Heininger  
2387 Lisa Lane, #18  
Pleasant Hill, Ca 94523

Dear Ms. Heininger:

Your human subjects protocol number #7431 has received final approval from the Human Subjects Institutional Review Board. Attached is a copy of the final approval form with the signatures of the Chairman of the Human Subjects Institutional Review Board, Dr. Robert Hyde, and the Associate Academic Vice President for Graduate Studies and Research, Dr. Serena Stanford.

The Human Subjects Institutional Review Board must be notified in writing of any proposed changes to this approved protocol, and approval must be granted in writing before any change is instituted.

If you have any questions, please contact Dr. Robert Hyde at (408) 924-4882 or myself at (408) 924-1438.

Congratulations and good luck with your research!

Sincerely,

A handwritten signature in cursive script that reads "Jerelyn Cockriel".

Jerelyn Cockriel  
Contracts and Grants Coordinator

Attachment

SAN JOSE STATE UNIVERSITY  
GRADUATE STUDIES AND RESEARCH FOUNDATION

HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD  
PROJECT PROPOSAL REVIEW

I, the undersigned member of the San Jose State University Human Subjects Institutional Review Board, have reviewed the following proposal submitted to the Committee on 1/12/89 by:

PRINCIPAL INVESTIGATOR: Suzanne Weininger  
PROTOCOL #: 7431 DEPT.: Health Science  
PROJECT TITLE: AN ASSESSMENT OF PERCEIVED RISK OF HETEROSEXUALS FOR HIV INFECTION

I recommend the following action (indicate one):

- 1. Approved for clearance as involving minimal risk to Human Subjects.
- 2. Approved for clearance with risk to Human Subjects.
- 3. Approved for clearance when the following conditions are met:

\_\_\_\_\_

4. Not Approved (return to principal investigator for following reasons):

5. Expedited Review (specify condition[s] that merit expedited review):

Ruth Monon Ph.D. 24 Jan 1989  
Signature of IRB-HS member Date

OFFICIAL SIGNING FOR INSTITUTION

[Signature] 1/31/89  
Chair, Human Subjects Institutional Review Board Date

Serena Stanford, Ph.D. 3/6/89  
AAVP for Graduate Studies & Research. Date

NOT APPROVED  
by Stanford  
2/1/89

SEE NOTE ON REVERSE SIDE

Approved

Serena Stanford

Protection for subjects in relation on collection techniques is inadequate. Great care must be taken to protect personal privacy. Questions are very sensitive and should be answered ANONYMOUSLY.

San Jose State University Foundation  
One Washington Square  
San Jose, CA 95128-0130 (408) 924-1435

Cover letter explaining purpose of study and explaining voluntary participation is all that is needed. Consent form should be used because it represents the only link between the participant and the privacy.

APPENDIX B

Survey Instrument



## Questionnaire

Please answer all questions as accurately as possible. All responses will be kept completely anonymous and confidential.

- 1) Age\_\_\_\_\_ 2) Sex: \_\_\_\_\_Male \_\_\_\_\_Female
- 3) Have you heard of AIDS (Acquired Immunodeficiency Syndrome)? \_\_\_\_\_yes \_\_\_\_\_no
- 4) How would you rate your knowledge of AIDS? (circle one)  
 no information 0 1 2 3 4 5 well informed
- 5) Would you consider yourself to be: (check only one)  
 Heterosexual (attracted to opposite sex) \_\_\_\_\_  
 Homosexual (attracted to same sex) \_\_\_\_\_  
 Bisexual (attracted to both sexes) \_\_\_\_\_
- 6) To what extent do you feel you are at risk for becoming infected with the virus which causes AIDS (Human Immunodeficiency Virus)?  
 no risk 0 1 2 3 4 5 high risk
- 7) If you feel that you may be at risk, what kinds of activities do you participate in that may place you at risk for contracting the AIDS virus?  
 \_\_\_\_\_  
 \_\_\_\_\_
- 8) Which of the following describes your sexual relationships most accurately over the past year to the present?  
 \_\_\_\_\_ no sexual partners in the past year  
 \_\_\_\_\_ monogamous relationship (only one sex partner)  
 \_\_\_\_\_ sexual relationships with more than one partner



- 23) Do you know someone infected with the AIDS virus?  
(HIV positive)     yes     no
- 24) Do you know someone at risk of getting AIDS?  
 yes     no
- 25) Who gets AIDS? \_\_\_\_\_  
\_\_\_\_\_
- 26) What do you feel your chance is of getting AIDS?  
 no chance  
 small  
 moderate  
 high

Thank you for your time and participation!

Please return your completed questionnaire to the response box or envelope provided.

APPENDIX C

Introductory Letter to Organizations

FROM: Suzanne Heininger  
2387 Lisa Lane #18  
Pleasant Hill, CA  
94523

TO:

Dear

As a graduate student at San Jose State University, I am planning to conduct a study in the early spring of 1989 in Contra County bars, health clubs, and singles groups to assess the extent to which individuals representing a healthy, normal heterosexual population perceive themselves to be at risk for becoming infected with the AIDS virus (Human Immunodeficiency Virus or HIV). Individuals using your facility (bars, health clubs, etc.) are of prime interest for the purposes of this study. I would be asking your clients/patrons for approximately ten minutes of their time to complete an anonymous questionnaire which will provide the necessary data for the study. The results of this study will provide baseline information which will be useful in planning more effective ways of educating people about AIDS. Each person will have the opportunity of declining participation and all information will be kept confidential.

I would appreciate the opportunity to discuss this study with you in further detail and work out the logistics of distributing the questionnaire. If you have questions concerning the study, please feel free to call me at (415) 682-6461. I plan to contact you by telephone in approximately one week to determine your interest in participating in this study.

Sincerely,

Suzanne Heininger, R.N., B.S.N.  
M.P.H. candidate  
San Jose State University

APPENDIX D

Survey Instrument Cover Letter

---

The purpose of this questionnaire is to collect data for a study being conducted by a graduate student at San Jose State University. The questionnaire has been distributed at various health clubs, bars, and singles groups in Contra Costa County to assess the extent to which individuals representing a healthy, normal heterosexual population perceive themselves to be at risk for becoming infected with the AIDS virus (Human Immunodeficiency Virus or HIV). Individuals such as yourself are of prime interest for the purposes of this study.

The questionnaire will take approximately ten minutes of your time. Because of the sensitive nature of the questions, you may refuse to participate in this study at any time. Your participation in this study is entirely voluntary and answers to the questions are anonymous.

Thank you.

Suzanne Heining, R.N., B.S.N.  
Graduate Student  
Health Sciences  
San Jose State University

APPENDIX E

Tables



Table 1: Descriptive Summary of All Questionnaire Items

<u>Question #</u>	<u>n</u>	<u>Mean</u>	<u>SEM</u>	<u>Min</u>	<u>Max</u>
1	107	30.804	.939	15	60
2	110	1.582	.047	1	2
3	110	1.009	.009	1	2
4	110	3.845	.094	1	5
5	110	1.018	.018	1	3
6	110	.827	.087	0	5
7	110	n/a			
8	108	2.259	.055	1	3
9	110	.127	.047	0	4
10	106	.915	.118	0	5
11	109	3.908	.161	0	5
12	105	1.952	.145	0	5
13	105	3.238	.170	0	5
14	107	4.626	.102	0	5
15	110	n/a			
16	76	2.184	.146	1	4
17	110	1.945	.022	1	2
18	53	1.943	.032	1	2
19	3	3.000	.000	3	3
20	110	4.727	.073	1	5
21	110	1.618	.058	1	3
22	110	1.718	.043	1	2
23	107	1.757	.042	1	2
24	103	1.350	.047	1	2
25	110	n/a			
26	108	1.833	.058	0	4

Note. For each question, the number of answers (n), the mean response (M), the standard error of the mean (SEM), and the range are given (Min = lowest score, Max = highest score).

Table 2. Responses to Open-Ended Question 7

If you feel that you may be at risk, what kinds of activities do you participate in that may place you at risk for contracting the AIDS virus?

<u>response related to:</u>	<u># times response indicated per 110</u>
unprotected sex, no condom used	10
"none"	9
unknown sex history of partner	9
sex	8
married	3
multiple partners	3
singleness	2
had transfusion	1
gave blood	1
exposed to patient at risk	1
IV drug use	1
policemen	1
experience with prostitutes	1
blank responses	47
"n/a" responses	11

Table 3. Responses to Open-Ended Question 15

What changes have you made to reduce your  
risk of getting the AIDS virus?

<u>response related to:</u>	<u># times response indicated per 110</u>
"none"	30
monogamy	24
at least some use of safe sex, condoms	21
decrease # partners	6
caution/carefulness	5
married	5
no casual sex, no sleeping around	4
know partner	3
take precautions as a health care worker/policeman	2
had AIDS test	1
stay pure	1
selecting young, seemingly innocent ladies	1
not going all the way	1
blank responses	15
"n/a" responses	4

Table 4. Responses to Open-Ended Question 25

Who gets AIDS?	
<u>response related to:</u>	<u># times response indicated per 110</u>
anyone	41
IVDU/needle sharing	36
homosexuals	29
those who have unprotected sex or share body fluids	24
blood product/transfusion recipients	
current	10
past	1
those who practice unprotected intercourse or have contact w/ HIV + person	7
babies of HIV + mothers	5
prostitutes	4
those having multiple partners	4
promiscuous persons	4
those who have sex without condoms	3
certain groups	3
stupid people	3
careless people	3
unlucky people	2
medical personnel	2
heterosexuals	2
bisexuals	2
heterosexuals who have been w/bisexuals	1
anyone infected with the virus	1
more men than women	1
anyone not informed	1
don't know	1
blank responses	7

Table 5. Experience with AIDS

		<u>M</u>	<u>SEM</u>
Q22	know someone with AIDS	1.718	.043
Q23	know someone HIV +	1.757	.042
Q24	know someone at risk for HIV	1.350	.047

Note.

Possible answers were yes (1) and no (2).

Table 6. Perception of Risk for HIV Infection (Q6)

correlations with	<u>r value</u>	<u>p value</u>	<u>comment</u>	<u>rank</u>
Q1	-.2312	.0683	T	9
Q2	.0906	.4799	N	11
Q4	.0730	.5695	N	13
Q5	.4819	.0001	**	2
Q8	.3660	.0032	**	4
Q12	.1269	.3216	N	11
Q13	.1508	.2382	N	10
Q16	.0359	.7799	N	14
Q17	-.3900	.0016	**	3
Q21	-.3591	.0039	**	5
Q22	-.2625	.0377	*	8
Q23	-.2898	.0212	*	7
Q24	-.3365	.0070	*	6
Q26	.6337	.0001	**	1

Note.

- 1) Table is based on correlations of answers to selected questions with answers to question 6 (perception of risk for HIV infection) using Pearson Correlation Coefficient.
- 2) r value indicates the strength and direction of the correlation; p value indicates the level of statistical significance.
- 3) Comment Interpretation

T indicates a case in which the p value is not quite low enough for statistical significance, but in which a trend favoring some relationship is suggested.

N indicates no correlation whatsoever is substantiated statistically.

A single asterisk (\*) indicates significance at the  $p < .05$  level.

A double asterisk (\*\*) indicates significance at the  $p < .005$  level, or a highly significant correlation.
- 4) Rank indicates relative strength of correlation.

Table 7. Relationship of Gender of Respondents (Q2) and Perceived HIV Risk (Q6)

<u>Gender (Q2)</u>	<u>Mean Risk (Q6)</u>	<u>n</u>
male	.804	46
female	.844	64

( $\bar{r}$  = .0906,  $p$  = .4799)

Note. Possible responses to Q6 (perceived risk):  
0 = no risk through 5 = high risk.

Table 8. Relationship of Number of Partners (Q8) to Perceived HIV Risk (Q6)

<u>Number of Partners (Q8)</u>	<u>Mean Risk (Q6)</u>	<u>n</u>
no partners	.286	7
monogamous	.606	66
multiple partners	1.371	35

( $\bar{r}$  = .3660,  $p$  = .0032)

Note. Possible responses to Q6 (perceived risk):  
0 = no risk through 5 = high risk.

Table 9. Relationship of Changing Habits (Q16) to Perceived HIV Risk (Q6)

<u>Changing Habits (Q16)</u>	<u>Mean Risk (Q6)</u>	<u>n</u>
always	.771	35
frequently	1.417	12
sometimes	1.111	9
never	.850	20
(blank)	.588	34

( $r = .0359$ ,  $p = .7799$ )

Note. Possible responses to Q6 (perceived risk):  
0 = no risk through 5 = high risk.

Table 10. Relationship of IV Drug Use (Q17) and Perceived HIV Risk (Q6)

<u>IV Drug Use (Q17)</u>	<u>Mean Risk (Q6)</u>	<u>n</u>
yes	2.167	6
no	.750	104

( $r = -.3900$ ,  $p = .0016$ )

Note. Possible responses to Q6 (perceived risk):  
0 = no risk through 5 = high risk.



Table 11. Relationship of Experience with AIDS (Q22, 23, 24) and Perceived Risk (Q6)

<u>Experience w/AIDS</u>	<u>Mean Risk (Q6)</u>	<u>n</u>
<u>Q22</u>		
know someone w/ AIDS	1.161	31
don't know	.696	79
$(r = -.2625, p = .0377)$		
<u>Q23</u>		
know someone HIV +	1.231	26
don't know	.704	81
$(r = -.2898, p = .0212)$		
<u>Q24</u>		
know someone at risk	1.015	67
don't know	.528	36
$(r = -.3365, p = .0070)$		

Note. Possible responses to Q6 (perceived risk):  
0 = no risk through 5 = high risk.

Table 12. High and Low Risk-Perception Subgroups

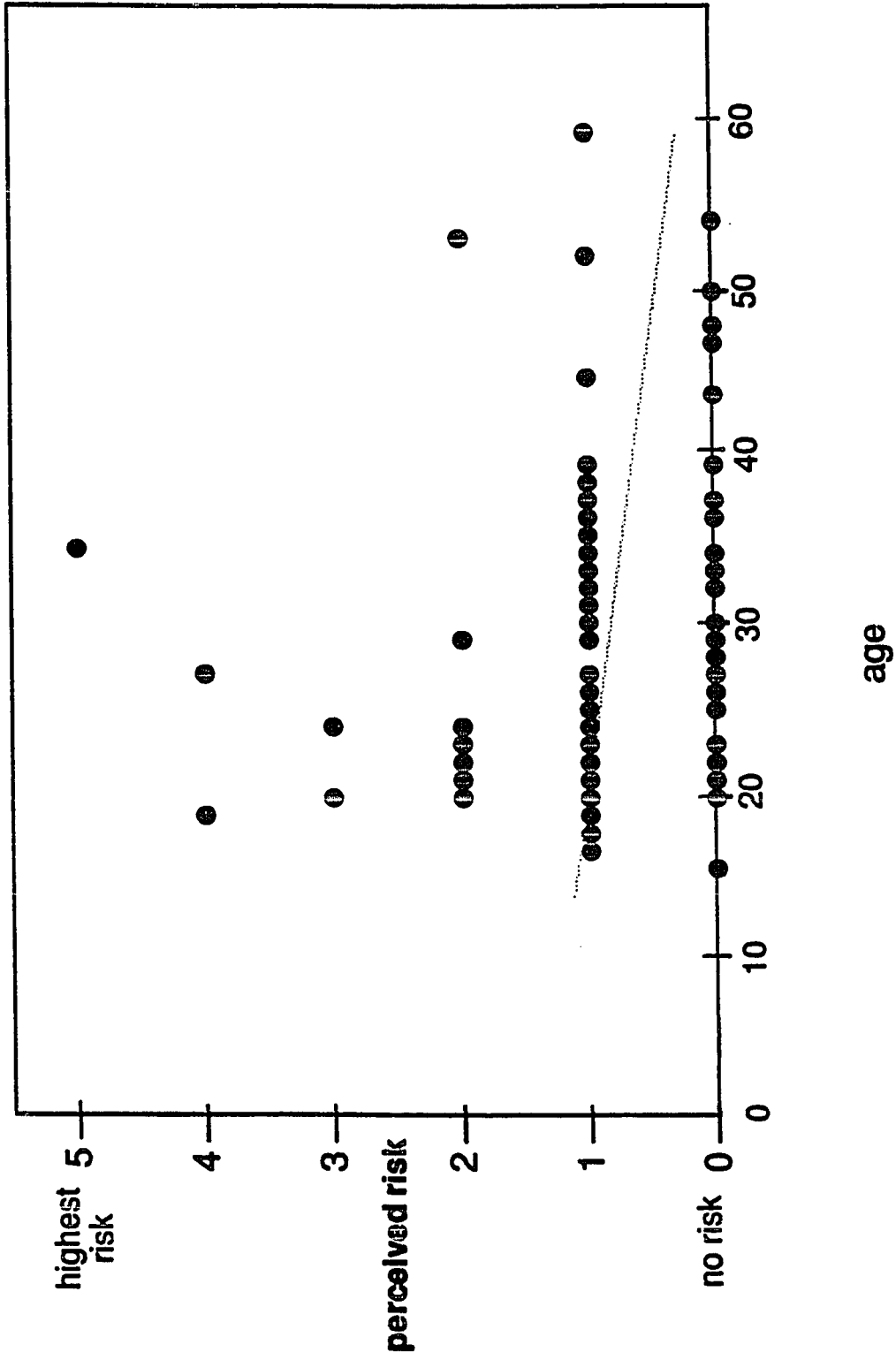
<u>Highest Risk Perception</u>	<u>Mean Risk (Q6)</u>
current or past IV drug use (Q17)	2.167
frequent behavior changes to reduce risk (Q16)	1.417
multiple sex partners (Q8)	1.371
know someone HIV + (Q23)	1.231
know someone with AIDS (Q22)	1.161
<u>Lowest Risk Perception</u>	<u>Mean Risk (Q6)</u>
no sex partners (Q8)	.286
knows no one at risk for AIDS (Q24)	.528

Note. Mean perceived risk (Q6) for entire survey group was .827 (SEM = .087). Range of possible responses went from 0 = no risk to 5 = high risk.

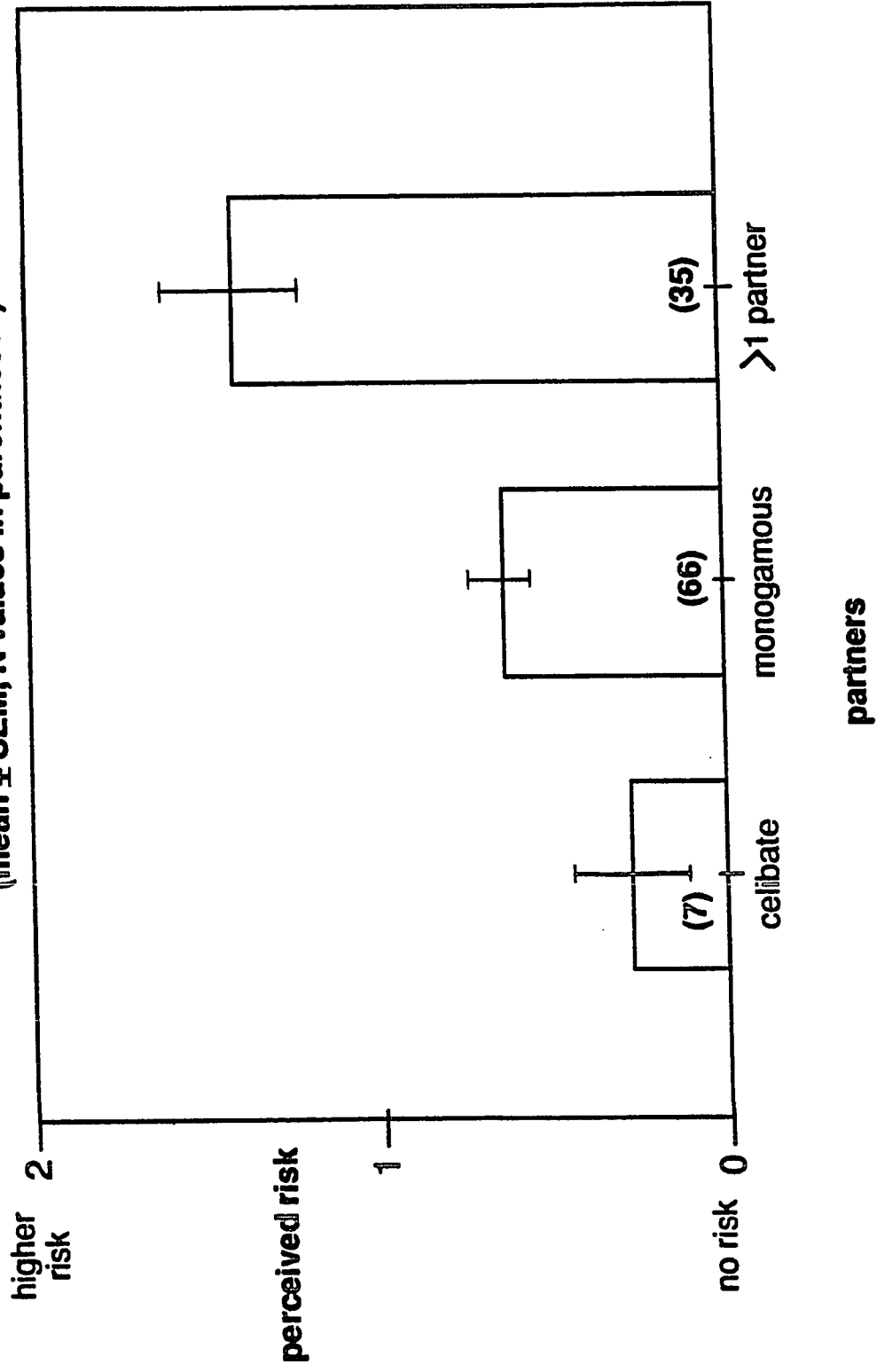
APPENDIX F

Figures

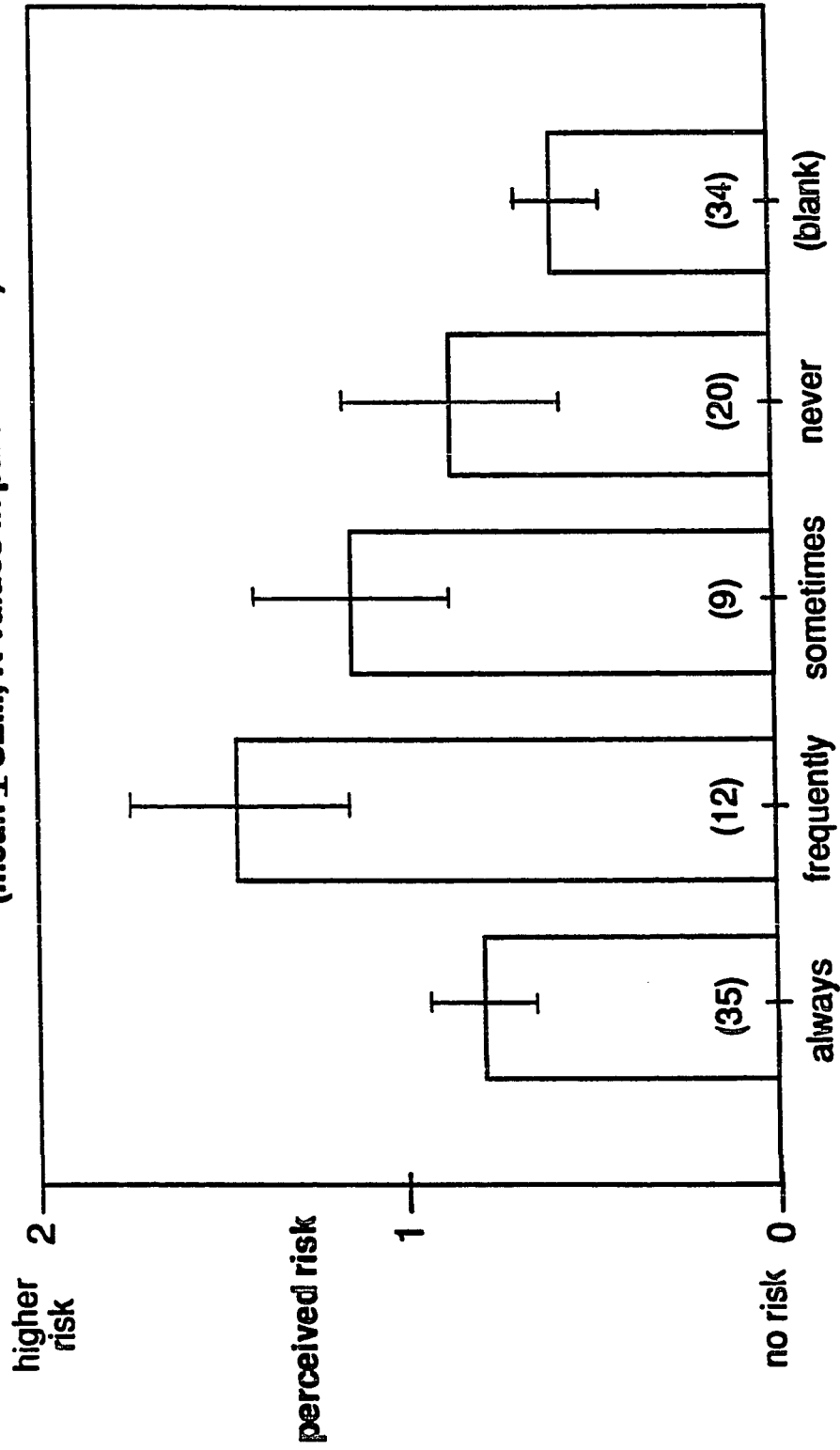
**Figure 1: Scatterplot of age vs. perception of risk**



**Figure 2: Relationship of # of partners to perceived risk**  
(mean  $\pm$  SEM, N values in parentheses)

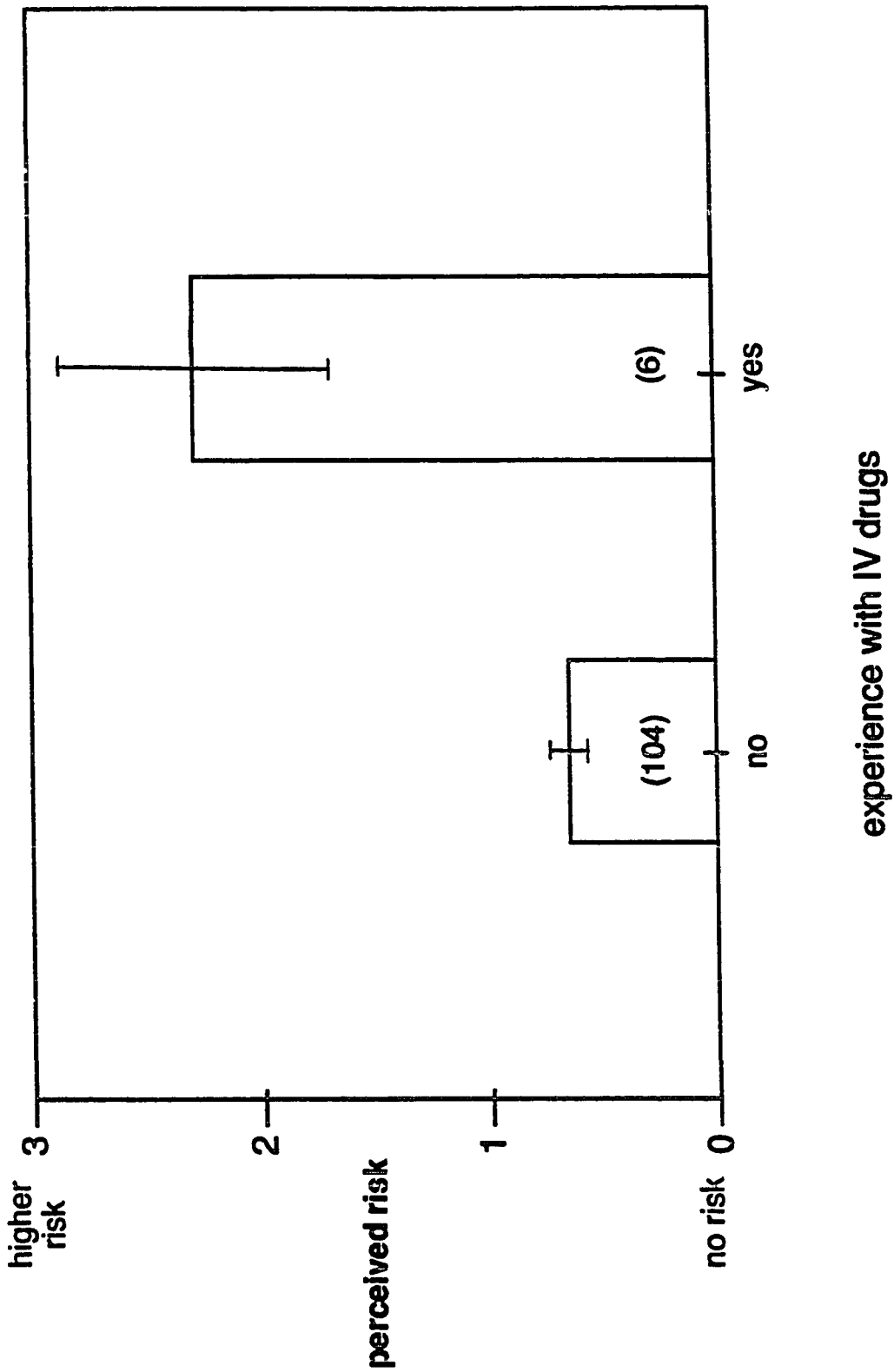


**Figure 3: Relationship of changed behavior to perception of risk  
(mean  $\pm$  SEM, N values in parentheses)**



how frequently behavior has been changed

**Figure 4: Relationship of IV drug experience to perception of risk**  
(mean  $\pm$  SEM, N values in parentheses)



## References

- Centers for Disease Control. (1988). AIDS Weekly Surveillance Report. September 26.
- Centers for Disease Control. (1989). HIV/AIDS Surveillance Report. September, 1-16.
- Contra Costa County Department of Health. (1989). Quarterly Report of HIV/AIDS Statistics. April-June, (5804).
- Curran, C.W., Jaffe, H.W., Hardy, A.M., Morgan, W.M., Selik, R.M., & Dondero, T.J. (1988). Epidemiology of HIV Infection and AIDS in the United States. Science, 239, 610-616.
- Dawson, D.A., & Thornberry, O.T. (1988). AIDS Knowledge and Attitudes for December 1987: Provisional Data from the National Health Interview Survey. National Center for Health Statistics Advancedata, (153), 1-11.
- De Gruttola, V., & Mayer, K.H. (1988). Assessing and Modeling Heterosexual Spread of the Human Immunodeficiency Virus in the United States. Reviews of Infectious Diseases, 10, (1), 138-150.
- Des Jarlais, D.C., Friedman, S.R., & Stoneburner, R.L. (1988). Reviews of Infectious Diseases, 10, (1), 151-158.
- Diclemente, R.J., Zorn, J. & Temoshok, L. (1986). Adolescents and AIDS: A Survey of Knowledge, Attitudes and Beliefs about AIDS in San Francisco. American Journal of Public Health, 76, (12), 1443-1445.
- Douglas, M. & Wildavsky, A. (1982). Risk and Culture. Berkeley: University of California Press.
- Fessenden-Raden, J., Fitchen, J.M., & Heath, J.S. (1987). Providing Risk Information in Communities: Factors Influencing What is Heard and Accepted. Science, Technology and Human Values, 12, (issues 3 & 4), 94-101.
- Fineberg, H.V. (1988). Education to Prevent AIDS: Prospects and Obstacles. Science, 239, 592-596.
- Francis, D.P., & Chin, J. (1987). The Prevention of Acquired Immunodeficiency Syndrome in the United States. JAMA, 257, (10), 1357-1366.



- Freimuth, V.S., Edgar, T., & Hammond, S.L. (1987). College Students' Awareness and Interpretation of the AIDS Risk. Science, Technology, and Human Values, 12, (issues 3 & 4), 37-40.
- Hastings, G.B., Leather, D.S., & Scott, A.C. (1987). AIDS publicity: some experiences from Scotland. British Medical Journal, 294, 48-49.
- Hearst, N., & Hulley, S.B. (1988). Preventing the Heterosexual Spread of AIDS. JAMA, 259, (16), 2428-2429.
- Henry, K., Carman, M., Campbell, S., & Willenbring, K. (1988). The Prevalence of Human Immunodeficiency Virus (HIV) Infection and Self-Perception of Risk for HIV Infection Among Heterosexuals at a Minnesota Counseling and Testing Site. Minnesota Medicine, 71, 265-270.
- Johnson, A.M., & Laga, M. (1988). Heterosexual Transmission of HIV. AIDS, 2, (suppl. 1), S49-S56.
- Keeling, R.P. (1987). Risk Communication about AIDS in Higher Education. Science, Technology and Human Values, 12, (issues 3 & 4), 26-36.
- Lederman, M.M. (1986). Transmission of the Acquired Immunodeficiency Syndrome Through Heterosexual Activity. Annals of Internal Medicine, 104, (1), 115-116.
- McKusick, L., Conant, M., & Coates, T.J. (1985a). The AIDS Epidemic: A Model for Developing Intervention Strategies for Reducing High-risk Behavior in Gay Men. Sexually Transmitted Diseases, 12, (4), 229-234.
- McKusick, L., Wiley, J.A., Coates, T.J., Stall, R., Saika, G., Morin, S., Charles, K., Horstman, W., & Conant, M.A. (1985b). Reported Changes in the Sexual Behavior of Men at Risk for AIDS, San Francisco, 1982-84 - the AIDS Behavioral Research Project. Public Health Reports, 100, (6), 622-628.
- Morbidity and Mortality Weekly Report. (1988a). AIDS and Human Immunodeficiency Virus Infection in the United States, 1988 Update. 38, (s-4), 1-38.
- Morbidity and Mortality Weekly Report. (1988b). Condoms for Prevention of Sexually Transmitted Diseases. 37, (9), 133-137.

- Morbidity and Mortality Weekly Report. (1989). HIV Epidemic and AIDS: Trends in Knowledge - United States, 1987 and 1988. 38, (20), 353-358.
- Morbidity and Mortality Weekly Report. (1987). Human Immunodeficiency Virus Infection in the United States: A Review of Current Knowledge. 36, (S-6), 1-20.
- Morbidity and Mortality Weekly Report. (1985). Self-Reported Behavioral Change Among Gay and Bisexual Men - San Francisco. 34, 613-615.
- Morbidity and Mortality Weekly Report. (1988c). Understanding AIDS: An Information Brochure Being Mailed to all U.S. Households. 37, (17), 261-269.
- Morbidity and Mortality Weekly Report. (1982). Update on Acquired Immune Deficiency Syndrome (AIDS) - United States. 24, (31), 507-14.
- Nelkin, D. (1987). AIDS and the Social Sciences: Review of Useful Knowledge and Research Needs. Reviews of Infectious Diseases. 9, (5), 980-986.
- Padian, N., Marquis, L., Francis, D.P., Anderson, R.E., Rutherford, G.W., O'Malley, P.M., & Winkelstein, W. (1987). Male-to-Female Transmission of Human Immunodeficiency Virus. JAMA, 258, (6), 788-790.
- Price, J.H., Desmond, S., & Kukula, G. (1985). High School Students' Perceptions and Misperceptions of AIDS. Journal of School Health, 55, (3), 107-109.
- Puckett, S.B. & Bye, L.L. (1987). The Stop AIDS Project: An Interpersonal AIDS-Prevention Program. The Stop AIDS Project, Inc., San Francisco, California.
- Redfield, R.R., Markham, P.D., Salahuddin, S.Z., Wright, D.C., Sarngadharan, M.G., & Gallo, R.C. (1985). Heterosexually Acquired HTLV-III/LAV Disease (AIDS Related Complex and AIDS): Epidemiologic Evidence for Female-to-Male Transmission. JAMA, 254, (15), 2094-2096.
- Research and Decisions Corporation. (1986). Designing an Effective AIDS Risk Reduction Program for San Francisco: Results from the First Probability Sample of Multiple/High-Risk Partner Heterosexual Adults. San Francisco.

Rosenstock, I.M. (1974). Historical Origins of the Health Belief Model. Health Education Monographs, 2, (4), 329-386.

Siegel, K. & Gibson, W. (1988). Barriers to the Modification of Sexual Behavior among Heterosexuals at Risk for Acquired Immunodeficiency Syndrome. New York State Journal of Medicine, 88, (2), 66-70.

Strunin, L. & Hingson, R. (1987). Acquired Immunodeficiency Syndrome and Adolescents: Knowledge, Beliefs, Attitudes, and Behaviors. Pediatrics, 79, (5), 825-828.