

EVALUATION OF AN HIV PREVENTION INTERVENTION:
THE EFFECT OF INTERNALIZED HOMOPHOBIA ON OUTCOMES

by

BRYCE DAVID SMITH

(Under the Direction of Kevin L. DeWeaver)

ABSTRACT

The spread of HIV and AIDS has become one of the most significant public health threats in the United States, particularly for men who have sex with men (MSM). As of December, 2004, The Centers for Disease Control and Prevention (CDC) estimated that MSM account for 48.4% of all deaths due to AIDS in the U.S. In 2003, the CDC estimated that 63% of all new cases of HIV were among MSM. Despite these statistics there is a dearth of proven state-of-the-art interventions designed to prevent HIV infections for MSM.

This study evaluated an HIV prevention intervention designed for MSM. It was hypothesized that the participants in the intervention would have the following outcomes: Decreased unprotected anal intercourse, fewer anal sex partners, increased comfort with communication about wearing condoms, increased comfort in putting condoms on self and others, increased HIV prevention knowledge, and increased acquisition of HIV testing. Based on Minority Stress Theory, it was further hypothesized that internalized homophobia would negatively effect the outcomes of the intervention.

The intervention is a group level workshop focused on issues of relationships, communication, dating, internalized homophobia, self-esteem, and HIV/STD prevention

information. It is unique in that it is highly interactive and focuses on sex in a positive and non-shaming way while exploring methods to decrease HIV risk behaviors. The intervention is highly correlated with the Sexual Health Model.

The intervention was evaluated using a quasi-experimental non-equivalent no-treatment comparison group design. Analyses of covariance indicated a significant decrease in unprotected anal intercourse and a significant increase HIV prevention knowledge in the treatment group (n=73) relative to the comparison group (n=46). A further finding of practical, yet not statistical, significance was that 44.4% of HIV-negative men in the treatment group acquired HIV tests in the 30 days after the workshop, compared to 15.4% of the comparison group. Internalized homophobia was not found to effect intervention outcomes.

Recommendations for refinements of the intervention and future evaluation and research are discussed.

INDEX WORDS: HIV prevention, Internalized homophobia, Men who have sex with men, Evaluation research, Sexual Health Model, Minority Stress Theory

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BRYCE DAVID SMITH

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BRYCE DAVID SMITH

Major Professor: Kevin L. DeWeaver

Committee: Nancy Kropf
Ed Risler
Miriam Sabin

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
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DEDICATION

This achievement would not have been possible without the help of many family members, friends, and colleagues.

Above all others, my wife Amy deserves this degree as much as I do. I could not have even approached completing this process without her unflagging support, assistance, edits, and love. I dedicate this work to her, and our amazing children, Coleman and Audrey. Dad is all done with his book now!

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CHAPTER I

Introduction

Statement of the Problem

Since the first cases of AIDS were identified in June of 1981, the spread of HIV and AIDS has become one of the most significant public health threats in the United States. The epidemic has impacted certain sub-groups of the American population much worse than others. Particularly hard hit has been a group that has already suffered significant social challenges in this country: Men who have sex with men (MSM). Unfortunately, despite governmental calls for the use of effective HIV prevention interventions to stem the tide of HIV and AIDS, there is a dearth of proven state-of-the-art interventions for MSM.

HIV/AIDS is a significant and ever increasing menace to the public health and social fabric of the United States. As of December, 2004, The Centers for Disease Control and Prevention (CDC) estimated that the number of deaths due to AIDS in the U.S. was 529,113 (CDC, 2004c). At this same time, an estimated 1,039,000 to 1,185,000 persons were living with HIV/AIDS (Glynn & Rhodes, 2005). The CDC estimates that 40,000 persons in the United States become infected with HIV each year (2004c).

Men who have sex with men have suffered disproportionately from HIV/AIDS in the U.S. Of the total number of AIDS deaths, 256,053 (48.4%) were MSM (CDC, 2004c). In 2003, MSM accounted for 63% of all reported new diagnoses of HIV (CDC, 2005a). In a large study that surveyed MSM in five cities (Baltimore, Los Angeles, Miami, New York, and San Francisco), 25% were found to be HIV-positive (CDC, 2005b).

Given these dramatically high prevalence and incidence rates among MSM, it is clear that this is a group in significant need of tailored prevention interventions. There are too few interventions that have been adequately evaluated to meet the needs of this community, especially given the significant cultural differences that are often found between heterosexuals and homosexuals (DiPlacido, 1998; Edsall, 2003; Meyer, 1995; Nungesser, 1983), and further between racial and ethnic MSM communities (Edsall, 2003; Peterson, 1992; Sherrod & Nardi, 1998). Older interventions need to be significantly updated and new interventions need to be developed and evaluated specifically for these communities to stem the tide of the epidemic.

One of the primary goals of this study was to evaluate the effectiveness of an intervention called the Relationships, Intimacy, and Sex Workshop that was specifically designed for Caucasian MSM. It is a group level intervention developed by seasoned mental health practitioners at a Community-Based Organization in Atlanta, Georgia called Positive Impact. The workshop focuses on issues of relationships, communication, dating, internalized homophobia, self-esteem, and HIV/STD prevention information. It is unique in that it is highly interactive and focuses on sex in a positive and non-shaming way while exploring methods to decrease HIV risk behaviors such as unprotected anal intercourse.

Several theories contribute to this study, including Minority Stress Theory, Systems Theory, and the Sexual Health Model. Systems Theory and the Sexual Health Model will be addressed further in a moment. Minority Stress Theory sheds light on one of the most significant challenges addressed in this intervention: The negative impact of societal homophobia and discrimination on gay individuals. Minority Stress Theory (Meyer, 1995) posits that the United States is a heterosexist society as reflected in institutional practices and norms that privilege heterosexuality over other forms of sexual expression, which are often illegal or held in less

esteem (Herek, 1990; 1995). Herek stated that the U.S. is dominated by an “ideological system that denies, denigrates, and stigmatizes any non-heterosexual form of behavior, identity, relationship or community” (1995, p. 321).

Minority Stress Theory asserts that the sometimes subtle and often overt presence of anti-homosexual messages in the U.S. culture causes a “biased socialization” (Malyon, 1982, p. 59) process that negatively effects the psychological development of many gay men (Meyer & Dean, 1998). Children learn anti-homosexual and pro-heterosexual attitudes at a very young age and these are regularly reinforced in the absence of corrective socialization from parents or other authorities (Cabaj, 2000; Gonsiorek, 1995; Malyon, 1982; Meyer & Dean, 1998). Homosexuals will “frequently develop negative conceptions of themselves because of the negative societal attitude towards homosexuality” (Coleman, 1982, p. 471). These negative self-directed beliefs and attitudes about one’s own identity, sexual behavior, thoughts, feelings, desires, and ability to have healthy intimate relationships with same-sex partners are often referred to as internalized homophobia. Internalized homophobia has been identified as a contributing factor for a host of challenges to gay men in the United States including low self-esteem (Rowen & Malcolm, 2002), loneliness (Shidlo, 1994), suicide (Meyer, 1995), avoidance of relationships and intimacy (Coleman, Rosser, & Strapko, 1992; Goldberg, 1989; Meyer, 1995; Meyer & Dean, 1998), and engagement in HIV risk behaviors (Meyer, 2003; Meyer & Dean, 1998; Ratti, Bakeman, & Peterson, 2000; Waldo, Kegeles, & Hays, 1998; Williamson, 2000).

While it is clear that internalized homophobia has a negative effect on socio-cultural and mental health issues of gay men, it has also been suggested that internalized homophobia may effect efforts to prevent the further spread of HIV among MSM (Huebner, Davis, Nemeroff, & Aiken, 2002). Internalized homophobia may affect “health-related decision making processes

with significant effect on the prevention of illnesses such as HIV infection” (Williamson, 2000, p. 97). In addition, for those men who participate in prevention interventions, internalized homophobia may limit program effectiveness and leave men without the HIV-related behavioral skills and knowledge essential to enacting risk reduction solutions during their sexual encounters (Huebner, et al., 2002). Huebner and colleagues concluded that internalized homophobia could pose multiple barriers to community-based HIV prevention efforts.

Purpose of the Study

This study had two primary purposes. First, to evaluate the effectiveness of an intervention designed to decrease the HIV risk behaviors of MSM. If the intervention was found to have a significant level of effectiveness it could be appropriate to recommend particular refinements or future rigorous evaluations. These refinements and future evaluations would also serve the purpose of sharing an effective intervention with the broader HIV prevention community, including social workers. The second purpose of the study was to assess the negative effect of participants’ internalized homophobia on the effectiveness of the intervention. It was expected that the intervention could have a positive effect for the men in the study, but that this effect may be undermined by the deleterious effect of internalized homophobia. If internalized homophobia negatively effected outcomes for the intervention it could be beneficial to consider adding additional components to the intervention to address the issue, or suggest alternative methods for social workers to address homophobia more broadly in society.

Research Questions

There were two primary research questions that will be addressed by this study.

1. Is the Relationships, Intimacy, and Sex workshop effective?

2. Does internalized homophobia negatively effect the level of effectiveness of the Relationships, Intimacy, and Sex workshop?

Significance of the Study

This study was both descriptive and inferential and used a quasi-experimental no-treatment control group design with pretest and 30-day posttest. The intention of this research was to provide relevant information to facilitate policy and funding decisions regarding a promising HIV prevention intervention designed for MSM. Given the urgency of the problem of HIV as it impacts MSM, it was hoped that the findings of this study would suggest a new direction for HIV prevention interventions for social workers. Further, given the limited understanding in the literature of the potential negative effect of internalized homophobia on HIV prevention efforts, it was the intention of this study to begin to shed light on this issue.

During the first 15 years of the epidemic, social workers were at the forefront of the epidemic providing a broad range of HIV related services including psychosocial support, grief and bereavement counseling, and assistance with access to basic social services (Strug, Grube, & Beckerman, 2002; Wolf & Mitchell, 2002). Over the past ten years the epidemic has shifted from an imminently fatal illness to a long-term chronic condition to be managed. It follows that social workers must also shift their focus to HIV prevention efforts (Mitchell & Linsk, 2004; Strug, Grube, & Beckerman, 2002). Many social workers have already moved into these new roles and are now providing prevention services based on research conducted by non-social workers who may not be applying the same set of values and ethics that makes social work unique. Social workers can bring their distinctive ecological perspective of seeing the person-in-environment to HIV prevention, further improving these efforts. Social workers need to be more involved in all aspects of prevention, including service provision, intervention design and delivery, and

evaluation. It was hoped that this study will support the HIV prevention efforts of social work practitioners, researchers, and evaluators.

Conceptual Framework

Systems theory has been a grounding force for social work practice and research for decades (Greene, 1999). Systems theory has taught generations of social workers to look beyond the reductionist medical model which casts the client/patient as the keeper of the problem to look at the broader context of society for the full etiological picture. Minority Stress Theory concurs with this viewpoint with its consideration of the negative effect of societal homophobia on homosexual individuals in the form of internalized homophobia. Social systems theory takes the strengths of general systems theory and focuses them on social dynamics and interactions (Stein, 1971). “From a social systems point of view, behavior also is understood as the outcome of the total social situation in which an individual subsystem, group subsystem, or other social unit finds itself” (Green, 1999, p. 218). From here, social workers derived the person-in-environment approach that continues to characterize much of social work practice, education, and research today.

The Sexual Health Model is a new framework in the lineage of social systems theory. It has been recently introduced by a group of academic sex researchers (Robinson, Bockting, Rosser, Miner, & Coleman, 2002) who have infused the model with the understandings of the person-in-environment approach to practice. It is comprised of 10 key components to be considered in the development and evaluation of HIV prevention interventions. These 10 components are described as “essential aspects of healthy human sexuality” (p. 43) and include individual as well as environmental elements. The components are as follows: 1) Talking about sex, 2) culture and sexual identity, 3) sexual anatomy and functioning, 4) sexual health care and

safer sex, 5) challenges to sexual health, 6) body image, 7) masturbation and fantasy, 8) positive sexuality, 9) relationships and intimacy, and 10) spirituality. The authors are clear that practitioners who use the model should “design their sexual health intervention to fit the unique needs of their target population” (p. 43) to make it the most relevant for the target community. This model is unique in its frank sex-affirming approach that maintains strong yet non-shaming messages about HIV prevention behaviors. The model’s acknowledgement of the societal effect on characteristics of individuals and how that ultimately may effect the effectiveness of an intervention concurs with Minority Stress Theory. While the intervention evaluated in this study was not designed from this model, they are highly correlated as six of the model components are core elements of the intervention, and the remaining four are all present.

Future Chapters

In the following chapter, a detailed literature review of HIV/AIDS epidemiology, the need for effective interventions, governmental policy, the benefits of community collaboration, effective HIV prevention interventions, and internalized homophobia will be provided. Chapter three will present the conceptual framework that supports the intervention, the components that comprise the intervention, evaluations of interventions that have used the model, an overview of the Relationships, Intimacy, and Sex workshop, how internalized homophobia decreases the effectiveness of the intervention, and the study hypotheses. Chapter four will provide an overview of the research design, sample recruitment and study procedures, the power analysis, operational definitions, the data collection instrument review and the analysis plan. Chapter five presents the results of the analyses, and chapter six provides a discussion of those results.

CHAPTER II

Review of the Literature

Systems theory requires a broad review of the applicable literature to inform research. As such, this chapter will provide an overview of key terms and the history of HIV/AIDS, an epidemiological look at HIV/AIDS from the national to the local level, the current significant increase in HIV incidence among men who have sex men, and a review of the literature, policy, and programs of academic and governmental institutions on the need for effective interventions. These elements will provide a national background and context of the scope of the problem and the federal government's efforts to stem the epidemic, shedding light on some of the national aspects of the system. The review then shifts to smaller subsystems and focuses on the need for community collaboration to facilitate effective interventions, on what HIV prevention interventions have been effective and what has made them that way. This is followed by a look at the problem of internalized homophobia and how it is enabled by the larger societal system as posited by Minority Stress Theory. The chapter concludes with a review of the importance of internalized homophobia in relation to salient issues for HIV prevention interventions. The review is broad in scope, which will enable the research to be fully informed by multiple systems, theories, and the empirical research.

HIV/AIDS Epidemiology

Prior to providing an overview of the epidemiological profile of HIV and AIDS in the United States, it will be helpful to explain a few key terms and significant changes regarding AIDS over the past 25 years. *Acquired Immune Deficiency Syndrome* (AIDS) is caused by a

retrovirus known as the Human Immunodeficiency Virus (HIV) that is almost always transmitted from person to person (CDC, 1992b). *Exposure categories* are the ways in which an individual can contract HIV. Among adults, there are seven primary exposure categories for HIV: 1) Men who have sex with men, 2) injection drug use (IDU), 3) men who have sex with men *and* use injection drugs (MSM/IDU), 4) Hemophilia/coagulation disorder, 5) heterosexual contact, 6) blood transfusions and 7) other/risk not reported. All cases of HIV/AIDS that are reported to the CDC are sorted into an exposure category, which is self-reported. One point of relevance to this study is that MSM are captured in two categories, diluting our overall understanding of the impact of how MSM contract HIV. It is possible that those individuals who report a transmission risk of MSM/IDU actually acquired HIV via MSM activity, but that cannot be known given the limitation that data are collected based on all risk behaviors. This could have the impact of falsely deflating the actual impact of HIV on the MSM community if only the MSM category is considered, or falsely inflating it if the MSM and MSM/IDU categories were combined. A conservative approach of not combining these two categories to describe the epidemic among MSM is the standard in epidemiology and will be employed in this dissertation.

The definition of AIDS has changed several times since the beginning of the epidemic. The most significant change that occurred was enacted by the CDC in 1993 with the goal of more accurately reflecting the severity of HIV immunosuppression caused by lowered CD4 T-lymphocyte (commonly called t-cell) counts (CDC, 1992a). The definition has two required components: 1) a CD4 T-lymphocyte count of less than 200 *and* 2) the presence of an opportunistic infection or cancer. An *opportunistic infection* is an illness that is able to attack the body due to the compromised immune system caused by HIV that would not normally be expected in an otherwise healthy person. There are over 26 opportunistic infections and cancers,

including Kaposi's sarcoma, toxoplasmosis, peripheral neuropathy, and *Pneumocystis jirovecii* (formerly *carinii*) pneumonia. This definition change was a broadening of the previous definition, and diagnoses of AIDS spiked in the subsequent quarter (CDC, 1993). This increase was not continued beyond this quarter and the new definition provided an improved description of the state of the AIDS epidemic in the U.S.

Another significant event in the history of HIV/AIDS occurred in the mid-1990s with the introduction of *Highly Active Anti-Retroviral Therapy*, or HAART. Prior to these treatments, HIV and the onset of AIDS was considered to be a certain death sentence. These treatments typically involve multiple medications (such as protease inhibitors) that must be taken on a very specific regimen under certain circumstances (for example, with or without food and at specific time intervals). Additionally, these treatments can cost as much or more than \$1,000 a month, limiting access to those who can afford it or have insurance. After the introduction of these medications, mortality and morbidity declined dramatically for three years and has since stabilized (CDC, 2001b; CDC, 2003a).

The final point to make before presenting an epidemiological picture of the HIV/AIDS epidemic is regarding the temporal relationship between HIV transmission and AIDS diagnosis. It is often the case that HIV will progress very slowly in the body, sometimes for as long as five to ten years, before developing into AIDS (Kelly, Murphy, Sikkema, & Kalichman, 1993). This point must be kept in mind when reviewing AIDS incidence as these data may only be an indicator of where HIV transmission was occurring as much as five to ten years ago. Because of the lag time between HIV transmission and AIDS diagnosis it can be very challenging to have a timely understanding of the current state of the HIV epidemic based on AIDS data. Further highlighting the potentially misleading nature of AIDS incidence data, Weinstock and colleagues

(2002) found that decreasing rates of AIDS diagnoses in the 1990s did not reflect stability or decreases in the rates of new HIV infections among MSM, but rather the impact of HAART.

National Epidemiology

According to the 2004 Centers for Disease Control and Prevention's *HIV/AIDS Surveillance Report*, the reported number of AIDS cases in the U.S. cumulative through December, 2004 was 918,286. The CDC also estimates that there are 26,020 diagnosed AIDS cases that have gone unreported which would bring the cumulative total to 944,306. Of the reported total, 908,905 are adults or adolescents and 9,381 are under age 13. The cumulative total of reported AIDS cases among men through 2004 is 737,300, and women comprise the remaining 171,603. White men are the largest racial subgroup among men totaling 331,604 reported AIDS cases (45.0% of all men), followed by black men at 259,082 (35.1%). Of all men, 53.8% of the reported cases were attributed to male-to-male sexual contact.

The CDC (2004c) estimated that the number of deaths of persons due to AIDS as of December, 2003 is 529,113. Of those, 256,053 (48.4%) were men who reported their exposure category as having sex with another man. The CDC (2004c) also estimated that 462,792 individuals were living with AIDS at the end of 2004. Of those living with AIDS, 332,578 (71.9%) were male, and 199,085 (59.9%) reported their exposure category as MSM.

Regional Epidemiology

The south has been particularly hard hit by HIV and AIDS. There have been more cumulative estimated cases of AIDS in the south than any other region in the country (343,449 36.4% of all estimated cases). Further, of those estimated to be living with AIDS at the end of 2004, 39.2% (161,759) are in the south. For reporting purposes, CDC (2004c) has defined the south as including Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia,

Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Georgia Epidemiology

According to the CDC (2004c), Georgia had the eighth highest prevalence of AIDS cases among all states reported through 2004 with 28,248 cases. In December of 2004, The Kaiser Family Foundation made a special data request of the CDC to better understand how the total number of deaths attributable to AIDS was apportioned across states. Georgia was again the eighth highest with 15,083 deaths reported through the end of 2003. Of particular concern is that Georgia had the fifth highest number of new AIDS cases in 2003 with 1,907 cases. This could suggest that there was an increase of new HIV infections in the past five to ten years that may now be coming to light.

Georgia did not begin reporting HIV cases nationally until December 2003 (CDC, 2003b). This being the case, HIV prevalence data for Georgia are quite new and less reliable than the long-standing AIDS data of other states (i.e., New York, Florida) that have been reporting for some time. The CDC (2004c) reported that through 2004 Georgia had a cumulative total of 2,590 reported cases of HIV, but this data has little meaning in comparison to other states. The CDC also estimated the number of persons living with HIV or with AIDS at the end of 2004 in Georgia was 14,245, again ranking the state eighth nationally.

The most recent data that can provide insight to the break down of AIDS cases across transmission risk category comes from the Georgia Department of Human Resources (GDHR, 2002). GDHR reported that in Georgia 58% (11,596) of all men reported to have AIDS from 1981 to 2001 were MSM. When females are included, MSM still comprise 48% of the total number of AIDS cases in Georgia. GDHR also reported that African American MSM of all ages

comprise 21% (5,217) of the cumulative total. GDHR does not report the total number of AIDS cases for Caucasian MSM.

Atlanta Epidemiology

According to the CDC (2004c), Atlanta has the ninth highest number of reported AIDS cases among metropolitan areas through the end of 2003 with 19,578. The Metropolitan Atlanta HIV Health Services Planning Council (2002) reported that 70% of AIDS cases in Georgia are within the Atlanta Eligible Metropolitan Area (EMA). The Planning Council report also stated that there was a cumulative total of 10,700 cases of HIV infection for the Atlanta EMA as of June 30, 2000, which was a significant increase over the previous two years of 28% (2,300 new infections). The report goes on to state that the number of persons living with HIV decreased between 1994 and 2001 but attributed this reduction to the increased availability of effective medical treatment (HAART) regimens. The Planning Council expects that MSM will continue to be the primary mode of transmission in the Atlanta EMA.

Fulton County Epidemiology

On the local level, GDHR (2002) reported that Fulton County had 10,910 cumulative AIDS cases from 1981 to 2001. This single county accounted for more than three times the next most severely impacted county in the state and comprised 45.1% of all AIDS cases in the state. Fulton County is a primary service area for the agency facilitating this research.

Epidemiology Among MSM

There is great concern that the HIV epidemic, which seemed to be abating, is on the rise in the community of MSM (Wolitski, Valdiserri, Denning & Levine, 2001). In San Francisco, the annual incidence rate increased from an already high 2.1% in 1996 to 4.2% in 1999 among MSM who were tested anonymously (Katz, et al., 2002). In one study that was conducted in

seven cities from 1994 to 1998, a large sample of 3,492 young MSM were tested for HIV and 249 (7.1% incidence) were found to be HIV-positive (CDC, 2001a; Valleroy, et al., 2000). Recently, CDC (2003a) reported that in the 25 states that have participated in HIV reporting since 1994, the number of persons who had newly diagnosed cases of HIV infection increased 14% among MSM. In another large study of young MSM across six cities, a 10% incidence rate for HIV was found (MacKellar, Valleroy, Secura, & Behel, 2002). A study that surveyed a probability sample of MSM in four U.S. cities found an overall prevalence rate of 17%; a rate so high that it compares with those of sub-Saharan countries (Catania, et al., 2001).

These high incidence rates among MSM across the country are of great concern, and the rates of those who are unaware of their HIV status and sexually active are especially alarming. In the seven city study only 46 (18%) of the 249 HIV-positive MSM were aware of their HIV status, and the self-reported prevalence of at least a single instance of unprotected anal sex among these men during the past six months was 41% (CDC, 2001a; Valleroy, et al., 2000). In the six city study cited above, 440 (77%) of the 574 young MSM who tested positive did not know that they were infected (MacKellar, Valleroy, Secura, & Behel, 2002). Murphy and colleagues (2004) articulated why the data regarding the number of persons who did not know they were HIV-positive are so distressing when they reported that “this pool of unmanaged HIV infection may be an important driver of the ongoing epidemic” (p. 265).

It is not definitively known at this point why there is a resurgence in HIV incidence in the MSM community, but much research has centered on the introduction of Highly Active Antiretroviral Therapy (HAART) for HIV-positive persons. The CDC reported that HAART was responsible for a decrease in morbidity and mortality in the late 1990s (CDC, 2001b; CDC, 2003a). The annual number of incident AIDS cases decreased 38% from 69,242 in 1995 to

42,832 in 1998 (CDC, 2001b). Deaths from AIDS during this time declined a remarkable 63% from 51,670 to 18,823 (CDC, 2001b). Unfortunately, these declines have ended (CDC, 2003a). From 1998 to the most recent data from 2003, the annual estimated incidence of HIV has remained at 40,000 cases and the annual incidence of AIDS deaths has varied little from 16,000 (CDC, 2001b).

Initially, it was expected that the introduction of HAART in 1996 and 1997 would decrease incidence as the treatment was effective in reducing the viral load in the bloodstream thus decreasing the likelihood of transmission (Vernazza, Eron, Fiscus, & Cohen, 1999). However, HAART appears to be having at least two inadvertent effects. First, the improved quality and longevity of life has increased the number of persons who are HIV-positive and enlarged the pool of persons who are actively engaged in sexual activity (CDC, 2001b; Katz et al., 2002). Second, HAART may contribute to an increase in less safe sexual behavior. There is significant evidence that HIV-positive men are less concerned about HIV since the development of HAART and that both HIV-positive and HIV-negative men are more likely to engage in unsafe sex since HAART has been in use. In San Francisco, use of HAART increased from 4% in 1995 to 54% in 1999 among HIV-positive MSM (Katz, et al., 2002). Further, the percentage of MSM who reported both unprotected anal intercourse and multiple sexual partners increased from 24% in 1994 to 45% in 1999. Katz and colleagues concluded that the availability of HAART may paradoxically increase less safe sexual activity. In another study of 248 MSM in San Francisco who had received a negative HIV test result and reported at least one instance of unprotected anal intercourse in the past year, 16% reported less concern about contracting HIV and 11% reported that they had “already taken a chance of getting infected” during sexual activity since the introduction of HAART (Dilley, et al., 2003 p. 33).

Several additional studies have found that HIV-negative men are less concerned about contracting HIV since the introduction of HAART (Dilley, Woods, & McFarland, 1997; Elford, Bolding, Maguire, Sherr, 2000; Kelly, Hoffman, Rompa, & Gray, 1998; Remien, Wagner, Carballo-Diéguez, & Dolezal, 1998; Vanable, Ostrow, McKirnan, Taywaditep, & Hope, 2000). One of these studies found that 46% of 554 MSM recruited at a gay street fair in Chicago reported unprotected anal sex in the past six months, and decreased concern regarding HIV infection was found to be an independent predictor of unprotected anal sex (Venable, Ostrow, McKirnan, Taywaditep, & Hope, 2000). In a similar survey conducted in Atlanta at the Gay Pride Festival in 1997, men who practiced unprotected anal intercourse as the receptive partner were more likely to believe “that it is safe to have URA [unprotected receptive anal] intercourse with an HIV-positive man who has an undetectable viral load and that new treatments for HIV relieve their worries about unsafe sex” (Kalichman, Nachimson, Cherry, & Williams, 1998, p. 546). Blower, Gershengorn, and Grant (2000) provided a model that suggested that while HAART may decrease incidence, even modest increases in less safe sexual practices could overcome any beneficial effect of HAART on HIV transmission. In fact, a recent study found that the decreased perceived need for safer sex since the availability of HAART was associated with HIV incidence (van der Snoek, de Wit, Mulder, & van der Meijden, 2005).

Other possible contributors to the resurgence of HIV/AIDS in the MSM community include the notions of “prevention fatigue” and “transmission dynamics” (Boily, Godin, Hogben, Sherr, & Bastos, 2005). Prevention fatigue has been discussed at length in the literature (Ostrow, et al., 2002; Stockman, et al., 2004; Tun, Celentano, Vlahoy, and Strathdee, 2003) and commonly refers to the idea that at-risk communities such as MSM that have been heavily targeted for a number of years with strong prevention messages become fatigued by these

messages. The messages lose their impact as they are repeated over time and the target community becomes desensitized. While this is referred to often in the qualitative and quantitative research, there are no empirical studies that support the existence of this construct. Transmission dynamics is a more recent hypothesis that suggests that in the early phases of the epidemic those who were most likely to engage in riskier sexual behavior became infected, very often died, and thus were no longer in the pool of possible sexual partners in the community. Boily, Godin, Hogben, Sherr, and Bastos (2005) suggested that when HAART became prevalent in the MSM community, the number of risk taking individuals replenished such that rates of new infections started to increase. This is a very new hypothesis that has not been tested empirically.

It is clear from this review that the HIV/AIDS epidemic operates across all systems in the U.S. The medical community is constantly working to learn more and provide updated information on medications and our understanding of the disease. Epidemiologists and social workers are toiling in all states and localities to better understand the reach and impact of this deadly epidemic. Understanding the epidemic requires collaboration across all of these systems to better inform the development and evaluation of effective preventive interventions.

The Need for Effective Interventions

In order to address the tremendous challenge that HIV/AIDS is presenting to social workers, interventions that are effective in providing information and influencing behavior change among high-risk populations are needed (Coleman & Ford, 1996). These interventions also need to address psychological components that may hinder the effectiveness of the interventions themselves (Kelly & Murphy, 1992; Kelly, Murphy, Sikkema, & Kalichman, 1992; Robinson, Bockting, Rosser, Miner, & Coleman, 2002). Additionally, these interventions need to be linked to theory to increase further their potential for success (Kelly & Murphy, 1992;

Robinson, Bockting, Rosser, Miner, & Coleman, 2002; Wight, Abraham, & Scott, 1998). It has been widely agreed that outcome research for HIV prevention interventions is needed to assess the effectiveness of these interventions so that they may be disseminated to social work providers in the field (Hernandez & Smith, 1990; Kelly & Kalichman, 1995; Kelly & Murphy, 1992; Kelly, Murphy, Sikkema, & Kalichman, 1992; Nutbeam, 1996; Wight, Abraham, & Scott, 1998). As social workers are increasingly on the front lines of HIV prevention efforts, they need to be provided with the most effective tools to do the best possible work (Strug, et al., 2002; Wolf & Mitchell, 2002).

Barriers to Evaluation of Effective Interventions

There are significant barriers to the evaluation of HIV prevention interventions. First, social-cognitive theories (i.e., Theory of Reasoned Action, Theory of Planned Behavior, Health Belief Model) have been very heavily utilized for the past 20 years in HIV prevention. The social-cognitive approach of focusing on cognitions, beliefs, and information dissemination lacks the element of interactive sexual communication and negotiation between people (Wight, Abraham, & Scott, 1998) and does not address affirmative sexual health issues (Robinson, Bockting, Rosser, Miner, & Coleman, 2002). Additionally, these theories often have weak explanatory models that do not predict behavior change well (Bennett & Bozionelos, 2000; McKirnan, Ostrow & Hope, 1996; Ogden, 2003). Abraham and Sheeran (1993) suggested that since the beliefs and cognitions that social-cognitive models rely on have proven to be inadequate predictors of behavior change, new insights may be found using models that include psychological explanations for risk behavior. These limitations should encourage social work evaluators to explore new theoretical models that address the challenging issues inherent in HIV prevention evaluation that are not being attended to by social-cognitive theories.

A second barrier to effective evaluation is the unrealistic research standard of utilizing randomized controlled designs in the context of conducting program evaluations (Des Jarlais, Lyles, & Crepaz, 2004; Tones, 1997). This standard creates a demand for prematurely rigorous research designs in the early stages of the evaluation lifecycle through which HIV prevention interventions need to mature. This challenge needs to be addressed through the use of a multi-stage evaluation process where less rigorous methods can be employed in order to better understand fledgling programs to see if a more rigorous design is warranted (Kelly & Murphy, 1992).

Finally, there are too few evaluation materials that are usable by the creators of these interventions (Davis, et al., 2002). Many social workers may wish to evaluate their own programs to understand them better and improve them even when they do not have the financial resources to involve an external researcher. If there are too few tools available to facilitate this process, the barrier may be too significant to overcome for a small program with limited resources.

Need for MSM Specific Effective Interventions

There is a particular need to create, implement, and evaluate interventions designed for higher-risk populations that are seeing the most HIV incidence (Kelly, Murphy, Sikkema, & Kalichman, 1993) and social workers are uniquely suited to contribute to this effort. Elford and Hart (2003) suggested that all evaluations that were conducted prior the introduction of HAART need to be repeated given the significant impact of these new therapies. These evaluations need to be accelerated, especially given the current direction of the epidemic, as reviewed above. There have also been increasing calls in the recent literature urging the development and evaluation of interventions designed specifically for MSM to address the unique challenges this

population faces (Elford & Hart, 2003; Rosser, et al., 2002; Vu, et al., 2002). Theoretical models such as the Minority Stress Theory should be considered in the design, development, implementation, and evaluation of interventions for gay communities (Meyer & Dean, 1998).

Governmental Policy

Another system that must be considered in the furtherance of research in the fight to prevent HIV/AIDS is the national government. The U.S. federal government provides significant funding and policies that guide how this funding is to be used. Policies regarding how the U.S. government was to respond to the HIV/AIDS epidemic have been criticized for not facilitating prevention research through the provision of adequate funding (McCarthy, 1996). The promotion of sexual health as a means to HIV prevention has been slow to develop in the U.S. However, a shift in policy has been occurring over the past ten years, especially with the advent of Healthy People 2010, a dramatically large and far reaching initiative including 28 focus areas and 467 science-based objectives. In his dedication speech launching the Healthy People 2010 initiative, Surgeon General David Satcher introduced the Leading Health Indicators, or what Dr. Satcher referred to as a “reader’s digest version” of the larger initiative designed to be succinct and easily understandable for the public at large (January 25, 2000).

The 10 Leading Health Indicators are a group of “high-priority public health issues”, which have been developed and disseminated with the goal that individuals, families and communities will make changes in their lives to address these issues (Office of Disease Prevention and Health Promotion [ODPHP], 2000). The Healthy People website encourages communities to use these indicators as “measures of local success in health improvements” and as tools for the development of “comprehensive health activities” to improve health (ODPHP, 2000). Responsible sexual behavior was selected as one of these indicators.

The following year, Surgeon General David Satcher released the “Call to Action to Promote Sexual Health and Responsible Sexual Behavior” (Office of the Surgeon General, 2001). This was a ground-breaking document for the United States government to produce because it described sexuality as an “integral part of human life” (p.1). The document also addressed the notions of sexual health and sexual responsibility. Sexual health was described as more than simple freedom from disease. It also included a positive framing of sexuality and respect for how individuals integrate sexuality into their lives. Sexual responsibility was addressed from both an individual and community perspective. Individual sexual responsibility includes the idea of respect for self and one’s sexual partner as well as “recognition and tolerance of the diversity of sexual values within any community” (p.1). Responsibility at the community level includes access to “culturally appropriate sexual education” and “respect for diversity and freedom from stigmatization and violence on the basis of gender, race, ethnicity, religion, or sexual orientation” (p.1). These values are central to social work and this policy shifts suggests a newfound openness to strengths that social workers bring. The Surgeon General concluded his call to action with several strategies, the last of which promotes investment in sexual health research. He specifically called on the nation to “expand evaluation efforts for community, school and clinic based interventions that address sexual health and responsibility” (p.15).

Most recently, CDC began a new initiative called “Advancing HIV/AIDS Prevention: New Strategies for a Changing Epidemic” (AHP: CDC, 2003a). The AHP initiative is “aimed at reducing barriers to early diagnosis of HIV infection and, if positive, increasing access to quality medical care, treatment, and ongoing prevention services” (p. 330). This initiative is supported by research that has recommended efforts to diagnose and treat persons who are unaware of their infection in order to reduce HIV incidence (Murphy, et al., 2004). There is a renewed focus on

HIV testing given the improvements in rapid-test technologies and an emphasis on evidence-based effective prevention services for persons who are HIV-positive or at high-risk of becoming positive. The initiative consists of four strategies which are as follows: 1) Make HIV testing a routine part of medical care, 2) implement new models of diagnosing HIV infections outside medical settings, 3) prevent new infections by working with persons diagnosed with HIV and their partners, and 4) further decrease perinatal HIV transmission.

Government Programs

The primary subsystem of the larger federal government system that is charged with controlling and preventing the spread of HIV/AIDS is the Centers for Disease Control and Prevention. Since the mid-1990s, the CDC has engaged in several projects with the goal of scientifically evaluating HIV prevention interventions. The CDC has used a somewhat graduated level of evaluation rigor across projects, and disseminated those interventions that it found to be worthy of further implementation. The maturity of the intervention itself, and the level of rigor of any evaluation that has been conducted on it so far, determine into which project level an intervention would be categorized. While each project works toward the improvement of HIV prevention interventions across the country, they have different methods and objectives for achieving these goals. The four projects to be discussed here include the following: 1) the Characteristics of Reputationally Strong Programs, or C-RSP, 2) the Replicating Effective Programs project, or REP, 3) the Compendium of HIV Prevention Interventions with Evidence of Effectiveness, and 4) the Diffusion of Effective Behavioral Interventions Project, or the DEBIs.

The C-RSP project's purpose is to identify the common characteristics of programs that are well respected and share these characteristics with the prevention community at large (Eke,

Mezoff, Duncan, & Sogolow, in press). To be included these programs have to be located in the United States, be community-based, and actively in operation. The key selection criteria are the presence of a strong reputation and no history of a formal outcome evaluation. Several common characteristics were found, including clearly defined target populations, goals, and programs; intervention components that were grounded in behavioral/social science theory; culturally competent approaches; committed staff; and internal agency support. The CDC states that “program managers may want to consider these characteristics when engaging in strategic planning and/or enhancing existing programs” (Eke, et al., in press).

The REP project purpose is to take interventions that have been tested and have demonstrated evidence of effectiveness and translate them into packages for dissemination to HIV prevention providers (Sogolow, et al., 2000). These interventions are diverse along aspects of target population, setting, delivery method, and materials. The packages that are created from the interventions showcase successful collaborations between researchers and community-based organizations. However, all REP group-level interventions for MSM are highly tailored to specific racial groups, none of which include Caucasians.

The Compendium of HIV Prevention Interventions with Evidence of Effectiveness (commonly referred to as the Compendium) was developed in response to requests from prevention intervention providers, including social workers, who were asking for science-based interventions that were effective (CDC, 1999b). The interventions included in the Compendium have demonstrated effectiveness through rigorous methods that included no less than a control or comparison group so that successful outcomes could be directly attributed to the interventions themselves. These interventions were designed for specific populations including drug users, heterosexual adults, MSM, and youth. There are three primary delivery methods for these

interventions including 1) individual level intervention (ILIs) or one-on-one with a single individual, 2) group level interventions (GLIs) where a group of 8-20 individuals experience a facilitated intervention together and 3) community level interventions (CLIs) that focus on providing prevention services in innovative ways to a broader community. The Compendium suggested that all of these interventions may be taken by a prevention intervention provider, adapted for the provider's setting while maintaining the core elements of the original intervention, and then implemented locally. Of these interventions, only two are GLIs designed especially for MSM, and both of these were originally evaluated and published over 15 years ago.

The Diffusion of Effective Behavioral Interventions Project, or DEBI, is an effort to take a subset of the Compendium interventions and diffuse them to HIV prevention intervention providers, including social workers, across the country (CDC, 2004a). To date, there are 12 interventions that have been diffused through this project. Of those, seven contain at least a group level component, but all are designed to work with specialized subpopulations such as African American MSM or substance abusers. There are no group level interventions included in the DEBI project that are directly relevant to Caucasian MSM. For example, one of the DEBI project interventions developed for MSM, Many Men, Many Voices (3MV), was developed specifically for African American MSM and focuses heavily on cultural heritage and racial issues relevant to this group (CDC, 2004b). While this intervention is well designed and highly regarded, it would not be appropriate for Caucasian MSM.

As illustrated above, there is significant support for the development, implementation, and evaluation of effective interventions for MSM. However, there are very few, if any, group level interventions that have been evaluated since the introduction of HAART and are ready to

be implemented for the purpose of HIV prevention at this time. Based on the epidemiological data, there is a clear and pressing need for exactly this kind intervention. This intervention must be evaluated with a level of rigor appropriate to its maturity level and within the socio-cultural context of the target population it is intended to serve. Social workers have the requisite mix of research skills as well as respect for and understanding of the cultural context of communities-at-risk to be able to contribute significantly to these evaluations.

Collaboration with Community-Based Organizations

Social systems theory emphasizes the interactions between systems above and beyond the systems themselves (Stein, 1971). Based on this emphasis it can also be concluded that the interactions between the system of researchers and the system of service providers are very important to the creation, provision, and evaluation of HIV prevention interventions. The establishment of collaborative relationships between researchers and evaluators with community-based service providers and social workers has also been widely agreed to be an important strategy for the goal of finding effective interventions and improving HIV prevention efforts by empirical researchers in the field (Dodd & Meezan, 2003; Freudenberg, 1990; Kelly, Murphy, Sikkema, & Kalichman, 1993; Kok & Green, 1990; Patton, 1997; Ross & Williams, 2002). Researchers and evaluators often work within the confines of an academic or independent consultant role and as such bring certain strengths and weaknesses to the field of HIV prevention evaluation. These professionals have backgrounds in research methods and theory, but often lack the understanding of service delivery in the field that social workers have. HIV prevention intervention providers working within Community-Based Organizations (CBOs) and AIDS Service Organizations (ASOs) have significant expertise in service delivery and reaching high-risk populations, but often do not have the background or objectivity needed to conduct sound

evaluations. A collaboration leveraging the expertise of researchers and service providers, including social workers, would appear to be the most likely teaming of resources to meet the goals of providing effective HIV prevention services. Unfortunately, this is often quite difficult in practice.

Broadly speaking, researchers and service providers each bring a different philosophy into these collaborations that can impede the overall goal of creating, evaluating, improving, and disseminating effective HIV prevention interventions. CBOs tend to operate from a philosophy of service delivery first above all other goals, thus placing a much lower priority on research and evaluation. Frequently, research is perceived to have goals that impede service delivery and is not welcomed within a CBO (Dodd & Meezan, 2003). In his highly regarded book, *Utilization-Focused Evaluation*, Patton suggested that evaluation teams that come in to an agency from an outside institution or stakeholder may be perceived as a “program termination squad” whose primary goal is to find rationales or justifications to stop funding a particular intervention that the agency may view as important for the community (1997, p. 10). Similarly, Kelly, Murphy, Sikkema, and Kalichman (1993) found in their experience that “skepticism of AIDS behavioral research among community organizations is often related to past experiences in which organizations felt used and did not benefit from brief research involvement” (p. 1029).

Kelly, Murphy, Sikkema, and Kalichman summarized the possible differences between these two groups when they stated that “AIDS researchers and AIDS prevention community service programs often have different priorities, perspectives, interests and agendas” (1993, p. 1029). These differences often develop into conflicts of interests as practitioners work to make an immediate impact on the lives of those in need in a community through the adaptation of current interventions while “researchers are keen to test carefully the validity and generalizability

of their theories before recommending” a given intervention be utilized (Kok & Green, 1990, p.1). In addition to the differences in the pacing of work and the sense of urgency, academics and researchers often do not have a clear understanding of the realities of program implementation, and may ask research questions that miss the key issues of the intervention as understood by the program staff (Dodd & Meezan, 2003; Freudenberg, 1990). Ross and Williams (2002) found in their review of HIV prevention interventions that programs delivered without significant community input were largely unsuccessful. Researchers also struggle when they work with an agency that they find to be unwilling to make modifications to an intervention to accommodate scientific goals (Kelly, Murphy, Sikkema, & Kalichman, 1993).

It is clear from this brief review that effective collaborations between these systems can be quite challenging, but can also facilitate stronger evaluations of HIV prevention interventions. While challenges certainly are present in creating a trusting and collaborative relationship between evaluators and community service providers, this is still the optimal situation for effectively conducting program evaluation. Social workers bring a unique skill set to this challenge given their understanding of the workings of social systems and their training as “research-practitioners” that supports efforts to improve service delivery at all levels through evaluation. Social workers are also likely to have a natural affinity with the assertion of Minority Stress Theory that the larger society negatively effects individual homosexuals through societal homophobia and heterosexism, and can use this understanding to inform their service delivery and research. CBOs bring innovative programmatic ideas and the credibility required to reach high-risk populations, and evaluators come prepared with the knowledge and experience to conduct scientifically sound and rigorous evaluations to best detect the successes and challenges facing a prevention program. It is the responsibility of the evaluator to avoid falling into the trap

of doing evaluation *to* programs and instead collaboratively conducting evaluations *with* programs. Since this is the natural empowering response of social workers, they are uniquely suited to the task. The expertise and funding that researchers provide to the evaluation process will be most beneficial when it is combined with the practice wisdom, community access, and credibility of local social work service providers.

Internalized Homophobia

This section of the literature review will summarize the research on internalized homophobia and its relevance to HIV prevention social work. The term internalized homophobia is often used interchangeably in the literature with the term internalized homonegativity. For clarity, this dissertation will consistently use the term internalized homophobia. A brief overview of societal homophobia will be provided first, followed by a discussion of how the Minority Stress Theory explains the development of internalized homophobia in response to societal homophobia. This approach flows directly from systems theory that focuses on the interaction between a larger system and an individual, and the impact that the larger system may have on minority communities. Then a review of some of the various definitions of internalized homophobia will be provided.

Societal Homophobia

Minority Stress Theory dictates that in order to understand what is meant by the term internalized homophobia, one must first appreciate what is commonly considered to be its etiological progenitor, societal homophobia. Many authors credit Weinberg (1972) with coining the term homophobia in his book *Society and the Healthy Homosexual*. He made strong points for the time by saying that homophobic beliefs were a ubiquitous aspect of social norms and cultural attitudes in the U.S. Homophobia has been described since as a cultural phenomenon

that is comprised of a “personal and institutional prejudice against lesbians and gay men” (Herek, 1988, p. 453). It is not a “phobia” in the psychological sense of an irrational fear, where someone suffering from homophobia would be afraid of homosexuals such that one’s life can be negatively effected. Instead, it is a set of negatively held beliefs, attitudes, and feelings toward homosexuals, and is more akin to the idea of xenophobia (when someone dislikes foreigners or strangers) (Ross & Rosser, 1996).

Meyer’s Minority Stress Theory contends that societal homophobia contributes to the development of internalized homophobia for individual gay men (Meyer, 1995). Internalized homophobia was conceptualized as one of four elements of minority stress along with the experience of prejudice events, expectations of rejection, and hiding and concealing one’s identity (Meyer, 2003). Meyer’s premise was that gay men in a heterosexist society are subjected to chronic stress directly related to their minority status and stigmatization and this contributes to a host of negative outcomes for these men. Herek (1990) coined the term heterosexism, which refers to the assumed heterosexuality of all persons until they state otherwise. It is akin to assuming everyone is white (in a society dominated by Caucasians) when you hear them on the radio only to be surprised to learn that a radio personality is African American when you see a picture of him or her. Heterosexism contributes to an antihomosexual overtone, which stigmatizes and denigrates homosexual identity, desire, and relationships (Herek, 1990). In a later work, Herek expanded his conceptualization of heterosexism by stating that heterosexual values in the U.S. society are perpetuated through an “ideological system that denies, denigrates, and stigmatizes any non-heterosexual form of behavior, identity, relationship, or community (1995, p. 321).

Etiology of Internalized Homophobia

Systems theory tells us that the social environment in which an individual exists effects how that individual grows and develops, and Minority Stress Theory adopts this framework specifically for sexual minorities. Minority Stress Theory posits that societal homophobia and heterosexism contribute to the development of internalized homophobia in individuals in many ways. Almost all children in the U.S. are raised by heterosexual parents in a society that reinforces heterosexual traditions (Gonsiorek, 1995; Malyon, 1982; Meyer, 1995; Meyer & Dean, 1998). Given the socialization that parents have received their entire lives, they may not acknowledge or reward the differences that may be apparent in the incipient homosexual child. The child in turn may learn to avoid these differences, dissociating himself from a part of who he is, which could lead to self-destructive behavior (Cabaj, 2000). Thus, children learn anti-homosexual and pro-heterosexual attitudes at a very young age (Coleman, 1982; Gonsiorek, 1995; Malyon, 1982; Meyer, 1995; Meyer & Dean, 1998). When a young child starts to realize that he or she does not fit into the larger heterosexual community, the previously ridiculed “other” suddenly becomes self, radically altering the way a child understands themselves and their world (Coleman, 1982; Meyer, 1995; Shidlo, 1994; Troiden, 1989).

Malyon (1982) suggested that internalized homophobia is probably most acute during the early phases of gay or lesbian identity development, well before the coming-out process has been able to take hold. Many young people may experience healthy psychological development resulting in full acceptance of themselves and limited if any negative impact to their identity, even in this hostile environment. Unfortunately for many others, there can be long-lasting negative effects through the varying degrees of residual anti-homosexual attitudes that are integrated into their self-concepts, as described by Minority Stress Theory (Allen & Oleson,

1999; Hetrick & Martin, 1984; Rowen & Malcolm, 2002; Meyer, 1995; Meyer & Dean, 1998; Nungesser, 1983). Gonsiorek (1988) referred to this “residual” internalized homophobia as “covert” internalized homophobia and stated that “covert forms of internalized homophobia are the most common. Affected individuals appear to accept themselves, yet sabotage their own efforts in a variety of ways” (p. 117). It is very challenging to manage and effectively ameliorate the “emphatic antipathy” that Malyon described in 1982 as the contemporary attitude of the larger society toward gay men. In the almost 25 years since then there has certainly been some easing of these attitudes. However, that antipathy is still present as seen in the recently voter-approved state constitutional amendments in Kansas and Texas banning marriage equality and civil unions for same-sex couples. Similar efforts are occurring at the national level with the introduction of the Marriage Protection Amendment in the U.S. Congress.

Minority Stress Theory captures the global underpinning of identity development theories by asserting that there are challenges for most individuals in coming to terms with a homosexual identity within the context of a heterosexist and homophobic society. The larger homophobic social system negatively effects homosexual individuals. Minority Stress Theory is ecological in nature as it takes into account the environmental context of the coming-out process (from first stirrings of a realization of being different to actually telling another person) and acknowledges that this process is made more difficult due to societal homophobia. Because of the strength of early socialization experiences and continued exposure to these negative attitudes, internalized homophobia will remain an important factor in gay men’s psychological adjustment and social and sexual interactions with other gay men throughout their life cycle (Coleman, 1982; Malyon, 1982; Meyer & Dean, 1998).

Theoretical Definitions of Internalized Homophobia

Based on the above discussion of homophobia and the development of internalized homophobia as contended by Minority Stress Theory, one is able to conceptualize and define internalized homophobia. An early definition by Nicholson and Long (1990) stated that internalized homophobia is “a fear or hatred toward homosexuality in oneself or in general” (p. 873). This definition is overly broad and contains the element of “fear” as a phobia that Ross and Rosser (1996) have since rejected. Ratti, Bakeman, and Patterson (2000) did not take it much farther when they defined internalized homophobia as “hatred against oneself or others for being homosexual” (p. 194). Derevenco and Frederick (1999) have a more thorough definition that states that “internalized homophobia is the gay person’s repudiation of thoughts, feelings, desires, and sexual behaviors involving same-sex partners” (p. 180). This definition captured many of the most salient human elements that are effected by the insidious nature of internalized homophobia. The definition used by Meyer and Dean in their work on the Minority Stress Theory (1998) omitted that component but described other negative consequences well when they stated that “internalized homophobia is the gay person’s direction of negative social attitudes toward the self, leading to a devaluation of the self and resultant internal conflicts and poor self-regard” (p. 161). Derevenco and Frederick’s definition is the strongest description of what internalized homophobia *is*, while the Meyer and Dean definition pushes it further by describing what it *does*.

Review of the Relevant HIV Prevention Intervention Literature

The following is a review of the relevant literature surrounding HIV prevention interventions for adult Caucasian MSM in large urban settings. The themes that emerged from this review cut across areas of program content, method of delivery, and design/development,

and include the following: 1) Behavior change in a sex-affirming context, 2) knowledge of HIV/AIDS transmission risks, 3) sexual communication and negotiation skills, 4) cultural competence, 5) psychological issues, and 6) community input.

Prior to delving into the details of each theme, a recent study on the effectiveness of HIV prevention interventions with MSM needs to be noted. A meta-analysis of 33 studies that evaluated efforts to change risk behaviors conducted by Herbst and colleagues (2005) found that the interventions provided to MSM as a whole were associated with significant decreases in unprotected anal intercourse (UAI), number of sexual partners, and significant increases in condom use. Follow-up periods for assessment of risk behaviors ranged from a few weeks to 18 months. Herbst and colleagues found that the most successful HIV prevention interventions reported using a theoretical base in their development, included interpersonal skills training, used multiple delivery methods (including group discussions, lectures, demonstrations, and role plays/practice), and spanned at least three weeks (with more than one session and four total hours of intervention exposure/dosage). The interventions that were included in the analysis included 18 randomized controlled trials, ten with comparison groups, and five that had no control or comparison groups. The interventions were provided by diverse professional disciplines, including social workers. Herbst and colleagues concluded that these interventions were effective in changing risk behavior and recommended that they be more widely disseminated for further implementation in the field.

It is also important to note the research on group level interventions specifically for MSM, both qualitative and quantitative. A recent qualitative study of persons living with HIV in southern California explored what these individuals believed were the most effective HIV prevention efforts (Hyde, Appleby, Weiss, Bailey, & Morgan, 2005). Eighteen of the 35

interviews were conducted with persons who described themselves as homosexual. These participants “talked highly of their experiences in group level interventions, suggesting that they [the interventions] should be considered an important prevention strategy” (p. 53). In particular, these researchers found that “the experiential opportunities that group interventions offer with respect to HIV knowledge, social support, HIV disclosure skills, and HIV risk reductions” (p. 53) were well received by the participants.

Several meta-analyses of these studies of group level interventions have been conducted and all have found strong evidence of their effectiveness. In the meta-analysis by Herbst and colleagues mentioned above, the selected interventions produced decreases in UAI and number of sexual partners. Most of these interventions were only delivered to small groups (20 or fewer participants) or had a significant group-level component. This is in line with O’Leary and colleagues’ findings in a previous meta-analysis that found that group level interventions delivered in multiple sessions were the most effective HIV prevention programs in affecting behavior change (1998). In another meta-analysis of randomized controlled trials of group level interventions for MSM, six interventions were found to be methodologically rigorous enough for inclusion (Johnson, et al., 2002). These found significant reductions in unprotected anal intercourse, the behavioral outcome of most importance to HIV prevention. Group level interventions have been found to be effective in reducing key HIV risk behaviors for MSM and warrant future research and evaluation by social workers.

Behavior Change in a Sex-Affirming Context

Arguments against the promotion of condoms and sexually explicit prevention messages as effective HIV prevention tools have most often suggested that these promotion efforts will encourage promiscuity and earlier sexual debuts. However, these arguments have been widely

refuted by research that has found that interventions “that provide explicit sexuality education related to AIDS” to appropriate target populations that focus on “correct condom use, sexual negotiation and assertiveness, and sexual behavior decision making produce reductions – and not increases – in high-risk sexual activity” (Kelly & Kalichman, 1995, p. 914; Kelly, Murphy, Sikkema, & Kalichman, 1993). These authors suggested that when these messages are provided in supportive and non-shaming ways, the interventions will be most effective in supporting behavior change.

Changing any system can be very difficult, and while it is agreed that adopting safer sex behaviors is effective in reducing new HIV infections, social workers understand that changing sexual behavior is still quite challenging. Kelly and Kalichman (1995) summarized this challenge well:

A fundamental characteristic of all HIV prevention strategies is that, to reduce risk, individuals are asked to give up behavior that is enjoyable, gratifying, highly reinforced, and often long-standing, and replace it with alternative patterns that are almost certainly less gratifying, more awkward or inconvenient, and more difficult to enact than present behavior. (p. 911)

One public health strategy that has been heavily used to facilitate these behavior changes is to help individuals fully understand their own transmission risk and the consequences of being HIV-positive, often using moral arguments to compel the behavior change (Rosser, Coleman, & Ohmans, 1993). While these objectives flow directly from many social-cognitive models, they are often operationalized in a manner that seeks to create fear and alarm. Creating fear is inherently disempowering and not in alignment with social work values. In a significant study with gay men (Rosser, 1991a; 1991b), a fear-based approach was found to have the negative

effect of decreasing safer sex activity from over 80% in the sample to less than 50%.

Additionally, many early prevention campaigns that focused on sexual abstinence became less effective over time as they did not address key elements of sex or they simply mechanized sexual activity, dehumanizing those that the interventions were designed to help (McKirnan, Ostrow, & Hope, 1996; Odets, 1994; 1996). In fact, the early 1990s saw many calls for revamping prevention messages to reflect the more sex-positive approaches often found in gay grass-roots prevention efforts (Kelly & Kalichman, 1995; Parker, Herdt, & Carballo, 1991; Rosser, 1991b; Rosser, Coleman, & Ohmans, 1993). An early study of prevention programs by D'Eramo, Quadland, Shattls, Schumann, and Jacobs (1988) found that erotic, sexually explicit safer sex educational videotapes designed for gay men was a more effective strategy than one based on information-giving or counseling.

Additional historical context can be found in an article by Palmer (2004) that recounted some of the experiences of a community organization in Boston from the 1980s to the present day. The first prevention workers were all gay men who developed their own “sex-positive” approach which included “frank discussions of sex and sexuality” (p. 271). This sex-positive approach included using sexually explicit language and images in all elements of their prevention efforts and emphasized the idea that “safe” sex could be “hot” sex, not “boring” sex. They worked to achieve this goal by integrating condoms into all aspects and images of their sexually explicit curricula. Through the 1990s the agency came to employ more heterosexuals who were not always as comfortable with this explicit imagery, and the community at large became less supportive of these efforts as well. As Kelly and Kalichman noted, “HIV prevention – because of its focus on sexuality – elicits strong emotional reactions and requires unusual sensitivity to political and policy issues” (1995, p. 914), something that those outside of the gay

community did not always have. As prevention work has shifted this century to those who are HIV-positive and those at very high-risk, the sex-positive approach has seen a resurgence. An element of the current approach at this agency, that was not as significant in the 1980s but is much more important now, is the emphasized value of taking responsibility for one's own sexual health and that of one's partners and the importance of the sexual health of the larger community. This historical perspective elucidates how systems change over time, and that this must always be kept in mind when evaluating interventions.

Knowledge of HIV/AIDS Transmission Risks

When HIV and AIDS burst with deadly force into the first line of impacted communities (i.e., MSM, Haitians, hemophiliacs), knowledge was at a premium. Very little was known and the impacted communities were desperate for information and any understanding of how to protect themselves. Early in the epidemic the simple provision of information regarding HIV transmission risk was enough to change the behavior of many individuals in these communities, but obviously not all. These public health campaigns were rarely if ever evaluated for their effectiveness in impacting behavior change, and given the government's slow response in the early days of the epidemic, there was little funding for prevention services, much less evaluation.

The "basic mainstays" of these early HIV prevention public health campaigns included "providing basic information about AIDS, alerting individuals about practices that confer risk, and encouraging HIV testing as a behavior change strategy", but these "are no longer sufficient approaches" (Kelly, et al., 1995). Ross and Rosser (1989) found that "information on its own without modification of attitudes or perception of AIDS as a personal concern that one can do something about, will have no effect on knowledge or behavior" (p. 273). This research

supported the increased use of social-cognitive models in HIV prevention which was an improvement, but has also been shown to have significant weaknesses.

While knowledge has been found to have little effect on changing risk behavior when other factors are controlled (DiClemente, Forrest, & Mickler, 1990; Kelly, Murphy, Sikkema, & Kalichman, 1993; Norris & Ford, 1991), it is an important point that one cannot choose to decrease the level of risk in one's sexual behavior if that information is unknown, so it is still information that must be disseminated. Additionally, there is research that suggests other benefits of this knowledge. Stein and Nyamathi (2000) found in their review of HIV prevention interventions that those programs that were designed to increase AIDS knowledge were effective in encouraging more HIV testing for men and women. Increased testing is one of the primary goals of the Advancing HIV Prevention initiative of the CDC that stated that the more people are aware of their own HIV status the more they can receive medical treatment that will decrease their capacity to infect future partners (2003a; Murphy, et al., 2004). It is also of importance that homosexually active men who participate in testing have been found to reduce their number of sexual partners regardless of the test result (McCusker, et al., 1988). Any significant decrease in the number of sexual partners also decreases the potential exposure to HIV and hence the risk of becoming infected or infecting others.

It is clear that while HIV/AIDS knowledge may have limited direct effects on high-risk sexual behavior, it is still an important component in HIV prevention activities. If the medical system does not communicate with social workers and other prevention providers the most current knowledge regarding risk, little can be done to impact systems on an individual level. If social workers providing HIV prevention services do not provide basic transmission and risk reduction knowledge, individuals will not have the information they need to make sound sexual

decisions for themselves. It is also apparent given that researchers do not fully understand the role of HIV/AIDS knowledge in impacting and/or mediating important aspects of HIV prevention such as testing and the number of sexual partners, HIV/AIDS information will continue to be an important component of HIV prevention interventions. One can expect that the interactions between these systems will continue for some time to come.

Sexual Communication and Negotiation Skills

The bedrock of social systems theory is the interaction between social systems, and this includes communication between individuals. Sexual communication and negotiation skills have been a significant component of HIV prevention interventions for over two decades (Kelly & Kalichman, 1995; Kelly, St. Lawrence, Hood, & Brasfield, 1989; Kalichman, Sikkema, Kelly, & Bulto, 1995). Many of these interventions teach “individuals the social skills needed to refuse coercions to engage in unwanted sex or unprotected sex and to initiate discussions with their sexual partners about the need to use condoms and practice safer sex skills” (p. 910). Social skills such as these are best learned in a small group environment where fellow participants can learn methods for refusal and negotiation and then immediately put them into practice in role plays with each other. These types of groups are often facilitated by social work providers who are particularly adept at helping clients learn and adopt new social skills. This also moves the methods of an HIV prevention session away from passive information-giving to active participation and practice (Abraham & Sheeran, 1993). It is this practice component that increases the sense of communication self-efficacy that many men may not have.

Much research has shown that one of the strongest predictors of consistent condom use is communication about sex, and safer sex in particular (Catania, et al., 1992; Kelly & Kalichman, 1995). Additionally, just talking about HIV and AIDS concerns, and not even sex, “influences

the likelihood that sexual practices will be protected by condoms” (Kelly & Kalichman, 1995, p. 910). Semple, Patterson, and Grant (2000) found that in a sample of 256 men who were HIV-positive, poor communication skills were associated with higher levels of UAI. These authors made the recommendation that those persons with poor communication skills could be taught to practice harm reduction strategies that were not dependent on verbal communication, such as engaging in unprotected oral sex instead of UAI, since oral sex has a lower risk of HIV transmission.

Sexual communication and negotiation skills have a clear place in any intervention that is delivered to small groups or individuals. Groups offer particular opportunities for practice with peers in much more realistic situations than even working one-on-one with a social worker. These skills can quickly translate into a participant’s life, moving from the subsystem created by the group in an intervention to each individual’s daily experience, and these individuals can return in subsequent groups to talk about successes and challenges of this application.

Cultural Competence

Cultural competence is a core element of not only social work education, research, and practice, but also HIV prevention. Almost all of the HIV prevention interventions that have undergone a rigorous research effort have been designed, developed, implemented, and evaluated with particular target populations, or social subsystems, in mind. These target populations are often racial and cultural minorities, and in HIV prevention they are frequently sexual minorities. Sexual minorities can include transgender populations, lesbians, MSM, and a myriad of smaller sub-systems within these larger systems that may categorize themselves further by preference in sexual activity (i.e., sado-masochists, fetishists) or presentation (i.e., bears, queens, fems). The particular needs, HIV risks, and concerns of the target population must always be taken into

account by social workers in HIV prevention efforts. Further, Minority Stress Theory emphasizes the need to address the effect of societal homophobia on sexual minorities in HIV prevention interventions.

It has been known for some time that for HIV prevention efforts to be effective, they would have to be tailored to the needs of the target population. Abramson and Herdt (1990) stated that “we need culturally sensitive knowledge of sexual beliefs and practices in order to understand adequately patterns of HIV transmission, to evaluate the impact of AIDS on different communities, and to design more effective intervention programs” (p. 216). This is of particular relevance for MSM given the wide array of sexual activity in this community and the reticence of community members to share information with a homophobic public. UAI is a particularly dangerous sexual activity given the damage that can be caused to sensitive lining in the rectum. This coupled with high levels of HIV that are found in semen, sometimes even for men who have no viral load in their blood, creates a very dangerous situation for a positionally receptive man with an HIV-positive insertive partner. The MSM community has also created many myths about other risk reduction methods such as “pulling out”, which is not effective for avoiding HIV. Another practice that has gained wider use among the MSM community is “dipping”, where the insertive partner will only insert the head of the penis and will pull out to put on a condom prior to ejaculation. While these methods may reduce risk somewhat, they are entirely untested and may provide no benefit at all. Ultimately, social work values remind us that successful interventions must be guided by knowledge and understanding of the sexuality and lifestyle issues of the target population, and one of the best methods to acquire this understanding is through qualitative research that precedes the full implementation of an intervention (Kelly & Kalichman, 1995). Additionally, Minority Stress Theory requires that these interventions also

consider the effect of societal homophobia on MSM in the design and implementation of interventions.

In order to ensure that an intervention will be culturally competent, the literature suggests that at least two steps be taken. First, qualitative research needs to be conducted by the team, including the social work evaluator, who is creating the intervention. Parker, Herdt, and Carballo (1991) argued that qualitative research must be done prior to the implementation of an intervention to ensure that the needs of the community are being met and that the community believes the intervention will be effective. The second step is to utilize a peer facilitator or someone that the target community can relate to as a peer (Ross & Williams, 2002). Of the 33 interventions assessed in the meta-analysis by Herbst and colleagues (2005), 12 listed peer facilitators in at least one capacity. There was no reporting of whether the facilitator, if not a peer, was someone to whom the group could readily relate. While Minority Stress Theory does not address this issue specifically, it can be inferred that having an affirming peer facilitate the intervention would be most effective in creating rapport and a relationship with this oppressed community. Given these points it is clear that an agency or social work researcher wishing to implement or evaluate an HIV prevention intervention needs to put forth significant effort to ensure the cultural competence of the curriculum materials and intervention staff. This could be accomplished through a formative rapid qualitative assessment that would inform a quantitative study or evaluation (Scrimshaw & Hurtado, 1987).

Psychological Issues

Psychological issues as they relate to HIV prevention issues have only been addressed in the literature significantly in the last ten years. This is unfortunate “since instances of unsafe sex maybe symptomatic of deeper underlying issues,” and “it is important for prevention efforts to

focus on the behavior patterns and psychological reasons underlying unsafe sexual behavior” (Robinson, Bockting, Rosser, Miner, & Coleman, 2002). Kelly and Kalichman (1995) accused the HIV prevention research community, particularly psychologists, of paying too little attention “to the many psychological, relationship, cultural, affective-arousal, and situational influences that surround and form the context for human sexual behavior” (p. 907). Similarly, Suarez and Miller (2001) recommended that researchers look more closely at what they termed “contextual issues”, which they generally described as notions of self-worth, self-esteem, and other components of an individual’s identity. Given that social workers have a particularly strong understanding of the ecological person-in-environment approach grounded in the context of systems theory and with an understanding of how larger systems effect individuals as suggested by Minority Stress Theory, they too could contribute more to this research.

One compelling psychological issue that has received research attention, particularly for MSM, is that of sexual orientation and identity. In a large study by Denning and Campsmith (2005) of 674 HIV-positive men who have sex with men, the factor that was most predictive of UAI was identification as heterosexual. The men who were identifying as heterosexual but were having sex with other men appeared to have an internal and perhaps social disconnect such that they were not opting for safer sex methods and instead potentially putting themselves and their sexual partners at risk. This notion of acceptance of sexual orientation in the context of HIV prevention was studied as early as 1993 by Perkins, Leserman, Murphy, and Evans but they did not find any relationship with this construct as an independent variable with the outcome variables of condom use, number of sexual partners, or type of sexual activity. However, Seibt and colleagues (1993) found that among a group of MSM, not identifying as gay or bisexual predicted more UAI. More recently, Ross, Henry, Freeman, Caughy, and Dawson (2004)

employed the unique methodology of “situational presentations” where participants react to presentations of certain situations that are highly controlled while several independent variables can be manipulated. They found that sexual orientation and degree of being open about their sexual orientation predicted their level of safer sex. Those participants who claimed a sexual orientation that concurred with their sexual behavior engaged in more safe sex, as did those for whom many significant others in their lives were aware of their sexual orientation. While there are certainly many factors involved, and the research is not entirely conclusive, it appears to be worthy of future study.

A similar construct is that of acculturation within the gay community. Broadly speaking, a lack of social support and feelings of loneliness and isolation have been found to be associated with risk behavior (Clement, 1992; Semple, Patterson, & Grant, 2000). In most of the literature on acculturation as a psychological issue for MSM it is described as a level of comfort and interaction both socially and sexually within a larger community of other MSM. Joseph, Adib, Joseph, and Tal (1991) operationalized gay acculturation as the amount of time spent with other gay men together with their degree of comfort regarding their own sexual orientation. They found that after six months, the interaction between social participation with other gay men and positive attitude regarding their own sexual identity significantly predicted lower sexual risk behavior. Seibt and colleagues (1995) defined gay acculturation as a measure of the level of involvement in the gay community. They analyzed data from 282 MSM at a community demonstration project in a large city, and while sexual identity accounted for very little of the variance in safer sex behavior, there was a strong relationship between gay acculturation and safer anal sex.

While a thorough review of the issue of sexual compulsivity falls outside the bounds of this study, having high numbers of sexual partners does significantly increase HIV transmission risk. Sexual compulsivity has been found to be an issue for some MSM (Herring, 2001; Reece, 2003) and can be a challenge that limits the effectiveness of HIV prevention efforts (Reece, 2003; Robinson, Bockting, et al., 2002). In a large study that conducted almost 6,000 anonymous surveys of gay men entering bars in 16 small American cities, a very high percentage (27%) of men reported engaging in UAI in the previous two months (Kelly et al., 1995). Kelly and colleagues found that “having a large number of different sexual partners in the recent past emerged as the single strongest predictor of engaging in UAI” (p. 106). Those who were engaging in the most UAI had an average of 4.5 partners over the previous two months while those participating in the least UAI averaged 2.5 partners. These authors recommended future interventions “need to better address psychological factors related to behavior change in HIV prevention programs” (p. 106) in addition to sexual communication and negotiation skills.

There appear to be compelling components to psychological issues as specifically relevant to MSM, and these are embedded in the social systems of individuals. Given social workers’ longstanding efforts to empower cultural and sexual minorities, these are issues that are very relevant to the discipline. The notion of public identity relevant to sexual orientation and acculturation when seen as social and sexual comfort with other members of one’s minority community appear to have an effect on the risk behavior of MSM. Per Minority Stress Theory, as the larger cultural system affects sexual minorities, the consequences (e.g., internalized homophobia) of the system interactions must be considered. Additionally, psychological issues such as sexual compulsivity that can increase the numbers of sexual partners of MSM need to be considered as challenges to HIV prevention efforts. These constructs need to be more fully

studied so that social workers can take new findings and integrate them into systemically relevant prevention interventions relevant for MSM.

Community Input

The community plays a very important role when using a systems approach to HIV prevention interventions. Similar to the need for cultural competence of an intervention's materials and facilitator(s), it is also important to work with the target community to provide relevant services that are perceived as beneficial by the community. Interventionists and researchers spend a great deal of time and energy in the design, development, implementation, and evaluation of HIV prevention interventions, but if they create something that the target community does not find to be relevant it will not succeed. Social workers are uniquely positioned to provide a bridge between researchers and practitioners. Two published studies asked the community for input and had the following findings.

Seal and colleagues (2000) conducted interviews with 72 young MSM (ages 16-25) to ask them what they perceived as being needed in HIV prevention services. Overall, the respondents noted a need for HIV prevention programs that addressed issues related to dating and intimacy, relationships, sexual communication, sexuality and arousal, self-esteem, and sexual identity. They reported that simplistic "just say no" messages were not helpful, but instead preferred an openness to sexually explicit dialogue, including condom use eroticization, all in the context of sexual responsibility. Respondents also said that men's discomfort with identifying as gay was a barrier to emotional intimacy (which was strongly desired by this group), and that sexual communication skills-building was one way to address this issue. They wanted a non-judgmental provider that they could relate to who did not do too much lecturing but rather kept

those pieces brief. They also discouraged the researchers from describing the intervention as “HIV prevention” and instead call it something more appealing.

Hyde, Appleby, Weiss, Bailey, and Morgan (2005) conducted an evaluation of HIV prevention services for HIV-positive persons across five CBOs in Los Angeles County. The researchers employed semi-structured interviews with clients, agency directors, and agency staff to assess perceived benefit of the interventions in the community. The researchers reported that “a combination of education, skills-building exercises, and social support from peers were most often attributed to the reported changes” (p. 61) that the participants experienced. In particular, those that described the greatest benefit were those who were struggling the most with condom use negotiation in sexual settings. They also liked the “experiential process” of learning in the small group setting where they could learn from and work with their peers.

Internalized Homophobia in the context of HIV Prevention

Internalized homophobia may negatively effect MSM’s willingness to identify as being gay to others and self, comfort in gay social environments, and comfort in sexual interactions. These issues are particularly salient in the context of HIV prevention. According to Minority Stress Theory, if a gay man believes that being gay is wrong and that others will view him negatively for being gay, he is less likely to admit his sexual orientation to himself or to others. Hiding his sexual identity can lead to isolation from friends, family, and a community of supportive individuals. Internalized homophobia, as an element of minority stress, also contributes to a lack of interaction with the gay community and can hinder healthy social and sexual interactions with other gay men. This section will explore some of these consequences of internalized homophobia for gay men, including its effect on HIV risk behaviors.

Perhaps most importantly from a health and social work perspective, internalized homophobia has been found to be a significant contributor to HIV risk behaviors. In the early days of the epidemic, the gay community responded quite strongly to HIV prevention messages and changed their risk behaviors significantly. The subsystem minority target community was open and eager to hear the prevention messages and make changes in their own social and sexual interactions. Stulberg and Smith (1988) found that 86% of their sample of 301 HIV-negative gay men reported having decreased or entirely eliminated high-risk sexual activities including UAI and multiple sexual partners in response to the epidemic and early prevention efforts. They also found increased condom use for anal sex. These early achievements by the gay community have since lost ground.

Unprotected anal intercourse (UAI) carries the highest risk of HIV transmission and therefore is of utmost concern for HIV prevention workers. In a study of Canadian MSM, those participants who reported more internalized homophobia were more likely to engage in high-risk anal sex (Ratti, Bakeman, & Peterson, 2000). Similarly, Fisher (1984) found that acceptance and comfort with sexuality were associated with greater condom use, even when controlling for behavioral intentions. In other research, Rosario, Hunter, Maguen, Gwadz, and Smith (2001) found that negative attitudes toward homosexuality were positively associated with unprotected sexual activity, and Herek and Glunt (1995) found that internalized homophobia was positively associated with interpersonal barriers to engaging in safe sex. In a small sample of HIV-positive gay men who were part of a larger study on minority stress, Meyer and Dean (1998) found that internalized homophobia was a predictor of AIDS related risk-taking behavior. In their assessment of the effect of internalized homophobia on HIV prevention social services, Huebner, Davis, Nemeroff, and Aiken (2002) found that internalized homophobia was inversely related to

gay men's self-efficacy for condom use, inhibiting their confidence and comfort in using condoms. Similarly, Herek and Glunt (1995) found that internalized homophobia was negatively associated with feelings of self-efficacy for safer sex. The assertion of social systems theory and Minority Stress Theory that the environment can effect an individual's behavior is therefore borne out by the empirical research.

As has been noted, different sexual positions for MSM have different levels of risk, and the selection of sexual position has been found to be effected by internalized homophobia. Within the gay community preference for sexual position during anal intercourse is commonly collapsed into three categories: 1) "Tops" who tend to prefer to be the insertive partner, 2) "bottoms" who tend to prefer to be the receptive partner, and 3) "versatiles" who do not have a tendency but rather engage in both insertive and receptive anal intercourse (Wolitski, Parsons, & Gomez, 2004). Being the receptive partner in UAI carries with it the highest level of risk of HIV acquisition. Research has shown that tops are less likely to identify as gay than bottoms or versatiles (Hart, Wolitski, Purcell, Gomez, & Halkitis, 2003), suggesting a higher level of internalized homophobia may be present among tops who are unwilling to identify as gay. Given that MSM who are less likely to identify as gay are more likely to engage in unprotected anal intercourse (Denning & Campsmith, 2005; Ross, Henry, Freeman, Caughey, & Dawson, 2004; Seibt, et al., 1993), they will also be more likely to be tops. This may place receptive partners at even higher risk of becoming infected.

Internalized homophobia has been shown to have a negative relationship with publicly identifying as gay (Cabaj, 1988), and being able to share one's sexual orientation with others inside and outside of the gay community is relevant for HIV prevention work. Meyer and Dean (1998), in their work on minority stress for gay men, found that higher levels of internalized

homophobia among gay men were related to less disclosure of sexual orientation both inside the gay community and within the larger community as a whole. This has the effect of cutting off these persons from possible social support, as well as prevention messages that have been targeted specifically to the gay community. This challenge is further compounded by the fact that a perceived lack of social support and feelings of loneliness and isolation have been found to be associated with risk behavior (Clement, 1992; Semple, Patterson, & Grant, 2000).

This social support is also part of another important system, the gay community. As previously mentioned, being connected to the gay community to be able to receive social support acts as a buffer against heterosexism (Herek, 1995), and may improve outcomes for HIV prevention efforts (Huebner, et al., 2002). Here, the support of one subsystem can lessen the negative effects of a larger subsystem on an individual, a contention also supported by Meyer and his Minority Stress Theory (2003). Higher levels of internalized homophobia, as an element of minority stress, have been shown to correlate with less involvement with the gay community (Meyer & Dean, 1998). Therefore, those that suffer from higher levels of internalized homophobia may not seek out support in their efforts to decrease their own risk behavior. Even in the context of HIV prevention services, internalized homophobia was found to be a negative predictor of the extent to which participants felt similar and were able to relate to their peers (Huebner, et al., 2002). Unfortunately, gay men who have higher levels of internalized homophobia tend to distance themselves from friends, lovers, and family members, denying themselves the opportunity to receive support from this support system (Kantor, 1998).

To compound this issue, it is important to note that just because a gay man is struggling with high levels of internalized homophobia does not mean that individual is avoiding sexual activity. As Huebner and colleagues (2002) found, this ambivalence about interacting with the

gay community and other gay men, does not necessarily inhibit sexual activity. Internalized homophobia does however contribute to difficulties in intimate sexual relationships among MSM (Meyer & Dean, 1998). In a study of 86 gay men, high levels of internalized homophobia were associated with low levels of satisfaction in relationships with same sex partners (Romance, 1988). In a survey of 149 gay men in a large urban setting, Frederick (1996) found a positive relationship between internalized homophobia and fear of intimacy. All of these findings suggest that internalized homophobia can hinder the capacity of gay men to connect socially and in intimate relationships with other gay men.

Internalized homophobia is clearly a significant issue for gay men in general in this research, but also in particular for HIV prevention efforts. Internalized homophobia has been found to be highly related to HIV risk behaviors. Further, internalized homophobia can even limit the benefit that participants receive when they do participate in HIV prevention services. Meyer and Dean (1998) concluded that internalized homophobia issues must be included in the design of AIDS prevention programs for them to be effective.

Conclusion

The contents of this chapter provide a strong rationale in support of conducting an evaluation of the Relationships, Intimacy, and Sex workshop, and assessing any potential negative effect of internalized homophobia on the outcomes of that workshop. HIV/AIDS is an undeniable threat to the health and social fabric of society, in particular to marginalized sexual minorities. It has been shown that there is a lack of effective HIV prevention interventions for Caucasian MSM. It is hoped that the intervention evaluated in this study will prove to be effective and will serve to fill this gap. Social workers need to evaluate HIV prevention interventions for effectiveness to stem the rising tide of new infections among MSM, and

provide direct social work providers with the most effective interventions available. It is asserted that social workers in particular have the unique knowledge base and skill sets required to facilitate the researcher-practitioner collaboration necessary to evaluate culturally competent interventions.

The evidence that internalized homophobia negatively effects sexual risk behavior and the expected knowledge and attitudinal outcomes of HIV prevention interventions is also clear and supported by social systems theory and Minority Stress Theory. It is the goal of this study to contribute to the understanding of this phenomenon and assess the effect of internalized homophobia on the behavioral outcomes of these interventions. This is of great importance as HIV is spread through risky sexual behavior.

The following chapter will provide an overview for a new and unique conceptual model, the Sexual Health Model, which has been designed specifically to support the development and evaluation of HIV prevention interventions. The chapter will also outline the connections between the Sexual Health Model, systems theory, and Minority Stress Theory. This model is aligned with many of the findings related throughout this chapter. It is also congruent with the person-in-environment model as it considers the environmental effect of constructs like internalized homophobia (that are created by the larger society) on individuals experiencing an intervention.

CHAPTER III

Conceptual Framework

The Sexual Health Model

It has been established that social-cognitive theories and models have limitations in the creation and evaluation of HIV prevention interventions. As noted earlier, social-cognitive models tend to focus on the provision of information and efforts to change behavioral intentions and health beliefs, sometimes by using moral or fear-based arguments that have become less effective over time and are not in line with social work values. These models also do not address the systems in which sexual minorities exist, affirmative sexuality, interactive sexual communication and negotiation, psychological issues, or cultural factors that are relevant to sexual minorities. There is still a place for social-cognitive models and they contribute the efforts of HIV prevention workers, but new models need to be used to increase the effectiveness of HIV prevention efforts.

It has also been established that systems theory and Minority Stress Theory are relevant to HIV prevention. The ecological approach, flowing from systems theory and encompassing the person-in-environment framework, asserts that society effects the development and behavior of an individual. Minority Stress Theory states that sexual minorities are negatively effected by the omnipresence of subtle and overt homophobic and heterosexist messages in the larger societal system. The Sexual Health Model concurs with this assertion and suggests further that characteristics of individuals will also effect how beneficial an intervention may be for those individuals. This study utilized the Sexual Health Model that was developed by Robinson,

Bockting, Rosser, Miner, and Coleman (2002). The model emerged from three sources: 1) A comprehensive sexuality education seminar that has been provided for over 30 years, 2) culturally specific understandings of sexual health, and 3) empirical research on HIV risk and its context. The earliest version of the Sexual Health Model was applied to the design and evaluation of an HIV prevention intervention in 1994 with MSM (Rosser & Bockting, 1994, as cited in Robinson, Bockting, Rosser, Miner, & Coleman, 2002), and has since been implemented with diverse populations including transgenders (Bockting, Robinson, Forberg, & Scheltema, 2005; Bockting, Rosser, & Scheltema, 1999), MSM (Ross, et al., 2001; Rosser, et al., 2002), low-income African American women (Robinson, Scheltema, & Cherry, in press), sexual assault victims (Miner, Flitter, & Robinson, in press), and in the study of specific sexual health issues such as masturbation (Robinson, Bockting, & Harrell, 2002), the measurement of relevant sexual health outcomes (Miner, Robinson, Hoffman, Albright, & Bockting, 2002), and community involvement (Uhl, Robinson, Bockting, Westover, & Cherry, 2004). The studies most relevant to HIV prevention will be addressed more fully after a thorough discussion of the Sexual Health Model.

Sexual Health

A core tenet of the Sexual Health Model is the definition of sexual health created by Robinson, Bockting, Rosser, and colleagues (2002) that is based in part on the World Health Organization's (1975) definition and previous definitions of colleagues (Coleman, 2002; Rosser, et al., 1995). The definition used to support the Sexual Health Model is as follows:

Sexual health is an approach to sexuality founded in accurate knowledge, personal awareness and self-acceptance, such that one's behavior, values and emotions are congruent and integrated within a person's wider personality structure and self-definition.

Sexual health involves an ability to be intimate with a partner, to communicate explicitly about sexual needs and desires, to be sexually functional (to have desire, become aroused, and obtain sexual fulfillment), to act intentionally and responsibly, and to set appropriate sexual boundaries. Sexual health has a communal aspect, but also respect and appreciation of individual differences and diversity, as well as a feeling of belonging to and involvement in one's sexual culture(s). Sexual health includes a sense of self-esteem, personal attractiveness and competence, as well as freedom from sexual dysfunction, sexually transmitted diseases, and sexual assault and coercion. Sexual health affirms sexuality as a positive force, enhancing other dimensions of one's life (p. 45).

The definition captures many of the significant components recommended by the literature reviewed in the previous chapter, including making behavioral changes in a sex-positive context, the provision of accurate knowledge, the need for sexual communication skills that include sexually explicit language, the importance of intimacy in relationships, and attention to psychological issues and identity. In this way, an HIV prevention intervention that is congruent with this model would also be aligned with the literature, systems theory, and Minority Stress Theory.

Robinson, Bockting, Rosser, and colleagues describe the model as “sexually pluralistic” with a “sex-positive focus, encouraging comprehensive sexuality education, and the use of sexually explicit materials and language” (p. 46). By sexual pluralism the authors mean an acceptance of the sexual differences among all persons, and that there are many ways to lead a sexually moral life for diverse communities. This honoring of differences between cultural and sexual minorities and the society at large is in line with social work values. It also addresses the moralization of prevention messages that can sometimes be found in social-cognitive based

interventions that have lost their original motivating power. It is asserted that the Sexual Health Model, as a descendant of systems theory and the ecological person-in-environment approach, is congruent with social work principles and values.

Additional elements of the Sexual Health Model seem to be in concert with the literature as well. Robinson, Bockting, Rosser, and colleagues (2002) stated that the application of the model “in sexual health interventions requires a format that would facilitate open, frank and explicit discussion about sexuality (e.g., small group discussions)” (p. 46). The authors also agreed with the importance of culturally relevant materials to a sexual minority such as MSM when they say that “HIV prevention participants find the material more relevant, understandable, interesting and believable, and therefore they are more likely to listen, understand and remember it” when the materials are tailored toward the target population’s needs and lifestyles. There is a strong component of empowerment of individuals “to think for themselves, to identify their sexual feelings, needs and preferences, to develop their own sexual morality to make informed choices about their behavior, and to develop individualized HIV prevention plans” (p. 46). The goal of empowerment of a marginalized minority is a core social work ethic.

Theoretical and practical applications

While the Sexual Health Model was created to address sexual health issues broadly, the authors believed that it has particular relevance to the advancing HIV/AIDS epidemic. They stated that “the assumption underlying the application of the model to HIV prevention is that sexually healthy persons will be more likely to make sexually healthy choices, including decisions concerning HIV and sexual risk behaviors” (p. 51). As can be seen in the diagrammatic representation of the Sexual Health Model (Figure 1), HIV prevention must begin by acknowledging and learning about the background of the target population as a first step in

developing the intervention. This is a clear expression of social systems theory and the ecological approach. This process is quite similar to one that would be used if a social worker were utilizing a person-in-environment model and is supported by the literature provided in chapter two. Robinson and her colleagues explicitly stated that “these background characteristics can directly impact sexuality outcomes such as sexual communication and HIV risk reduction outcomes” (p. 51). A clear example of a background characteristic for MSM is internalized homophobia. Since it has been asserted that the background characteristic internalized homophobia is created by homophobic attitudes, beliefs, and actions of the societal system in the U.S., Minority Stress Theory also supports the hypothesis. The authors hypothesized “that HIV prevention interventions based on the Sexual Health Model can positively impact sexuality outcomes and HIV risk reduction” (p. 51). Overall, the Sexual Health Model advocates a sex-positive, comprehensive approach to sexual health, rooted in the notion of sexual pluralism, as supported by the literature, and congruent with social work values.

Based on their experience and empirical research, and coupled with a full understanding of the existing literature, Robinson, Bockting, Rosser, and colleagues (2002) proposed ten components for the Sexual Health Model. Given that the model is in a relatively early phase of development and testing, the authors have not yet defined the interactions and hierarchy of the ten components. At this time the components are generally assumed to have equal weight, dependent upon the specific needs of a target community. The components are as follows:

1. Talking about sex: “The ability to talk comfortably and explicitly about sexuality” (p. 48) is a cornerstone of Sexual Health Model. “Communication is necessary for effective negotiation of safer sex with sexual partners” (p. 48), and the authors encouraged using sexually explicit materials and language as appropriate for the target community.

2. Culture and sexual identity: “It is important that individuals examine the impact of their particular cultural heritage on the sexual identities, attitudes, behaviors and health” (p. 48). From this statement a corollary can be derived that the meaning of a sexual identity within a culture can have a significant impact on these attitudes, behaviors, and health as well. “The cultural meaning of sexual behaviors needs to be taken into account since that meaning may drive unsafe sex or safer sex” (p. 48). For example, the meanings underlying the unique phenomenon of barebacking, or intentional unprotected anal intercourse, would have to be considered in any HIV prevention effort targeting MSM.

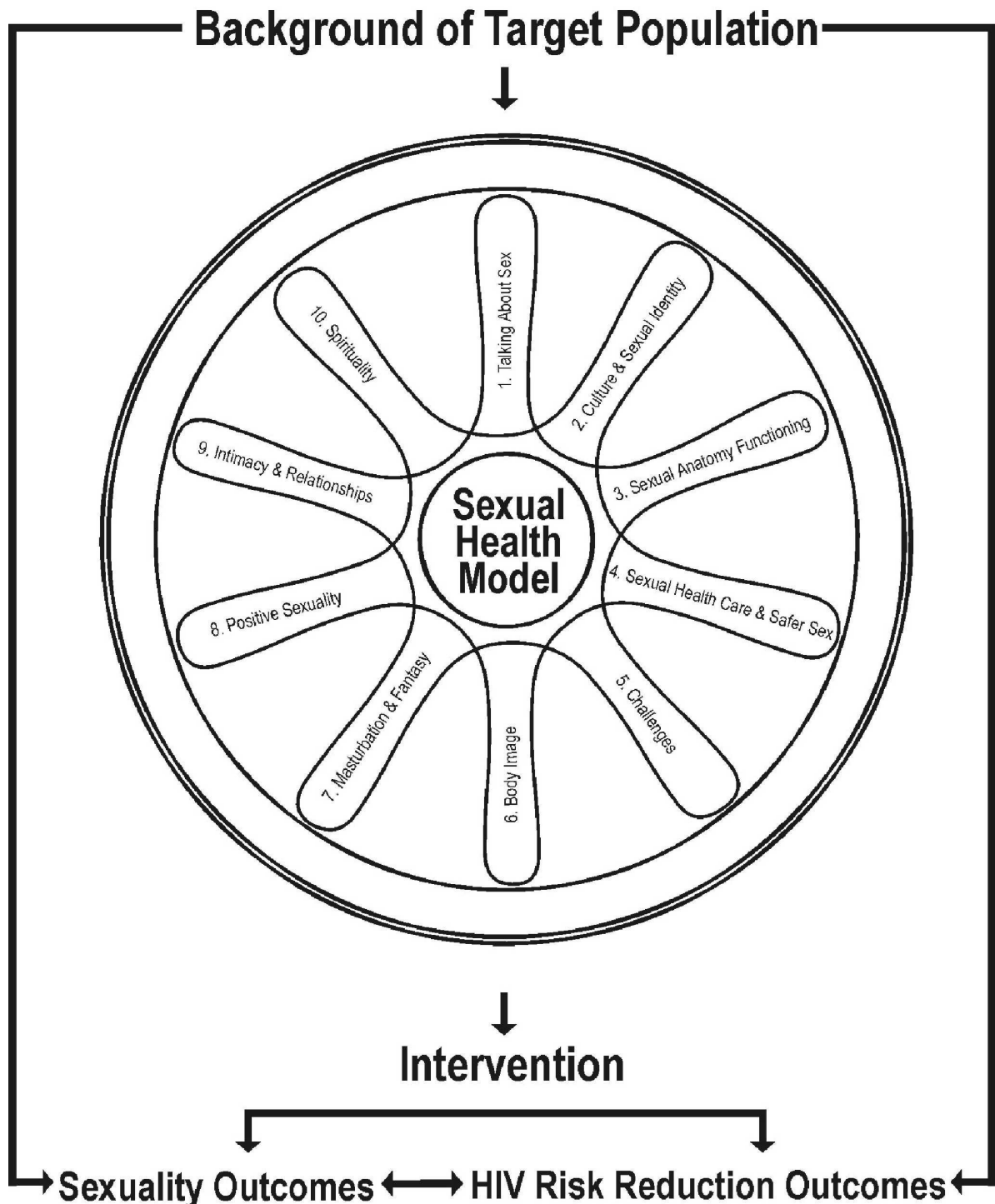
3. Sexual anatomy and functioning: This is the “knowledge, understanding, and acceptance of one’s sexual anatomy, sexual response, and sexual functioning, as well as freedom from sexual dysfunction and other sexual problems” (p. 48). Sexual difficulties can be present and interfere with condom use, and condom use can sometimes contribute to sexual difficulties.

4. Sexual health care and safer sex: This component encompasses “knowing one’s body, obtaining regular exams for sexually transmitted disease” (p.49), and understanding the meaning of safer sex and the level of risk of unsafe sexual behavior as it relates to the level of risk an individual has decided he will tolerate.

5. Challenges: Overcoming barriers to sexual health: Some examples of this component include compulsive sexual behavior, sexual harassment, discrimination, minority stress and internalized homophobia. These can be particularly salient for cultural and sexual minorities. “A sexual health approach to HIV prevention explores the association of these challenges to unsafe sex and addresses strategies for recovery, in an atmosphere that promotes resilience and empowerment” (p. 49).

Figure 1

Application of the Sexual Health Model to HIV Prevention



6. Body Image: “Challenging the notion of one, narrow standard of beauty and encouraging self-acceptance is relevant to all populations, and the Sexual Health Model advocates doing this in a culturally sensitive manner” (p. 49).

7. Masturbation and Fantasy: “A sexual health approach to HIV prevention includes a realistic appreciation of the important role of masturbation and fantasy in safer sex. Along with abstinence, it is the ultimate in safe sex” (p. 50).

8. Positive Sexuality: “The importance of exploring and celebrating sexuality from a positive and self-affirming perspective is an essential feature of the Sexual Health Model” (p. 50). The authors go on to say that “the model assumes that when people are comfortable with their sexuality – know and are able to ask for what is sexually pleasurable for them – they will be more able to set appropriate sexual boundaries essential for safer sex” (p. 50). In their HIV prevention curricula, “positive sexuality includes appropriate experimentation, affirming sensuality, attaining sexual competence through the ability to get and give sexual pleasure, and setting sexual boundaries based on what one prefers, as well as what one knows is safer and responsible” (p. 50).

9. Intimacy and Relationships: “Intimacy can affect safer-sex decision making and is a critical area to address in a sexual health approach to HIV prevention since intimacy is such a universal need for all people” (p. 50). The researchers included dating and relationship skills to improve safer sex negotiation and facilitate communication as a method of developing intimacy.

10. Spirituality: “Sexual health assumes a congruence between one’s ethical, spiritual and moral beliefs, and one’s sexual behaviors and values” (p. 50). The researchers stated that MSM in particular must deal with the challenge of homophobia within many organized religions when attempting to claim their spirituality.

Robinson, Bockting, Rosser, and colleagues (2002) recommended that the ideal HIV prevention curriculum based on their Sexual Health Model would include all ten of the above components. However, they acknowledged that the Sexual Health Model is not appropriate for all contexts/environments and “that not all components of the model need to be applied in all situations” (p. 53). Social workers should come to understand what the most important components are for a given target population through qualitative research with the target community. As the researchers stated, “intervention planners must build an in-depth knowledge-gathering phase into their development plan. Conducting multiple focus groups comprised of individuals from the targeted communities is recommended” (p. 52).

The framers of this model are quick to acknowledge that an intervention developed in this way would not be appropriate for everyone. For those individuals struggling with significant psychological issues, intensive psychotherapy would be more appropriate than a sexual health intervention. They also recommended the availability of psychiatrists, other medical doctors, and mental health professionals, such as social workers, for referrals as needed. Additionally, it is the opinion of Robinson, Bockting, Rosser, and their colleagues (2002) that the intervention should be developed with the significant input of mental health care professionals, including social workers.

Evaluations of the Sexual Health Model

As mentioned above, the Sexual Health Model has been used in the design and evaluation of HIV prevention interventions for low-income African American women, MSM, and transgenders. While the model has been used in research in several other areas as well (i.e., sexual assault victims), and in efforts to test the model, this section will focus on the model’s use in HIV prevention intervention evaluation efforts.

Robinson and colleagues (2002) conducted a randomized controlled trial on the Women's Initiative for Sexual Health (WISH) intervention that was designed for low-income African American women. The study employed a highly rigorous design with data collection at pretest, and three-month and nine-month follow ups. Since their goal was to provide support for the Sexual Health Model, all outcome variables were tied to six components of the model that were used in the development of WISH. The 218 participants were randomized into either a treatment group or a no-treatment control group. The intervention was found to be effective in improving knowledge of sexual anatomy and increasing positive attitudes toward the female condom, but no other treatment effects were identified. The authors provided a lengthy discussion of the reasons for the unexpectedly weak treatment effects including the "challenges that are inherent in conducting community-based research with high-risk populations and sensitive topics" (p. 82). They further concluded that the intervention was significantly weakened by recruitment challenges and high attrition rates (only 49% of all participants completed all three surveys) and strongly recommended the use of appropriate incentives that are withheld until the completion of all data collection.

Given the lower than intended sample size, Robinson and her colleagues (2002) found that they had very low statistical power (.203 at the three-month survey and .089 at the nine-month), which put the research at a high risk of making a Type II error (not having the power needed to find a treatment effect that may have been present). The authors concluded that their use of in-person interviews (to ameliorate the challenges of low literacy levels in the sample) may have introduced a social desirability bias that negatively skewed the reporting of less safe sex behaviors. The researchers also faulted their intervention design as possibly not being powerful enough to influence changes in sexual behaviors. The curriculum was delivered over

two concurrent days for a total of four hours and focused primarily on educational components in large groups with some small group breakouts that provided limited skills training. Finally, the authors suggested that it may be that the Sexual Health Model does not work as well with African American women as it does with MSM, for whom “issues of sexuality and sexual behavior are defining aspects of their identity and stigmatization” (p. 92). They also suggested that the difference in socioeconomic status between gay men and low-income African American women allows higher-income gay men to focus more on behavior change. They recommended focusing on the defining aspects of identity and stigma for the target population, which could be racial identity for African American women and identification as a sexual minority for MSM.

Many of the setbacks faced in the WISH evaluation can be traced to the premature use of a randomized controlled design with long-term follow-up. Given the significant possibility of a Type II error, one cannot reasonably conclude that there were no positive treatment effects, only that the design created a study that was not powerful enough to detect treatment effects if they existed. It would be premature to conclude that the Sexual Health Model was limited in value, as the WISH evaluation is too weak to support that conclusion. Some lessons from this study that can be implemented in future evaluations include beginning with qualitative assessment of the target population, choosing a developmentally appropriate evaluation research methodology, considering covering fewer topics in little time or increasing the time to cover all topics more thoroughly, focusing on the defining aspects of identity for the target population, and spending adequate time on skills-building and role-playing components of the intervention.

Rosser and colleagues (2002) utilized a randomized controlled trial design to evaluate an HIV prevention intervention specifically designed for MSM using the Sexual Health Model. The intervention (called the Man-to-Man Sexual Health Seminar) was a two-day, 18-hour seminar

based on the Sexual Health Model that included data collection at baseline, three-months post-intervention and 12-months post-intervention. The finding of most practical significance was an 8% increase in the use of condoms during anal intercourse in the treatment group coupled with a 29% decrease in condom use during anal intercourse among the control group. The intervention had a strong sex-positive tone throughout and made use of sexually explicit images that supported that philosophy.

The seminar was designed specifically for MSM and the sexual issues that are prevalent among that community. The seminar included sections covering sexual communication, components of sexual identity, sexual orientation, barriers to healthy sexuality, heterosexism and internalized homophobia, responsible sexuality, HIV and STDs, safer sex, a personalized HIV risk assessment, sexual decision making, and other topics relevant to MSM. These topics were addressed in large group presentations, small group discussions, sexually explicit videos, presentations by health professionals, behavioral modeling, and exercises. The intervention specifically attempted to modify negative attitudes toward sexuality, condoms, internalized homophobia and address struggles with intimacy and dating. Incentives in the form of free meals and snacks as well as earning \$40 at the end of the study were provided.

Rosser and colleagues also experienced some challenges to their research during the course of the evaluation. While they had low attrition rates at follow-up (13% at three months and 17% at 12 months), it was discovered that a key item collecting data on the dependent variable of unprotected anal intercourse was placed among many other questions late in the survey (on the eighth page) and was left blank for many of the 12-month surveys. This decreased their sample size to 169 ($n = 101$ for the treatment group and $n = 68$ for the control group), limiting the power of their findings. Statistical analysis ruled out differential attrition between the

treatment and control groups. The researchers also found a relatively low level of risk among their sample (only 14.2% reported unsafe sex at baseline), which they believed was representative of the Midwest community in which the study was conducted, but which may also have limited the level of increase use of condoms for anal intercourse. Overall, Rosser and colleagues concluded that a sexual health approach can be effective in influencing behavior change among MSM.

Rosser and colleagues had more positive results than did Robinson and her colleagues in the WISH evaluation, but still experienced some significant challenges. However, these issues arose out of methodological limitations and the resulting limited findings cannot be ascribed to the Sexual Health Model itself. Some significant change in key sexual behavior outcomes was noted, even with these limitations, which suggests that further assessment of this model should be done.

A recent study evaluated an HIV prevention intervention for transgenders using the Sexual Health Model. Bockting, Robinson, Forberg, and Scheltema (2005) conducted the evaluation of a two-day 16-hour seminar that included the delivery of lectures, videos, exercises and small group discussions to 181 transgender participants. They used all ten components of the Sexual Health Model and based the curriculum on previous qualitative research through focus groups. There was also a significant focus on building community and establishing and internalizing positive sexual identities. Due to funding limitations, control groups were not used. The researchers found an improvement in attitudes toward condom use and safer sex self-efficacy as well as a decrease in sexual risk behavior (UAI).

It appears that the Sexual Health Model can be an effective tool in the design and evaluation of HIV prevention interventions, but not without some challenges. With only these

few evaluations as evidence, it is too early to conclude that the Sexual Health Model is ineffective. Instead, the limited findings from the work with African-American women and MSM could be due primarily, if not solely, to methodology, attrition, and lack of attention to detail. Even with these challenges, some positive results were found, suggesting that it would be premature to make a final determination of the usefulness of the Sexual Health Model. There are still significant advantages to using the model such as its “emphasis on human sexuality – a topic with intrinsic appeal, and thus issue salience, to most people, in contrast to HIV prevention per se” (Robinson, Bockting, Rosser, et al., 2002, p. 53). Interventions that reflect the principles and relevant components of the Sexual Health Model “can provide a stimulating, motivational, empowering and fun environment, which in turn can motivate people to learn.” (p. 53).

The Relationships, Intimacy, and Sex Workshop

The intervention being evaluated in this study was originally designed in 1998 by program staff, including social workers, at Positive Impact, Inc., a community-based organization located in downtown Atlanta, Fulton County, Georgia. It was originally simply called the “Risk Reduction Group” and was designed to reduce the risk of HIV transmission for the participants, who were all HIV-positive. As McLeroy and colleagues (1988) suggested, the intervention was developed like most health education practice, by local providers and social workers based upon their own practice wisdom and belief in the efficacy of an intervention, and their perception of what would be well received by the target population. The intervention was funded by the Georgia Department of Human Resources (GDHR), piloted and subsequently implemented for over three years until 2001 when a change in staffing saw interest in the group wane. The group was reclaimed in 2003 and funding for a new pilot, to be guided by qualitative research with the target community of Caucasian MSM, was received from GDHR. The original

Risk Reduction curriculum was significantly updated and informed by the semi-structured interviews that were conducted by the new Program Coordinator, as suggested by the literature review from chapter two. The new program, named the “Relationships, Intimacy, and Sex Workshop” (RIS) was then implemented over the remainder of 2004. The intervention targets but is not limited to Caucasian MSM.

Toward the end of 2004, GDHR asked the agency (as it did all HIV prevention agencies that it funded) to either adopt an entirely new intervention approved by CDC as an Evidence-Based Intervention (EBI) or tailor current programs to meet the requirements of those interventions. The agency found that the Relationships, Intimacy, and Sex workshop had many commonalities with an intervention developed and evaluated by Kelly, St. Lawrence, Hood, and Brasfield (1989) called Partners in Prevention. This was a 12-week (total of 12 hours) intervention provided primarily to Caucasian MSM that used group process, lecture, and role-playing methods to deliver information and develop risk reduction skills. The intervention had since been included in CDC’s Compendium of HIV prevention interventions with evidence of effectiveness (CDC, 1999a; 1999b). Below is brief summary of the sessions and content of the Partners in Prevention intervention.

Sessions 1-2: AIDS risk reduction. This component included information about AIDS, HIV infection, and HIV-transmission methods.

Sessions 3-5: Behavioral self-management. Participants examined past high-risk sexual activity and identified mood, setting, substance use, and other factors associated with the risk taking. Leaders presented strategies to reduce risk.

Sessions 6-8: Assertion skills training. Three scenarios were used: (a) initiating discussion about one's commitment to low-risk behavior with a potential sex partner; (b)

refusing pressures to engage in high-risk behavior; and (c) declining an immediate sexual proposition from a person one wanted to get to know socially.

Sessions 9-11: Relationship skills and social support development. This component addressed strategies for problem solving in relationships and for maintaining low-risk sexual practices, even in committed relationships.

Session 12: Risk-reduction review and identification of useful strategies. This session allowed each participant to address the changes he had made and the strategies he had used (CDC, 1999).

The goal of the Partners in Prevention intervention was to reduce high-risk sexual activity and improve sexual communication skills for refusing sexual coercion to engage in high-risk sex. A quasi-experimental design with comparison group was used. Kelly and his colleagues found that the gay men in the treatment group reduced UAI and increased condom use significantly more than the participants in the comparison group.

The Partners in Prevention intervention was designed and evaluated in the late 1980s, over 15 years ago. While the intervention was strong and effective, it clearly needed to be updated to be current. Significant shifts have occurred in the epidemic since that time, not the least of which is the now widespread use of HAART. The older prevention messages were often outdated, with inaccurate or incomplete information. The messages were also perceived by social workers and the designers of the Relationships, Intimacy, and Sex workshop to lack appeal to the MSM community in the 21st century, with a noticeable lack of fluency in current gay culture. While there was good correlation in overall goals, delivery method, and message intent, the intervention needed to be significantly updated to be relevant 15 years after its original design and evaluation.

The Partners in Prevention curriculum was updated and integrated into the existing Relationships, Intimacy, and Sex workshop and the agency piloted the revised intervention in the spring of 2005. The new Relationships, Intimacy, and Sex workshop had a sex-positive emphasis as applied to issues of healthy relationships and sexual communication for MSM provided in affirming rather than shaming messages to decrease HIV risk behaviors such as unprotected anal intercourse. This pilot was comprised of three sessions, one per week over three weeks, and each session was three hours long. Broadly speaking, the first session focused on issues of creating, developing, and nurturing relationships between men and the barriers to these relationships. The second session addressed issues of intimacy including sexual negotiation and activity. The third session was designed to increase knowledge about HIV/AIDS/STDs and transmission risk while exploring ways to reduce HIV risk in sexual activity.

The agency had significant challenges during the pilot phase of the intervention, primarily regarding recruitment. The agency responded by hiring two part-time staff (both of whom represented the target community of Caucasian MSM) and making modifications to the workshop. The workshop participants provided feedback that the workshop was too long, especially the number of sessions. To address this challenge the Program Coordinator changed many of the interactive elements of the workshop from small group (often dyadic) breakouts to activities that involve the entire group. In this way, the content of the workshop was not changed but the length of the workshop was reduced. The agency then provided the workshop in two ways: 1) In two sessions that were each three hours long and 2) in one session that was six hours long.

While the Sexual Health Model was not a part of the design of the intervention, the similarities between the Relationships, Intimacy, and Sex workshop and the Sexual Health

Model are quite striking. Six of the Sexual Health Model components are considered core elements of the Relationships, Intimacy, and Sex workshop; 1) Talking about sex, 2) Culture and sexual identity, 3) Sexual health care and safer sex, 4) Challenges (barriers to sexual health), 5) Positive sexuality, and 6) Intimacy and Relationships (See Table 1). The following discussion maps the Relationships, Intimacy, and Sex workshop curriculum to the ten components of the Sexual Health Model.

1. Talking about sex: The initial icebreaker activity in which participants engage involves asking their peers in the room a list of sexual questions that have been provided by the facilitator. This helps participants to feel more comfortable very quickly and give each of them permission to ask questions about sexually explicit topics. This is followed by a short lecture on communication skills and additional exercises. Throughout the remainder of the intervention it is clear that all questions about sex are okay to ask. Talking about sex also includes sexual negotiation skills. A brief presentation is provided followed by role plays involving sexually explicit situations in which the participants must work to negotiate condom use with a partner. The handout “Healthy Sexuality” that is covered later also addresses the need for effective sexual communication.

2. Culture and sexual identity: This component is addressed throughout, in particular concerning the relationships of gay men and the challenges of dating and intimacy (see #9 below). Internalized homophobia also effects cultural and sexual identity, and this content area is addressed under “challenges” (#5) below. Similar to the issue of internalized homophobia for gay men is self-esteem, which is covered subsequent to the internalized homophobia content with a brief presentation, small group discussion, and creation of a personal “Bill of Rights”.

3. Sexual anatomy and functioning: During the condom demonstration, the concern about the possibility of losing an erection while putting on a condom or while wearing one is discussed and options are explored to solve the potential challenge in sex-affirming and non-shaming ways.

4. Sexual health care and safer sex: During the “Dating Game”, scripts are provided that follow the method of the actual game show but that focus on risk reduction topics for safer sex. This is followed by a lecture on HIV/AIDS that includes transmission risks. An activity helps participants to understand what sexual activities are more and less risky than others. This is followed by another lecture on sexually transmitted infections. All participants put a condom on a phallic model, complete a sexual inventory of their own sexual likes and dislikes and create their own personalized sex agenda which includes the level of risk they are willing to accept given their sexual desires.

5. Challenges: Overcoming barriers to sexual health: As part of the presentation on relationships, barriers to healthy relationships are considered including poor communication, internalized homophobia, and HIV/AIDS. After the “Dating Game” and small group discussion, the facilitator leads the “Interview” activity that focuses on internalized homophobia. It addresses gay stereotypes, explores non-physical masculinity/femininity traits (i.e., analytical vs. compassionate, industrious vs. lazy) and then relates these traits to being gay and how they inhibit relationships. This is followed by a brief lecture on homophobia and a breakout session including activities to “cure” internalized homophobia. The challenge of sexual compulsivity is discussed and the participants complete the Gay and Bisexual Addiction Screening Test and discuss how compulsive sexual behavior could put them at heightened risk for HIV.

6. Body Image: As part of the CERTS discussion (see #8 below), body image as a salient factor in sexual relationships is discussed. In particular, challenges of being able to attract

enough attention through one's physique and male endowment are explored. "Challenging the notion of one, narrow standard of beauty and encouraging self-acceptance is relevant to all populations, and the Sexual Health Model advocates doing this in a culturally sensitive manner" (p. 49).

7. Masturbation and Fantasy: Masturbation is included as part of the exercise on levels of HIV transmission risk, but is not a core component of the Relationships, Intimacy, and Sex workshop.

8. Positive Sexuality: After the discussion of HIV transmission risk and sexually transmitted infections, the group reviews and discusses the handout "Healthy Sexuality" that includes the CERTS model for healthy sex. The CERTS model addresses issues of Consent, Equality, Respect, Trust, and Safety. In addition to this section of the intervention, sexuality is addressed in a positive and affirming context throughout the workshop. After the condom demonstration and application, participants explore other sexual novelties and discuss them in terms of what they like and do not like sexually in a supportive and non-shaming environment. The sexual inventory they create flows from this discussion, and the facilitator encourages the participants to write their own Personalized Sex Agenda in positive and affirming language. Questions are encouraged throughout and discussed openly during the entire workshop.

9. Intimacy and Relationships: Early in the workshop participants explore the meaning of relationships to them generally, then more specifically as gay men. The group discusses what they want in a relationship and a short presentation is provided on traits of healthy relationships and stages of gay relationship development. The "Dating Game" is followed by a discussion of the challenges dating as gay men, particularly with the cloud of HIV hovering over social interactions. The facilitator addresses dating and relationship skills to improve safer sex

Table 1: Comparison of Sexual Health Model Components with Relationships, Intimacy, and Sex Workshop Components

Sexual Health Model	Relationships, Intimacy, and Sex workshop
1. Talking about Sex *	Icebreaker activity (sexual questions); Sexual communication skills lecture and exercises; Sexual negotiation skills lecture followed by role plays involving sexually explicit situations; “Healthy Sexuality” handout.
2. Culture and Sexuality *	Issues of internalized homophobia, dating and intimacy, self-esteem addressed throughout in lecture, discussion, and personal “Bill of Rights”
3. Sexual Anatomy and Functioning	Issue of impotence due to condom use
4. Sexual health care and safer sex *	“Dating Game” and discussion; HIV/STD transmission risk lecture and activity; condom demonstration and practice; personalized sex agenda
5. Challenges *	Barriers to healthy relationships lecture; “Interview” activity focusing on internalized homophobia; homophobia lecture and discussion; sexual compulsivity lecture, screening and discussion
6. Body Image	CERTS discussion; discussion of endowment and physique
7. Masturbation and Fantasy	As a safer level of risk
8. Positive Sexuality *	“Healthy Sexuality” handout, including CERTS model; explore sexual novelties; create sexual inventory and Personalized Sex Agenda
9. Intimacy and Relationships *	Lecture and discussion of gay relationships; traits of healthy relationships and development lecture and discussion; “Dating Game” and discussion; Intimacy handout and discussion; “Circle within a Circle” exercise
10. Spirituality	Messages from organized religion as a possible barrier to healthy relationships.

* Core element of Relationships, Intimacy, and Sex workshop.

negotiation and facilitate communication as a method of developing intimacy. Intimacy is explored through the discussion of a handout and the “Circle within a Circle” exercise designed to have participants look into each other’s eyes while the facilitator reads a script. All members have the chance to “connect” with every other member with the goal of seeing each other, and gay men in general, in a more positive and intimate way.

10. Spirituality: Organized religion is addressed as one element of the discussion of possible barriers to healthy relationships in session one. This is discussed in terms of the potential challenge of negative messages about homosexual relationships (as being immoral or abhorrent) that many gay men have grown up hearing in church.

Negative Effect of Internalized Homophobia on Outcomes

Systems theory emphasizes the interactions between systems, including those interactions between individuals as biopsychosocial systems and the society as a larger system (Greene, 1999; Stein, 1974). Social systems theory further posits that larger systems can effect the behavior of individuals (Stein, 1971), while Minority Stress Theory applies this same line of thinking to the negative effect of societal homophobia on homosexual individuals. It can further be hypothesized that the changes brought about in individuals by society will effect how individuals perform and achieve in their daily lives. The Sexual Health Model also supports the suggestion that the presence of internalized homophobia among the participants will negatively effect the expected outcomes of the intervention. As has been shown in the literature, internalized homophobia is a psychological construct that effects many MSM. As risk behavior has been shown to be more than the product of behavioral intentions and knowledge, prevention experts have suggested research into the psychological issues that may effect HIV prevention. As part of their rationale for the need for the Sexual Health Model, Robinson, Bockting, Rosser, and

colleagues (2002) stated, "... since instances of unsafe sex may be symptomatic of deeper underlying issues, it is important for prevention efforts to focus on the behavior patterns and psychological reasons underlying unsafe sexual behavior" (p. 44). Based on the review provided in chapter two, it is believed that internalized homophobia may be one of these psychological reasons.

The theoretical definition of internalized homophobia used to conduct this study, as guided by the literature, was as follows: A psychological construct that affects gay men that includes the factors of discomfort with identification as a gay man, both publicly and internally, social discomfort with other gay men, and sexual discomfort with other gay men. The operational definition and measurement of internalized homophobia is addressed in chapter four. Internalized homophobia is believed to negatively effect the outcomes of the Relationships, Intimacy, and Sex workshop.

The Sexual Health Model supports the notion that internalized homophobia could impede the effectiveness of the intervention. The Sexual Health Model posits that if "one is more sexually literate, comfortable, and competent, one is also more likely to develop successful long-term strategies to reduce risk in the real life context of one's sexual behaviors and relationships" (Robinson, Bockting, Rosser, et al., 2002). Given that, if one has a high degree of internalized homophobia and is therefore less sexually literate or comfortable with one's sexual partners, internalized homophobia could contribute to less success in a HIV prevention intervention. The model also hypothesizes that the background characteristics of participants in an intervention will effect how those individuals will experience the intervention, and ultimately their sexual health outcomes and HIV risk reduction outcomes. This is also congruent with the social work person-in-environment framework.

One challenge that internalized homophobia could create or worsen for gay men is simply being in a small group itself. If a gay men is suffering from internalized homophobia and has ambivalence about their own sexuality and that of other gay men, is uncomfortable talking socially with other gay men, and is uncomfortable in sexual situations with other gay men, this could negatively impact the benefits of an HIV prevention intervention for this man. Discomfort with one's sexual identity and that of others could limit one's ability to connect with others in a group setting. Since the Relationships, Intimacy, and Sex workshop is highly interactive with many activities that encourage personal sharing and communication, high levels of discomfort with these interactions could limit the effectiveness of the intervention significantly. Sexually explicit language may be very difficult for those men who are uncomfortable with sex, and these men may benefit less from these components of the intervention even though they are strongly supported in the literature.

In the only similar study in the literature, Huebner, Davis, Nemeroff, and Aiken (2002) suggested that internalized homophobia “may affect their [MSM] experiences in [HIV prevention] programs, thereby limiting program efficacy and leaving men without the HIV-related behavioral skills and knowledge essential to enacting risk reduction solutions during their sexual encounters” (p. 332). The authors suggested that a higher degree internalized homophobia of the gay male participants would decrease the likelihood that these men would know of the prevention services available to them. Further, if they did know about the services they would be less likely to participate, and if they did participate they would benefit less.

The intervention focused on “psychosocial factors associated with HIV risk behavior, including personalization of HIV risk, skills and self-efficacy for using condoms, and perceptions of community norms” (p. 338). The peer facilitators conducted all aspects of the

group and included condom demonstrations, rehearsal of skills (putting condoms on a phallic model), and group discussion. In the study, 81 gay and bisexual men completed the data collection instruments immediately before and after the four-hour intervention. The authors assessed feelings of internalized homophobia toward the self and other gay men, comfort disclosing one's sexuality to others, the amount of interaction with other gay men, and the social support drawn from gay men. The immediate posttest results showed a significant increase in condom use self-efficacy, and that these improvements were negatively effected by internalized homophobia. Those men with higher levels of internalized homophobia reported lower levels of condom use self-efficacy, controlling for the pretest.

While the results found by Huebner and his colleagues are compelling, this study seeks to further this knowledge. Will the results of internalized homophobia be felt beyond the intervention, at a later posttest? Does internalized homophobia have a similar negative effect on key behavioral outcomes for HIV prevention? This study seeks to contribute new knowledge toward the answers to these questions.

Hypotheses

This study had two primary goals. The first goal was to evaluate the effectiveness of the Relationships, Intimacy, and Sex workshop (designed to decrease the HIV risk behaviors of MSM). The second goal was to assess the negative effect of participants' internalized homophobia on the outcomes of the intervention. Given these two different yet related study purposes, two sets of hypotheses were required. Each hypothesis under the second research question was only tested when the hypothesis it was based on under the first research question was supported.

Research Question 1: Is the Relationships, Intimacy, and Sex workshop effective?

H1: Completion of the Relationships, Intimacy, and Sex workshop decreases participants' amount of Unprotected Anal Intercourse at 30-day posttest.

H2: Completion of the Relationships, Intimacy, and Sex workshop decreases participants' number of sexual partners at 30-day posttest.

H3: Completion of the Relationships, Intimacy, and Sex workshop increases participants' level of comfort with communicating about wearing a condom at 30-day posttest.

H4: Completion of the Relationships, Intimacy, and Sex workshop increases participants' level of comfort with putting condoms on oneself and one's sexual partner at 30-day posttest.

H5: Completion of the Relationships, Intimacy, and Sex workshop increases participants' level of HIV prevention knowledge at 30-day posttest.

H6: Completion of the Relationships, Intimacy, and Sex workshop increases the acquisition of HIV testing of the HIV-negative participants at 30-day posttest.

Research Question 2: Does internalized homophobia negatively effect outcomes of the Relationships, Intimacy, and Sex workshop?

H7: Degree of internalized homophobia negatively effects the change in participants' unprotected anal intercourse.

H8: Degree of internalized homophobia negatively effects the change in participants' number of sexual partners.

H9: Degree of internalized homophobia negatively effects the change in participants' level of comfort with communicating about wearing a condom.

H10: Degree of internalized homophobia negatively effects the change in participants' level of comfort with putting condoms on oneself and one's sexual partner.

CHAPTER IV

Methodology

This chapter will present an overview of the methodology of the study. It will begin with a summary of the research design including its strengths and weaknesses, the method of sample recruitment, and study procedures. This is followed by an overview of the prospective power analysis, operational definitions of the outcome variables, and a review of the data collection instrument. The chapter concludes with the plan that was used to conduct the data analysis after data collection was completed.

Research Design and Justification

There is a robust debate occurring among researchers regarding the effectiveness and utility of randomized controlled trials (RCTs) in the context of sexual health interventions. Many strongly believe it is the only way to show effectiveness and must be used in this research (Bonell, Bennett, & Oakley, 2003; Elford & Hart, 2003; Stephenson, Imrie, & Sutton, 2000) while others oppose this limited view as restricting the evaluation of potential effective interventions (Kippax, 2003; Kippax & Van de Ven, 1998; Nutbeam, 1998; Van de Ven & Aggleton, 1999; WHO, 1998). It has also been shown that many RCTs fail to achieve their goals due specifically to the methodology (Harding, et al., 2004; Robinson, et al., 2002). While this debate is ongoing, the fact is certain that randomized controlled trials, when effective, allow researchers to make the strongest claims of effectiveness and impact of a studied intervention. The challenges inherent in RCT designs, including the acquisition of significant funding, sample attrition (often differential between treatment and control groups), and difficulty using a

randomized control group in a community service-delivery setting (Chen, 1990) have been described in the literature. For these reasons, the RCT design was not selected to evaluate the Relationships, Intimacy, and Sex workshop.

Given the practical limitations of experimental research designs in community settings, and considering the goals of this evaluation, a quasi-experimental no-treatment control group design with pretest and posttest was employed (Campbell & Stanley, 1963; Shadish, Cook, & Campbell, 2002). The design is represented below:

<i>Treatment Group</i>	O ₁ X O ₂

<i>Comparison Group</i>	O ₁ O ₂

The top line represents the treatment group and the bottom line the comparison group.

Participants were not randomized into the groups given concerns of the host agency. For both groups, the pretest assessment (O₁) collected baseline data on current levels of participant risk behavior, internalized homophobia, and demographics. Then the treatment group participated in the intervention. Thirty days after completion of the intervention, the treatment group completed the posttest survey. For the comparison group, 30 days passed with no intervention between the completion of the pretest and the posttest. Other than demographic questions, to which responses are not expected to change and are omitted from the posttest assessment, the items on each assessment were operationally identical.

There were many benefits afforded by this research design. First, there was no wait list for participants for the treatment group. Second, data collection efforts were relatively uncomplicated in comparison with a large-sample mailed survey or an intervention that spans a much longer period of time. Pretest data were conveniently collected from participants immediately prior to beginning the intervention. This set a baseline to facilitate comparison

between the pretest and posttest scores to address the first research question, and assess the level of internalized homophobia to facilitate testing of the second research question. Third, collecting data at the posttest (O₂) can provide some evidence regarding change in knowledge, attitudes, and HIV risk behaviors that may be attributable to the intervention (Coleman & Ford, 1996).

Perhaps the most significant benefit of this design is the data provided by the comparison group. While this introduces some threats to internal validity (addressed below), it also enables more discussion of the effect of the treatment itself on the dependent variables in the first research question. Further, this design permitted for much more control over the threats to internal validity than a simple pretest/posttest design would allow.

Two of the many benefits of a comparison group were the ability to control for historical and maturational threats to internal validity. Historical threats are those events (for example, a terrorist attack) that occur between the points of data collection that can impact how a participant responds to a research item on a survey. Maturation is the process of natural change within participants that is not a result of an external event. Given the short span of time between data collection points in this study, the threat of an event that could impact the data being collected was limited. Further, if an event occurred there is a likelihood that it would impact the treatment and comparison groups similarly. The threat of a significant maturation occurring within the participants that is not attributable to the intervention was even less likely.

The comparison group also contributed to controlling for other threats to internal validity such as testing, instrumentation, and regression. It is possible that the simple act of completing the pretest had an effect on the posttest survey. However, with a comparison group it can be concluded that this effect, if present, occurred equivalently across the treatment and comparison groups. Instrumentation refers to the decay in the validity of an assessment instrument, usually

attributable to human observers' fatigue or change over time. Since all data collection for this evaluation was based on empirical items as completed by the participants, it was expected that there would be no significant instrumentation bias. Further, any bias that may have occurred would be expected to occur similarly between the treatment and comparison groups. Regression refers to the natural tendency of observations that are statistically distant from an expected mean to regress to the expected mean at the next data collection point. Since the intervention was recruiting from the broad local MSM community (discussed below) and was not targeted to a subset of the population that would be expected to report extreme scores, regression was not a concern.

Any design that does not randomly select participants into the treatment and comparison groups will face the challenge of limited representativeness of the sample to the target population. It was expected that the participants who experienced the intervention would not be representative of the larger MSM community in some ways. If the sample was significantly different from the population, conclusions that could be drawn regarding the sample would have limited applicability to the population. To address this, efforts were made to reach as broad and representative a sample of the local community as possible.

The study could also have expected to see a self-selection bias due to internalized homophobia. Since research (Huebner, et al., 2002) has shown that those individuals experiencing higher levels of internalized homophobia are less familiar with services targeted to that community, those with higher levels of internalized homophobia may not be aware of the intervention or the comparison group surveys and therefore be unable to attend or participate. Further, it is possible that those individuals with a higher degree of internalized homophobia who start the intervention may be more likely to drop out prematurely due to discomfort or other

factors, but this was not supported by the research of Huebner and colleagues (2002). For the comparison group it could be expected that there would be less attrition between the pretest and posttest due to internalized homophobia as there would be no increase in discomfort similar to that expected in the treatment group. However, there could be a moderate to high level of attrition for the comparison group due to other reasons as addressed below. These selection biases could produce a sample that under-represented the level of internalized homophobia in the target population at large.

The use of the comparison group also introduced the potential threats to internal validity of selection, differential attrition, and mortality. While the techniques and locations for sample recruitment (see below) for the treatment and comparison groups were highly similar, there were differences in the messages for recruitment for each. Fliers and advertisements for the treatment group invited potential participants into an intervention setting to experience a workshop (see Appendix C for examples of study advertisements). Fliers and advertisements for the comparison group invited respondents to complete a survey. While incentives were equivalent for both groups, the different offerings in the messages for the different experiences could attract groups that were nonequivalent in significant ways. The comparison group may not represent the characteristics of individuals who would enroll in a workshop, but rather only those of individuals who would complete surveys.

As mentioned above, there are many reasons that it can be expected that there will be participants who do not complete the intervention in the treatment group. Additionally, it can be expected that not all respondents to the pretest in the comparison group would complete the posttest 30 days later. The attrition subgroup for each arm of the study may have had some significant differences from the individuals who complete the treatment and the survey, and this

could further weaken the representativeness of the groups and the resultant findings. Lastly, there could also be differential attrition between the treatment and comparison groups. Attrition could be particularly higher in one of the study arms. Differential attrition between the groups could also be due to the key variable of internalized homophobia, but research has been conducted that would dispute that prediction (Huebner et al., 2002).

Sample Recruitment and Procedure

A purposive sample was drawn from the target population of Caucasian MSM residing in metropolitan Atlanta, Georgia. Participants for the treatment and comparison groups were recruited in the following ways: 1) Postings on multiple websites frequented by the target population, 2) snowball techniques and word-of-mouth of participants who experienced the intervention or respondents who completed the comparison group surveys, 3) advertisements in local gay media (Appendix C), 4) outreach efforts at community AIDS service organizations, and 5) fliers in local gay establishments (i.e., book stores, theaters, gay bars and clubs). The agency also hired two part-time staff to recruit for the treatment group, but these individuals did not recruit for the comparison group. Using these methods it was hoped that the sample would be somewhat representative of the Caucasian MSM community in each arm of the study.

For the treatment group, once potential participants learned about the intervention, they contacted the host agency and spoke with the Program Coordinator to learn more about the program while the Coordinator ensured eligibility. The two part-time community outreach workers were often the first point of contact for potential participants and also ensured eligibility. Eligibility criteria included 1) being a Caucasian MSM, 2) being at least 18 years old, 3) having a willingness to attend the entire workshop and 4) having had sex with another man in the past 30 days. The purpose of these criteria was to sample participants who were willing to participate

in the entire intervention and were sexually active. Once eligibility criteria were met, the participant was scheduled for the next cycle of the intervention. The agency had a running list and would start a group with as few as three participants, but generally preferred to have at least six to eight participants per cycle.

When a treatment group participant presented for the workshop, further explanation of the intervention was provided as needed. Then the consent form was explained which the participant signed with an “X” to indicate their consent to participate. Consent Forms are located in Appendix A. All data remained confidential to the Program Coordinator and anonymous to the researcher as the Program Coordinator stripped the data of identifiers prior to sharing the data with the researcher. Participants then completed the ten-page pretest assessment (Appendix B) and indicated if they were willing to have their data included in the study. The Program Coordinator collected all assessment tools at each collection point. Upon completion of the entire workshop, the participants chose how they preferred to complete the final assessment 30 days after the end of the workshop, either by mail or in person. When the final data collection instrument was completed participants received a \$20 gift certificate for a local gay-oriented bookstore, novelty store, or movie theater.

The treatment group data was collected from May 2005 through March, 2006. The workshop was initially provided as a three-session intervention meeting once per week over three weeks (for a total of nine hours) and this group was conducted from March to August, 2005. Recruitment was a very significant challenge, such that only 25 men completed the workshops, and a workshop was not conducted in July as not enough men could be recruited to start one. Much qualitative feedback was provided by the participants to the Program Coordinator about ways to improve the group, and the most frequent suggestion was to have

fewer sessions. The Program Coordinator changed the nature of the activities so that they were all conducted with the entire group and no longer done in dyads. This decreased the length of the workshop considerably, and starting in October, 2005 the workshop was provided in two ways; either in a two-session (six hours) or a one-session (six hours) workshop. Ultimately 24 men completed the two-session workshop and 24 men completed the single-session workshop, for a total treatment group sample of 73.

For the comparison group, once potential respondents learned about the survey they contacted the comparison group Study Coordinator (a different person from the Program Coordinator at the host agency) to learn more about the study while the Study Coordinator ensured eligibility. Eligibility criteria included 1) being a Caucasian MSM, 2) being at least 18 years old, 3) having a willingness to complete the pretest and posttest surveys and 4) having had sex with another man in the past 30 days. These criteria sought to sample participants who were willing to complete all surveys and were sexually active. Once eligibility criteria were met, the respondent provided a first name or alias, current mailing address, and phone number. The Study Coordinator then mailed the pretest to the respondent with a self-addressed stamped envelope (SASE). For those respondents who completed and returned the pretest, the Study Coordinator mailed the posttest, also with a SASE. Once the posttest was received, the Study Coordinator mailed the incentive to the respondent.

Data collection for the comparison group was conducted from November, 2005 to March, 2006. Sixty-four men called about the survey, and 55 (86%) were eligible. Callers were not eligible for two reasons. Three men were not Caucasian or Latino and six men had already completed the treatment group. Of the 55 who were eligible, 46 returned the first survey, for a

completion rate of 83.6%. All of the 46 men who completed the first survey also completed the second, so the sample for the comparison group is 46.

The Study Coordinator maintained a master list that linked the contact information to a unique identifier. However, the Study Coordinator never saw the surveys. Once the completed surveys were returned they were provided to the researcher, who entered them into the database. In this way, the respondents were confidential to the Study Coordinator, and anonymous to the researcher. After all data collection was completed and entered, the master list was destroyed. The University of Georgia Institutional Review Board approved this study and assigned it project number 2004-10874-1.

Power Analysis

A key goal of the study was to have sufficient power to limit the possibility of a Type II error. A Type II error is one in which the effects of an intervention are not found due to low levels of power; therefore, power is the probability that the test will correctly reject the null hypothesis. The higher the power of the study the more likely one is to find the actual outcomes of the intervention. The three elements needed to conduct power analyses include the effect size (based on the change in the dependent variable between groups and its pooled variance), the alpha level, and the sample size. Extensive effort was put forth to ensure that the tests would have power of .80 in accordance with standards for behavioral research (Cohen, 1988; Cohen, 1992; Lipsey, 1990) and HIV prevention evaluation (Purcell, et al., 2004; Robinson, et al., 2002; Wingood, et al., 2004). This study was powered to the primary hypothesis, the change in unprotected anal intercourse.

Prospectively, sample size requirements to reach a power of .80 were estimated to be 50 per group for a total sample size of 100. The sample size requirements were calculated in two

ways: 1) Using analyses from the data from the three-session version of the workshop that was conducted in May through August, 2005, and 2) specialized software (Lenth, 2006).

As mentioned earlier, this version of the workshop had a total sample of 25 due to challenges in participant recruitment. To calculate the effect size for this group, the data from the pretest assessment and posttest assessment on the outcome variable [Unprotected Anal Intercourse (UAI)], and their respective standard deviations were used. For the three-session workshop, the pretest score mean was $X_{UAI} = 1.56$ (SD = 2.36) and the posttest score mean was $Y_{UAI} = .60$ (SD = 1.32). There was a significant decrease in UAI from pretest to 30-day posttest, $t(24) = 2.68$, $p = .013$. The appropriate effect size formula is below:

$$d = \frac{X_{UAI} - Y_{UAI}}{S_p}$$

Where X_{UAI} is the pretest mean for the outcome variable and Y_{UAI} is the posttest mean. S_p is the pooled variance across both measurements. The pooled variance is calculated based on the standard deviations of both measurements and the sample size and was $S_p = 1.91$. These data enter the formula and are calculated below:

$$\begin{aligned} d &= \frac{1.56 - .60}{1.91} \\ &= .503 \end{aligned}$$

The prospective power analysis was then conducted using different tools, including Lipsey's graphs (1990) and software applications available for this purpose on the internet. Table 2, derived from Lipsey (1990, p. 79) shows that when $\alpha = .05$ in a one-tailed test and effect size $d = .50$, for power of .80, a sample size of 50 is required per group. Using Lenth's software (2006) available on the internet, data from the three-session version of the workshop (the change

in mean and the pooled variance), alpha, and desired power were entered and the results were also to have 50 participants in each group. To account for participant drop out and incomplete data collection instruments, the study attempted to over-sample the target population by 30%, for a total of 65 per group and 130 in the entire sample. While the comparison only succeeded in acquiring a sample of 46, the treatment group sample was 73, so the total sample size for the study is 119. Since power should be assessed for each dependent variable, the results from those analyses are found in the following chapter.

Table 2: Sample Size Estimation per Group for Power Analysis per Lipsey, (1990, p.79)

Effect Size (d)	Statistical Power		
	.70	.80	.90
.40	60	78	108
.50	38	50	70
.60	27	35	48

Alpha = .05, one-tailed test

Operational Definitions

As mentioned in the previous chapter, the theoretical definition of internalized homophobia that was used to conduct this study is as follows: A psychological construct that affects gay men that includes the factors of discomfort with identification as a gay man, both publicly and internally, social discomfort with other gay men, and sexual discomfort with other gay men (Huebner, et al., 2002). This definition was operationalized by the 12-item Short Internalized Homonegativity Scale (SIHS), which will be reviewed in the following section.

The operational definitions of the outcome variables are listed below in the same order as they are presented in the hypotheses in chapter three.

Unprotected anal intercourse is defined as not using a condom during receptive or insertive anal sex during the past 30 days. It will be measured as the number of times a participant has engaged in unprotected anal intercourse per this definition.

Number of sexual partners is defined as the quantity of unique individuals a person has had anal intercourse with during the previous 30 days.

Level of comfort with communicating about wearing a condom is defined by a one to four scale (most comfortable to least comfortable) on two questions: 1) Asking a partner to wear a condom, and 2) being asked by a partner to wear a condom. The item is author-generated (in collaboration with the host agency program staff). Higher scores represent higher levels of discomfort.

Level of comfort with putting condoms on oneself and one's sexual partner is defined by a one to four scale (most comfortable to least comfortable) on two questions: 1) Putting a condom on a partner, and 2) putting a condom on oneself. The item is author-generated (in collaboration with the host agency program staff). Higher scores represent higher levels of discomfort.

Level of HIV prevention knowledge is defined by the number of correct answers provided for 10 true-false questions about HIV risk and prevention. These items were created by the author in collaboration with host agency program staff and are based specifically on the content of the Relationships, Intimacy, and Sex workshop. The items are closely linked to the curriculum and have face and content validity. The scale had a reliability of $\alpha=.749$ for the treatment group ($n=73$), $\alpha=.441$ for the comparison group ($n=46$), and an overall reliability for the entire sample ($n=119$) of $\alpha=.706$.

Acquisition of HIV testing after the intervention is defined as the participants' self report that they obtained an HIV antibody test during the 30 days after the final session of the intervention.

Data Collection Instrument Review

Internalized homophobia was measured using the Short Internalized Homonegativity Scale (SIHS) that was recently developed and tested by Currie, Cunningham, and Findlay (2004). These researchers relied heavily on seasoned internalized homophobia assessment tools and particularly wanted to add elements that would capture sexual comfort with gay men. The authors found some instruments to be outdated, including the Nungesser Homosexual Attitudes Inventory (Nungesser, 1983), while others captured less relevant factors such as morality (Mayfield, 2001). These scales also contained items that Currie and colleagues considered to be “extreme and overt in their assessment of internalized homophobia” (p. 1056) and contributed to skewed score distributions. The Ross and Rosser (1996) Reactions to Homosexuality Scale (RHS) was found to be a “more sensitive measure of the subtle forms that internalized homophobia may take” (p. 1056), and included two subscales of relevance, public identification as gay, and social comfort with gay men. Ross and Rosser found significant concurrent validity for the RHS as a whole and the two subscales were the most internally consistent. Currie and colleagues used many of these items plus several they created for a 30-item instrument that they then tested.

Currie and colleagues employed a two-stage process that started with an exploratory factor analysis of the 30-item instrument that provided significant results for an underlying dimensional model. Their next step was to conduct a confirmatory factor analysis. This two-stage process yielded support for the three intercorrelated dimensions of public identification as

gay, social comfort with gay men, and sexual comfort with gay men, and the findings of the confirmatory factor analysis in particular suggested that all three dimensions may be most appropriately represented as a single higher-order factor rather than broken down into three sub-factors. The final 12-item scale included seven items for the RHS and five newly created items. Each item has seven response categories ranging from 1 for “strongly disagree” to 7 for “strongly agree”. Several items are reverse-scored, and the entire scale is scored so that higher scores indicate higher levels of internalized homophobia. Cronbach’s alpha for internal consistency on the final 12-item measure was .78 in the original research. While this statistic is lower than would be preferred, it is still high enough to conclude that the measure will provide a consistent assessment for this study. The internal consistency could easily be increased with the inclusion of additional items, but the measure’s brevity is also a key strength. For the current study, Cronbach’s alpha for internal consistency for the treatment group was $\alpha=.851$ ($n=73$), for the comparison group it was $\alpha=.745$ ($n=46$), and for the overall sample it was $\alpha=.823$ ($n=119$). The SIHS’s face validity, content validity, goodness-of-fit to the literature and the conceptualization of internalized homophobia used in this study, were strong enough to overlook this relative weakness.

The older scales mentioned above do not capture all the relevant factors that were revealed in the literature review. In addition to omitting these key factors, they assess other dimensions (i.e., morality, ego-dystonia) that were considered to be less relevant in the literature review. The SIHS has a very strong fit to the literature of HIV prevention, in particular its use of the three factors of public identification as gay, social comfort with gay men, and sexual comfort with gay men. These three elements come together to measure the single unified indicator of

internalized homophobia as it has been conceptualized for this study, and this single multifactorial indicator will be used for all analyses in this study.

It would have been preferable to use a scale that had been more fully tested for validity. Given that the scale was refined in 2004, there has been little opportunity to assess its higher-order validity (i.e., construct validity), however the scale does have a high level of face validity and content validity. According to Anastasi (1988), face validity “pertains to whether the test ‘looks valid’ to the examinees who take it, the administrative personnel who decide on its use, and other technically untrained observers” (p. 144). In selecting this important scale, the author worked closely with the host agency program staff to choose a scale that had strong face validity. The program staff had used other internalized homophobia scales previously and had received negative feedback from clients that the scales were confusing and used language that was out of date. The author and the program staff found the items on the SIHS to be clear, to reflect the three dimensions found in the literature, and to use the contemporary language of the target population. This also supports the content validity of the SIHS. Haynes, Richard, and Kubany (1995) define content validity as “the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose” (p. 238). Since the SIHS has four items each pertaining to the dimensions identified in the literature review as important for HIV prevention, it has high content validity for this study. Additionally, it is possible to assume that some of the concurrent validity that was found in the RHS may be reflected in the SIHS, but this assumption has not been tested. However, the complete absence of any published studies of the scale assessing whether or not it actually measures what it purports to measure is of significant concern. Given the relatively emergent nature of this new scale, the strengths of its antecedents, its moderate reliability, strong face and content validity, and high

level of correlation to the HIV prevention literature, it was clearly the best choice to measure internalized homophobia for this study.

Data Screening and Analysis Procedures

Prior to the data being analyzed, they were screened based on guidelines outlined by Mertler and Vannatta (2002) and assessed for equivalence across groups in the study. All data was analyzed using SPSS version 12.0 software (2003). Data screening and transformation procedures for assessing and addressing missing data, outliers, normality, and homoscedasticity are reviewed. Procedures employed to control for non-equivalence are described. Procedures for the analysis of the two research questions via hypothesis testing follow.

Key variables screened prior to analysis include the demographic, the independent, and the dependent variables. Demographic variables include sexual orientation, age, ethnicity (Latino or non-Latino), race, level of education, relationship characterization, and HIV serostatus. The independent variable beyond the intervention itself is internalized homophobia. The dependent variables are unprotected anal intercourse (UAI; insertive and receptive), number of anal sex partners, comfort with communicating about wearing condoms, comfort with putting condoms on self and others, and HIV prevention knowledge. All variables were screened for missing data and outliers, and the quantitative independent and dependent variables were screened for normality, linearity, and homoscedasticity.

After completion of the data screening, the demographic variables and the pretest scores of the independent and dependent variables of the group that did not complete the intervention and 30-day posttest (non-completers) was compared to the group who did (completers) to assess if there were any significant differences between them. These comparison analyses were conducted using chi-square cross-tabulations (with continuity corrections for binomial tables)

and t-tests for independent samples. The attrition group was then removed, leaving a sample of 73 participants who completed the intervention and the 30-day posttest survey. This final treatment group was comprised of individuals who completed the three-session, the two-session, or single-session versions of the intervention. These three groups were assessed for any significant differences on demographics and pretest scores of independent and dependent variables using chi-square cross-tabulations and ANOVA.

The three treatment groups were then collapsed into a single treatment group and assessed for equivalence to the comparison group. Demographic variables and the pretest scores of the independent and dependent variable were compared by conducting chi-square cross-tabulations and t-tests for independent samples. Variables that were found to be significantly different between the treatment and comparison groups were controlled for in subsequent analyses using analysis of covariance.

For the first research question there were six hypotheses. Each of the dependent variables for the first five hypotheses is either an interval or quasi-interval level variable and the sixth hypothesis is nominal. In order to test the first five hypotheses for the first research question, a one-way ANCOVA was conducted to assess for significant mean differences on the dependent variables between the pretest and the 30-day posttest. ANCOVA enables the comparison of the treatment and control group by using the different groups as a factor. When the pretest and the posttest variables are operationally identical, the pretest score can be entered as a covariate in the analyses to control for some of the variance in the posttest, thus increasing power (Keppel, 1991). This also provides for a more precise assessment of the treatment effect by decreasing bias (Cook & Campbell, 1979). Variables that were found to be significantly different across the treatment and comparison groups, if related to the posttest measure, were also added as

covariates to control for those differences while also improving power and increasing precision (Cook & Campbell, 1979). Posttest data were utilized as dependent variables for all hypotheses to facilitate comparison of data based on non-overlapping recall periods between the pretest and the posttest. Partial eta squared effect sizes were calculated for tests with statistically significant results.

The dependent variable for the final hypothesis under research question one is nominal, therefore a chi-square test on a binomial table was conducted to assess differences between the treatment and comparison group. Since six tests were conducted, the possibility of a Type I error increases. To maintain the experiment-wise alpha level at .05, a Bonferroni procedure was used, resulting in an operational alpha level of .0083. Phi coefficient effect sizes (appropriate for binomial chi-squares) will be calculated if the test is statistically significant.

For the second research question, two different methods were implemented in order to find the best fit for this exploratory research. Only those variables shown to have a significant change from pretest to posttest under research question one were assessed under question two. Since the analysis was on the effect of internalized homophobia on the dependent variables in the context of the intervention, only the data from the treatment group was considered. Originally, a stepwise multiple regression analysis was planned. The score on the posttest would have been entered as the dependent variable in the analysis, and if the group differences were only on interval level data, then a blocking procedure would have been used. As shown in the following chapter, there were group differences among the treatment groups on categorical variables, precluding the use of regression analysis to control for those differences. A similar procedure that can be used when categorical group differences need to be controlled is ANCOVA. This test

does not provide output for slope analysis, yet does provide output on the effect of the independent (and controlled) variables on the dependent variable.

The general linear model was used for the first method to address this hypothesis. The score on the posttest was entered as the dependent variable, categorical variables were controlled through the use of fixed factors, interval variables that needed to be controlled were entered as covariates, the pretest score and independent variables (internalized homophobia in this case) were entered as a covariates. The pretest score was entered as a covariate in order to control for its effect on the dependent variable, with the goal of removing its impact from the model to better highlight the impact of the independent variable of interest (internalized homophobia). This method provides much of the same output (F scores, p-values, effect sizes), and provides results that enable the researcher to speak to the amount of change in the dependent variable that can be attributed to the independent variable while controlling for group differences and pretest levels of the dependent variable.

While conducting the analysis using the method above is appropriate for this study, it is also subject to critique. One would expect a very high level of correlation between the pretest and the dependent variable (given they are operationally identical), hence the pretest would account for a significant amount of the variance in the dependent variable. This could serve to mask the effect of internalized homophobia on the dependent variable. To avoid this potential limitation, a second method was used that computed a new variable that represents the change from the pretest to the posttest (a gain score), and this new variable was then used as the dependent variable in the analysis. Since the gain score contains the data from the pretest, it is dropped from the model as a covariate. The new dependent variable could provide for additional

control of the pretest score while still allowing for the assessment of the effect internalized homophobia. Both methods allow for the calculation of an effect size statistic (η^2).

CHAPTER V

Results

This chapter reports the empirical results of the analyses of the data collected for this study. A discussion of the data screening is followed by an assessment of the equivalency of the group of men who dropped out of the study with the group of men who completed the intervention and all surveys. Then the results of the comparison of the three different treatment groups for significant differences are provided. A description of the entire sample is presented, followed by the results of the comparison between the treatment and comparison groups. Finally, the results of the hypothesis testing for each of the research questions conclude the chapter.

Data Screening and Transformations

Overall, the data were found to be of high quality, with very few missing data or outliers. Mertler and Vannatta (2002) recommend that unless 5% of the cases on a given variable are missing, no replacement procedures should be used. Several variables were missing one or two cases over a total of 128 cases, but since these cases did not approach the 5% cut-off, no missing variables were replaced. Stem-and-leaf and histogram plots were used to assess outliers. Given the limited range of the condom-related variables (2-8) and HIV knowledge assessment (0-10), there were no outliers. However, there was one outlier for the variable unprotected anal intercourse. This case was recoded following Mertler and Vannatta's guidelines, from an extreme score of 25 to the score suggested by the stem-and-leaf analysis of three. There were no outliers for the variable anal sex partners.

All five quantitative dependent variables were found to have non-normal distributions across both the treatment and comparison groups based on the Kolmogorov-Smirnov (K-S) test. The independent variable internalized homophobia was found to have a normal distribution. Data transformations were implemented and produced improvements in skewness and kurtosis. Following the guidance of Mertler and Vannatta (2002) and Osborne (2002), each variable was transformed with an equation specifically tailored to the variable and its skew. For those variables with a moderate positive skew, a logarithmic transformation to the 10th power was conducted after shifting all values by a constant such that the lowest value in the variable becomes one. Shifting all values by a constant such that the lowest value in the variable becomes one greatly improves the effectiveness of the transformation by reducing skewness and kurtosis (Osborne, 2002). For example, the lowest value on the dependent variable anal sex partners was zero, so the logarithmic function was written as $LG10(X + C)$, where X is the original value in the variable, and C is a constant that was added to all values prior to the transformation. The constant for this example is one (since the lowest original value was zero), which moves the lowest values for the variable to a minimum of one. This same process was followed for the other variables with positive skew such that level of comfort with condom communication and level of comfort with putting condoms on self and others were shifted down by one. The constants were different because the lowest points in the range of each were different: Anal sex partners was zero and had to be moved up to one, and the condom comfort variables' low value was 2, so they had to be shifted down one.

The skew for HIV prevention knowledge was negative, so the variable required a reflected coding prior to following the transformation to make the skew positive, allowing for the use of the procedure outlined above. The reflected coding was done by creating a constant

(taking the highest value on the variable, 10, and adding one to it for 11), and subtracting all values from the constant to reflect the data in the opposite skew. Since the lowest value will now be a one, the logarithm can be conducted without the use of another constant. The original direction of the skew is returned by reversing the sign of the statistic after the transformation.

While the skew for unprotected anal intercourse was positive, it was much more severely skewed than the other variables. Mertler and Vannatta (2002) recommend using an inverse transformation when the skew is severe, and this was done. In order to shift the lowest value to one, the constant of one was added to the entire variable as above. The logarithmic equation for each transformation used is listed in Table 3.

Table 3: Logarithmic Equations used to Transform Non-Normal Data Distributions of Dependent Variables

Variables	Logarithmic Equation
Unprotected Anal Intercourse	$1/(X + 1)$
Number of Anal Sex Partners	$\text{Log}_{10}(X + 1)$
Level of Comfort in Communicating about Condoms	$\text{Log}_{10}(X - 1)$
Level of Comfort in Implementing Condoms	$\text{Log}_{10}(X - 1)$
Knowledge of HIV Prevention Information	Reflect using $(11 - X)$, then $\text{Log}_{10}(X)$

X represents the values of the original variable.

It is important to note that all of these transformations did not change the K-S statistics enough to change the findings of a non-normal distribution. The statistics and p-values for the variables before and after the transformations are listed in Table 4. However, as shown in Table 5, the skewness and kurtosis scores after data transformation were much lower, and analysis of covariance tests are very robust to violations of assumption, particularly normality (Hurlburt, 1998). Since the data transformations reduced all skewness scores to below two (where skew is considered to be moderate to low), the analysis is likely to be valid (George & Mallery, 2001; Hurlburt, 1998).

Table 4: Normality of Distributions of Dependent and Independent Variables in the Treatment Group and Comparison Group Before and After Transformations

Treatment Group Transformations (n=73)				
Variables	Pre-Transformation		Post-Transformation	
	K-S Statistic	p	K-S Statistic	p
Unprotected Anal Intercourse	.456	<.001*	.483	<.001*
Number of Anal Sex Partners	.374	<.001*	.401	<.001*
Level of Comfort in Communicating about Condoms	.271	<.001*	.303	<.001*
Level of Comfort in Implementing Condoms	.319	<.001*	.346	<.001*
Knowledge of HIV Prevention Information	.295	<.001*	.293	<.001*
Internalized Homophobia	.088	.200	Not Transformed	
Comparison Group Transformations (n=46)				
Variables	Pre-Transformation		Post-Transformation	
	K-S Statistic	p	K-S Statistic	p
Unprotected Anal Intercourse	.259	<.001*	.307	<.001*
Number of Anal Sex Partners	.329	<.001*	.226	<.001*
Level of Comfort in Communicating about Condoms	.298	<.001*	.336	<.001*
Level of Comfort in Implementing Condoms	.382	<.001*	.406	<.001*
Knowledge of HIV Prevention Information	.206	<.001*	.185	.001*
Internalized Homophobia	.093	.200	Not Transformed	

* *alpha level set at .05 significance*

Table 5: Levels of Skewness and Kurtosis before and after Data Transformation

Variable	Group	Skewness and Kurtosis	Pre- Transformation	Post- Transformation
Unprotected Anal Intercourse	Treatment	Skewness	4.279	-1.831
		Kurtosis	21.948	1.875
	Comparison	Skewness	2.431	-.274
		Kurtosis	7.068	-1.775
Number of Anal Sex Partners	Treatment	Skewness	2.049	1.159
		Kurtosis	4.464	.077
	Comparison	Skewness	3.161	.879
		Kurtosis	12.982	.525
Level of Comfort in Condom Communication	Treatment	Skewness	1.054	.397
		Kurtosis	.270	-1.319
	Comparison	Skewness	1.635	.854
		Kurtosis	2.013	.567
Level of Comfort in Using Condoms	Treatment	Skewness	1.355	.747
		Kurtosis	1.111	-.905
	Comparison	Skewness	1.732	1.117
		Kurtosis	2.335	-.313
Level of Knowledge of HIV Prevention	Treatment	Skewness	-1.462	-.155
		Kurtosis	3.187	-.530
	Comparison	Skewness	-.987	.198
		Kurtosis	1.251	.641

Homoscedasticity of the dependent and independent variables was assessed using Levene's test of Homogeneity of Variances. As seen in Table 6, unprotected anal intercourse, number of anal sex partners, and knowledge of HIV prevention information each lacked homogeneity of variance across the treatment and comparison groups. Homoscedasticity will be reassessed in the course of hypothesis testing.

Table 6: Homoscedasticity of Dependent and Independent Variables

	Levene's Statistic	df	p
Unprotected Anal Intercourse	13.42	117	<.000*
Number of Anal Sex Partners	4.62	117	.033*
Level of Comfort in Communicating about Condoms	.492	115	.611
Level of Comfort in Implementing Condoms	.172	115	.679
Knowledge of HIV Prevention Information	11.48	116	.001*
Internalized Homophobia	.891	126	.347

** alpha level set at .05 significance*

Equivalence tests were then conducted on the group of participants who did not complete the study. Of the 82 men who began the study, nine dropped out, meaning that 73 men completed the intervention and all surveys. The men in these groups were compared on demographic variables (Table 7), and dependent and independent variables (Table 8). Pearson's chi-square (with continuity correction for binomial tables) and t-tests were conducted to assess for significant differences.

Among the demographic variables only race was significantly different between groups, with a higher percentage of non-completers being African American (see Table 7). While there appear to be some differences in ethnicity and in age, these did not rise to the level of statistical significance. Similarly, there appears to be some difference in internalized homophobia between the two groups, but this was also not statistically significant (Table 8). There were no significant differences in the independent and dependent variables between these two groups.

Table 7: Demographic Characteristics and Differences between Completers and Non-Completers

	Completers (n=73)	Non-Completers (n=9)	Test Statistic	df	p
	n(%) / X(SD)	n(%) / X(SD)			
Race			$\chi^2=9.869$	1	.007*
Caucasian/White	66 (90.4%)	5 (55.6%)			
African American/Black	6 (8.2%)	4 (44.4%)			
Other	1 (1.4%)	0			
Ethnicity			$\chi^2=3.028$	1	.082
Hispanic	2 (2.7%)	2 (22.2%)			
Non-Hispanic	71 (97.3%)	7 (77.8%)			
Average age	44.1 (9.73)	38.0 (8.54)	$t=1.797$	80	.076
Education Level			$\chi^2=5.25$	5	.386
Less than High School	2 (2.7%)	0			
High School Degree or Equivalent	9 (12.3%)	0			
Some College	19 (26.0%)	3 (33.3%)			
Bachelor's Degree	19 (26.0%)	5 (55.6%)			
Some Graduate School	5 (6.8%)	0			
Graduate Degree	19 (26.0%)	1 (11.1%)			
Relationship Status			$\chi^2=3.522$	5	.620
Closed/Monogamous	8 (11.0%)	1 (11.1%)			
Closed/Monogamous, but "play" secretly	4 (5.5%)	1 (11.1%)			
Open, only "play" together	4 (5.5%)	0			
Open, "play" together or separately	8 (11.0%)	0			
Open, only "play" separately	8 (11.0%)	0			
Not in a relationship	41 (56.2%)	7 (77.8%)			
HIV Serostatus			$\chi^2=.000$	1	1.000
Positive	18 (25.0%)	2 (22.2%)			
Negative	54 (75.0%)	7 (77.8%)			
Sexual Orientation			$\chi^2=.329$	2	.848
Homosexual/Gay	67 (91.8%)	8 (88.9%)			
Bisexual	5 (6.8%)	1 (11.1%)			
Unsure	1 (1.4%)	0			

* alpha level set at .05 significance

Table 8: Independent and Dependent Variable Characteristics and Differences at Pretest between Completers and Non-Completers

	Completers (n=73)	Drop-Outs (n=9)	t-score	df	p
	X (SD)	X (SD)			
Unprotected Anal Intercourse	1.04 (2.07)	2.22 (3.73)	-.931	80	.377
Number of Anal Sex Partners	.89 (1.43)	1.0 (1.0)	-.223	80	.389
Level of Comfort in Communicating about Condoms	3.89 (2.05)	3.0 (1.41)	1.263	79	.210
Level of Comfort in Implementing Condoms	3.51 (1.67)	2.67 (1.12)	1.477	79	.144
Knowledge of HIV Prevention Information	7.39 (2.34)	7.44 (1.81)	-.069	79	.945
Internalized Homophobia	42.01 (13.32)	50.0 (8.69)	-1.748	80	.084

** alpha level set at .05 significance*

Prior to collapsing the treatment groups together to form a single treatment group sample, they were assessed for significant differences on demographic, independent, and dependent variables using chi-square cross-tabulations and analysis of variance. The three-session group had 25 participants, and the two-session and one-session groups each had 24 participants. Three demographic variables were found to have differences of statistical significance: Race, age, and HIV serostatus (see Table 9). Scheffé post hoc tests revealed that for age, the one-session group was significantly older than the two-session group by a mean difference of 8.6 years. The difference in race is clearly due to the presence of six African American men in the three-session group while there are no African Americans in the other two groups. Lastly, there are considerably more HIV-positive men in the three-session group (56%) than either the two-session group (12.5%) or the one-session group (4.3%). These variables will have to be controlled in analyses of the treatment group data. Of particular importance, the results in Table

Table 9: Demographic Characteristics and Differences between Treatment Groups

	Three- Session (n=25)	Two-Session (n=24)	Single- Session (n=24)	Test Statistic	df	p
<u>Race</u>	n(%) / X(SD)	n(%) / X(SD)	n(%) / X(SD)	$\chi^2=14.865$	4	.005*
Caucasian/White	18 (72.0%)	24 (100%)	24 (100%)			
African American/Black	6 (24.0%)	0	0			
Other	1 (4.0%)	0	0			
<u>Ethnicity</u>				$\chi^2=1.008$	2	.604
Hispanic	1 (4.0%)	0	1 (4.2%)			
Non-Hispanic	24 (96.0%)	24 (100%)	23 (95.8%)			
<u>Average age</u>	42.8 (7.32)	40.5 (8.18)	49.1 (11.48)	F=5.746	70	.005*
<u>Education Level</u>				$\chi^2=12.16$	10	.274
Less than High School	1 (4.0%)	1 (4.2%)	0			
High School Degree or Equivalent	2 (8.0%)	6 (25.0%)	1 (4.2%)			
Some College	7 (28.0%)	6 (25.0%)	6 (25.0%)			
Bachelor's Degree	7 (28.0%)	5 (20.8%)	7 (29.2%)			
Some Graduate School	4 (16.0%)	1 (4.2%)	4 (16.7%)			
Graduate Degree	6 (24.0%)	5 (20.8%)	6 (25.0%)			
<u>Relationship Status</u>				$\chi^2=12.475$	10	.255
Closed/Monogamous	4 (16.0%)	1 (4.2%)	3 (12.5%)			
Closed/Monogamous, but "play" secretly	0	3 (12.5%)	1 (4.2%)			
Open, only "play" together	1 (4.0%)	2 (8.3%)	1 (4.2%)			
Open, "play" together or separately	3 (12%)	3 (12.5%)	2 (8.3%)			
Open, only "play" separately	0	5 (20.8%)	3 (12.5%)			
Not in a relationship	17 (68%)	10 (41.7%)	14 (58.3%)			
<u>HIV Serostatus</u>				$\chi^2=20.045$	2	<.001*
Positive	14 (56.0%)	3 (12.5%)	1 (4.3%)			
Negative	11 (44.0%)	21 (87.5%)	22 (95.7%)			
<u>Sexual Orientation</u>				$\chi^2=2.380$	4	.666
Homosexual/Gay	22(88.0%)	23 (95.8%)	22 (91.7%)			
Bisexual	2 (8.0%)	1 (4.2%)	2 (8.3%)			
Unsure	1 (4.0%)	0	0			

* alpha level set at .05 significance

10 show that there were no significant differences in risk behavior, condom comfort, HIV prevention knowledge, and internalized homophobia.

Table 10: Independent and Dependent Variable Characteristics and Differences between Treatment Groups at Pretest

	Three- Session (n=25) X (SD)	Two- Session (n=24) X (SD)	Single- Session (n=24) X (SD)	F	df	p
Unprotected Anal Intercourse	1.56 (2.36)	.29 (.75)	1.25 (2.47)	2.587	70	.082
Number of Sex Partners	1.24 (1.56)	.46 (.66)	.96 (1.76)	1.919	70	.154
Comfort in Condom Communication	3.58 (2.0)	3.58 (1.86)	4.5 (2.2)	1.635	69	.202
Comfort in Using Condoms	3.58 (1.89)	3.21 (1.41)	3.75 (1.7)	.656	69	.522
HIV Prevention Knowledge	7.76 (1.92)	7.09 (2.43)	7.29 (2.66)	.522	69	.596
Internalized Homophobia	45.5 (13.0)	38.1 (12.5)	42.3 (13.8)	1.986	70	.147

** alpha level set at .05 significance*

It is also important to assess for any differences between the outcomes for the three treatment groups. As shown in Table 11, an analysis of covariance for each outcome variable controlling for the pretest score as a covariate and the variables that were found to have differences at the pretest (race, age, and HIV status) found no statistically significant differences between the treatment groups.

Table 11: Comparisons of Outcomes between Treatment Groups at Posttest

	F	df	p
Unprotected Anal Intercourse	1.41	72	.252
Number of Sex Partners	2.79	72	.069
Comfort in Condom Communication	1.56	71	.856
Comfort in Using Condoms	1.62	71	.851
HIV Prevention Knowledge	1.21	71	.288

* *alpha level set at .05 significance*

Description of Participants

The sample is comprised of 73 men who participated in the treatment group and 46 men who participated in the comparison group, for a total sample of 119 men. The intent was to have a sample of 50 in each group, and this was not achieved in the comparison group. According to Lipsey (1990), however, the power analysis can still hold depending on the harmonic mean of the samples. The formula for harmonic means is $2n_t n_c / (n_t + n_c)$. For this study the harmonic mean is calculated as $(2 * 73 * 46) / (73 + 46)$, or 56.4. Therefore, the power analysis as conducted in the previous chapter remains valid.

The average age of all participants was 42.0 (SD=10.3) and all men described themselves as either homosexual/gay (n=110, 92.4%), bisexual (n=8, 6.7%), or unsure (n=1, 0.8%). No men described themselves as heterosexual/straight. The group was almost entirely Caucasian (n=111, 93.3%), with six (5.0%) men describing themselves as African American or Black, one (.8%) man reported his race as “other”, and one man did not answer the question. The sample was predominantly non-Hispanic (n=115, 96.6%), with a few men who described themselves as Hispanic (n=4, 3.4%).

Overall, the sample was generally well-educated. Many men reported having graduate degrees (n=27, 22.7%), nine (7.6%) reported completing some graduate work, and 35 (29.4%)

reported having completed a bachelor's degree. Many men also reported completing some college coursework (n=29, 24.4%), 16 (13.4%) reported that they completed high school or the equivalent, and three (2.5%) reported that they did not complete high school.

The majority of the men in the study characterized their current relationship status as being single (n=64, 53.8%). At the other end of the scale, 20 (16.8%) men reported that they were in "closed, monogamous" relationships, while another six (5.0%) reported they were in "closed" relationships and "played secretly" with other men. Many men also described their relationships as different variations of "open", including "open, play together" (n=6, 5.0%), "open, play together or separately" (n=15, 12.6%), and "open, only play separately" (n=8, 6.7%).

A high number of HIV-positive men participated in the study relative to the reported epidemiology of the local area. Of the total sample of 119 men, 33 (27.7%) reported they were HIV-positive, 83 (69.7%) reported they were HIV-negative, and three (2.5%) did not report their HIV status.

The independent variable of interest other than the intervention itself, internalized homophobia, was normally distributed across the entire sample and had a mean score of 40.1 (SD=12.9). In terms of risk behavior, the men in the sample reported a moderate mean of 1.25 (SD=2.22) unprotected anal intercourse events and 1.16 (SD=1.8) anal sex partners in the previous 30 days. For the condom comfort dependent variables, 118 men reported a mean level of comfort in putting condoms on themselves or others as 3.34 (SD=1.6) on a scale ranging from two to eight. Similarly, 118 men reported a mean level of comfort in communicating about wearing condoms as 3.53 (SD=1.89) on the same range. Lastly, the 117 men who completed the HIV prevention knowledge test had an average score of 7.75 (SD=2.08) out a possible 10 correct answers.

Prior to addressing the first research question, the treatment group and comparison group were compared for equivalence on independent, dependent, and demographic variables. As with previous comparisons, Pearson's chi-square (with continuity correction for binomial tables) and t-tests were conducted to assess the significance of differences. When these groups were compared on the independent and dependent variables the following variables were found to be statistically different: Level of comfort in communicating about wearing condoms, HIV prevention knowledge, and internalized homophobia (Table 12). No significant differences between the treatment and comparison groups were found for any of the demographic data (Table 13). These variables were controlled for as covariates in the assessment of the effect of the intervention on the dependent variables.

Table 12: Independent and Dependent Variable Characteristics and Differences at Pretest between the Treatment and Comparison Groups

	Treatment Group (n=73) X (SD)	Comparison Group (n=46) X (SD)	t-score	df	p
Unprotected Anal Intercourse	1.04 (2.07)	1.59 (2.42)	-1.311	117	.192
Number of Anal Sex Partners	.89 (1.43)	1.59 (2.23)	-1.89	117	.063
Level of Comfort in Communicating about Condoms	3.89 (2.05)	2.96 (1.46)	2.885	116	.005*
Level of Comfort in Implementing Condoms	3.51 (1.67)	3.07 (1.47)	1.491	116	.139
HIV Prevention Knowledge	7.39 (2.34)	8.33 (1.41)	-2.724	115	.007*
Internalized Homophobia	42.01 (13.32)	36.9 (11.6)	2.127	117	.036*

* *alpha level set at .05 significance*

Table 13: Demographic Characteristics and Differences between the Treatment and Comparison Groups

	Treatment Group (n=73)	Comparison Group (N=46)	Test Statistic	df	p
	n(%) / X(SD)	n(%) / X(SD)			
Race			$\chi^2=4.587$	2	.101
Caucasian/White	66 (90.4%)	45 (55.6%)			
African American/Black	6 (8.2%)	0			
Other	1 (1.4%)	0			
Ethnicity			$\chi^2=0.00$	1	1.000
Hispanic	2 (2.7%)	2 (4.3%)			
Non-Hispanic	71 (97.3%)	44 (95.7%)			
Average age	44.1 (9.73)	38.0 (8.54)	$t=1.797$	80	.076
Education Level			$\chi^2=2.214$	5	.819
Less than High School	2 (2.7%)	1 (2.2%)			
High School Degree or Equivalent	9 (12.3%)	7 (15.2%)			
Some College	19 (26.0%)	10 (21.7%)			
Bachelor's Degree	19 (26.0%)	16 (34.8%)			
Some Graduate School	5 (6.8%)	4 (8.7%)			
Graduate Degree	19 (26.0%)	8 (17.4%)			
Relationship Status			$\chi^2=9.632$	5	.086
Closed/Monogamous	8 (11.0%)	12 (26.1%)			
Closed/Monogamous, but "play" secretly	4 (5.5%)	2 (4.3%)			
Open, only "play" together	4 (5.5%)	2 (4.3%)			
Open, "play" together or separately	8 (11.0%)	7 (15.2%)			
Open, only "play" separately	8 (11.0%)	0			
Not in a relationship	41 (56.2%)	23 (50.0%)			
HIV Serostatus			$\chi^2=.000$	1	1.000
Positive	18 (25.0%)	2 (22.2%)			
Negative	54 (75.0%)	7 (77.8%)			
Sexual Orientation			$\chi^2=.643$	2	.725
Homosexual/Gay	67 (91.8%)	43 (93.5%)			
Bisexual	5 (6.8%)	3 (6.5%)			
Unsure	1 (1.4%)	0			

* alpha level set at .05 significance

Research Question One

As addressed in the previous chapter, there are six hypotheses for the first research question. In order to test the first five hypotheses, an analysis of covariance (ANCOVA) was conducted to assess for significant mean differences on the dependent variables at the 30-day posttest. ANCOVA enables the comparison of the treatment and control groups by using the different groups as a factor while controlling for the pretest variable as a covariate. Further, ANCOVA facilitates the control of any variables that were found to be different between the comparison and treatment groups. Those variables that were found to be different are entered as covariates in the ANCOVA. The covariates serve two purposes: First, they control for some of the effect of the demographic group differences on the posttest scores; second, they increase the power and precision of the test through their relation to the posttest. The variables that were found to have a significant difference between the treatment group and the comparison group were level of comfort communicating about wearing condoms, HIV prevention knowledge, and internalized homophobia.

In order to use ANCOVA, certain assumptions must first be met. These assumptions include normally distributed data on all relevant variables, linear relationships between the covariates and the dependent variables, and homogeneity of regression slopes for the covariates. For normality, both level of comfort communicating about wearing condoms and HIV prevention knowledge at pretest had non-normal distributions as tested by the K-S statistic and skewness and kurtosis scores. These were addressed with the same procedure (logarithmic data transformation with constant) as used above with similar improvements in skewness and kurtosis (Data transformation statistics and equations can be found in Appendix D). Since ANCOVA is not highly sensitive to non-normality, these adjustments should facilitate valid results.

To assess for linear relationships between covariates and dependent variables, scatterplots were created. A scatterplot was generated for each covariate with each dependent variable, and all scatterplots indicated a linear trend. Finally, to assess for homogeneity of regression slopes among the factor and covariates, a separate ANCOVA was run for each dependent variable using a custom model to assess for interaction among covariates. As seen in Tables 14-18, there were no interaction effects for any of the models, meaning that homogeneity of regression slopes could be assumed. The results for Levene's test of equality of error variances follow in Table 18. Unprotected anal intercourse and comfort with communication about condoms both violate this assumption. However, given the finding of homogeneity of regression slopes, the considerable decrease of skewness and kurtosis of these variables through data transformations, and the robustness of the ANCOVA test when assumptions are violated, the findings from Levene's test should not invalidate the results.

*Table 14: ANCOVA Summary Table for Interaction Effects of Covariates:
Unprotected Anal Intercourse*

Source	df	F	p	η^2
Between Treatments	1	12.271	.001*	.101
Condom Communication	1	.015	.902	.000
HIV Prevention Knowledge	1	.011	.916	.000
Internalized Homophobia	1	.020	.511	.004
Unprotected Anal Intercourse	1	3.569	<.001*	.419
Condom Communication * Knowledge *	1	.088	.166	.018
Internalized Homophobia * Unprotected Anal Intercourse				
Error	109			
Total	115			

* *alpha level set at .05 significance*

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 15: ANCOVA Summary Table for Interaction Effects of Covariates:
Anal Sex Partners

Source	df	F	p	η^2
Between Treatments	1	1.516	.221	.014
Condom Communication	1	.350	.555	.003
HIV Prevention Knowledge	1	.091	.764	.001
Internalized Homophobia	1	.544	.462	.005
Anal Sex Partners	1	80.813	<.001*	.426
Condom Communication * Knowledge *	1	.030	.863	.000
Internalized Homophobia * Anal Sex Partners				
Error	109			
Total	115			

* alpha level set at .05 significance

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 16: ANCOVA Summary Table for Interaction Effects of Covariates:
Condom Communication

Source	df	F	p	η^2
Between Treatments	1	3.500	.064	.031
Condom Communication	1	31.506	<.001*	.224
HIV Prevention Knowledge	1	.085	.771	.001
Internalized Homophobia	1	1.665	.200	.015
Condom Communication * Knowledge *	1	1.558	.215	.014
Internalized Homophobia				
Error	109			
Total	114			

* alpha level set at .05 significance

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 17: ANCOVA Summary Table for Interaction Effects of Covariates:
Condom Use

Source	df	F	p	η^2
Between Treatments	1	2.614	.109	.024
Condom Communication	1	.185	.668	.002
HIV Prevention Knowledge	1	1.307	.255	.012
Internalized Homophobia	1	3.286	.073	.030
Condom Use	1	45.687	<.001*	.297
Condom Communication * Knowledge *	1	.959	.330	.009
Internalized Homophobia * Condom Use				
Error	108			
Total	114			

* alpha level set at .05 significance

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 18: ANCOVA Summary Table for Interaction Effects of Covariates:
HIV Prevention Knowledge

Source	df	F	p	η^2
Between Treatments	1	17.577	<.001*	.139
Condom Communication	1	.019	.891	.000
HIV Prevention Knowledge	1	15.494	<.001*	.124
Internalized Homophobia	1	.484	.488	.004
Condom Communication * Knowledge *	1	.042	.838	.000
Internalized Homophobia				
Error	109			
Total	114			

* *alpha level set at .05 significance*

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 19: Summary Table for Levene's Test of Equality of Error Variances for all Dependent Variables

Variable	df	F	p
Unprotected Anal Intercourse	(1, 114)	37.769	<.001*
Anal Sex Partners	(1, 114)	.884	.349
Condom Communication	(1, 113)	3.979	.048*
Condom Use	(1, 113)	.012	.912
HIV Prevention Knowledge	(1, 113)	.456	.501

* *alpha level set at .05 significance*

Since all assumptions have been reasonably met, hypothesis testing was conducted. ANCOVAs were conducted entering the posttest score as the dependent variable, the treatment variable (treatment vs. comparison) as a fixed factor, the pretest score of the dependent variable as a covariate, and the three pretest scores that showed a significant difference (condom communication, HIV prevention knowledge, and internalized homophobia) as covariates. Since six tests are being conducted under research question one, the possibility of a Type I error increases. To maintain the experiment-wise alpha level at .05, a Bonferroni procedure was used, resulting in an operational alpha level of .0083. A full factorial model was conducted, and the results of each test are presented in Tables 20-24.

As shown in Table 20, the ANCOVA conducted for unprotected anal intercourse at posttest found two significant main effects: Unprotected anal intercourse at pretest and the

treatment factor. The findings for the pretest are expected given the high correlation of the operationally identical measures ($r=.671$, $p<.001$). The large effect size of the treatment factor shows that the treatment accounted for 13.5% of the change in unprotected anal intercourse. The mean change in unprotected anal intercourse for the treatment group was .75 (1.08 – .33), while the mean change for the comparison group was .15 (1.56 – 1.41).

Table 20: ANCOVA Summary Table for Unprotected Anal Intercourse

Source	df	F	p	η^2	$1 - \beta$
Between Treatments	1	17.124	<.001*	.135	.98
Condom Communication	1	.629	.429	.006	.12
HIV Prevention Knowledge	1	.124	.725	.001	.06
Internalized Homophobia	1	.732	.394	.007	.14
Unprotected Anal Intercourse	1	27.820	<.001*	.202	1.00
Error	110				
Total	115				

* *alpha level set at .05 significance.*

η^2 = effect size (partial eta squared); $1 - \beta$ = Power.

As shown in Table 21, the ANCOVA conducted for anal sex partners at posttest found one significant main effect: Anal sex partners at pretest. The findings for the pretest are expected given the high correlation of the operationally identical measures ($r=.742$, $p<.001$). There was no main effect for the treatment factor. The mean change in number of anal sex partners for the treatment group was .18 (.89 – .71), while the mean change for the comparison group was .22 (1.59 – 1.37).

Table 21: ANCOVA Summary Table for Anal Sex Partners

Source	df	F	p	η^2	$1 - \beta$
Between Treatments	1	1.499	.223	.013	.23
Condom Communication	1	.333	.565	.003	.09
HIV Prevention Knowledge	1	.065	.799	.001	.06
Internalized Homophobia	1	.608	.437	.005	.12
Anal Sex Partners	1	117.39	<.001*	.516	1.00
Error	110				
Total	115				

* *alpha level set at .0083 significance.*

η^2 = effect size (partial eta squared); $1 - \beta$ = Power.

As shown in Table 22, the ANCOVA conducted for comfort with communicating about wearing condoms at posttest found one significant main effect: Comfort with communicating about wearing condoms at pretest. The findings for the pretest are expected given the high correlation of the operationally identical measures ($r=.705$, $p<.001$). The mean change in comfort with communicating about wearing condoms for the treatment group was .78 (3.89 – 3.11), while the mean change for the comparison group was -.02 (2.96 – 2.98).

Table 22: ANCOVA Summary Table for Level of Comfort with Condom Communication

Source	df	F	p	η^2	$1 - \beta$
Between Treatments	1	3.329	.071	.029	.44
Condom Communication	1	101.02	<.001*	.479	1.00
HIV Prevention Knowledge	1	.543	.463	.005	.11
Internalized Homophobia	1	2.737	.101	.024	.375
Error	110				
Total	115				

* *alpha level set at .0083 significance.*

η^2 = effect size (partial eta squared); $1 - \beta$ = Power.

As shown in Table 23, the ANCOVA conducted for comfort with putting condoms on self and partner at posttest found one significant main effect: Comfort with putting condoms on self and partner at pretest. The findings for the pretest are expected given the high correlation of the operationally identical measures ($r=.648$, $p<.001$). The mean change in comfort with putting condoms on self and partner for the treatment group was .66 (3.51 – 2.85), while the mean change for the comparison group was .11 (3.07 – 2.96).

Table 23: ANCOVA Summary Table for Level of Comfort with Condom Use

Source	df	F	p	η^2	$1 - \beta$
Between Treatments	1	2.817	.096	.025	.38
Condom Communication	1	.012	.914	.000	.05
HIV Prevention Knowledge	1	.504	.479	.005	.11
Internalized Homophobia	1	2.757	.100	.025	.38
Condom Use	1	45.46	<.001*	.294	1.00
Error	110				
Total	115				

* *alpha level set at .0083 significance.*

η^2 = effect size (partial eta squared); $1 - \beta$ = Power.

As shown in Table 24, the ANCOVA conducted for HIV prevention knowledge at posttest found two significant main effects: HIV prevention knowledge at pretest and the treatment factor. The findings for the pretest are expected given the high correlation of the operationally identical measures ($r=.361$, $p<.001$). The large effect size of the treatment factor shows that the treatment accounted for 14% of the change in HIV prevention knowledge. The mean change in HIV prevention knowledge for the treatment group was 1.68 (9.07 – 7.39), while the mean change for the comparison group was .03 (8.36 – 8.33).

Table 24: ANCOVA Summary Table for HIV Prevention Knowledge

Source	df	F	p	η^2	$1 - \beta$
Between Treatments	1	17.84	<.001*	.140	.99
Condom Communication	1	.206	.651	.002	.07
HIV Prevention Knowledge	1	26.377	<.001*	.193	1.00
Internalized Homophobia	1	.477	.505	.004	.02
Error	110				
Total	114				

* *alpha level set at .0083 significance.*

η^2 = *effect size (partial eta squared);* $1 - \beta$ = *Power.*

For the final hypothesis under research question one, a binomial cross-tabulation was run assessing acquisition of HIV testing between the time of completing the intervention and completing the 30-day posttest survey. This analysis was only conducted on individuals who described themselves as HIV-negative at the pretest ($n=80$). Of the 54 men who completed the intervention and were HIV-negative, 24 (44.4%) reported acquiring testing by the time of the posttest. There were no differences in HIV testing acquisition among the three different treatment groups $F(2, 53)=.541$, $p=.585$. Of the 26 men who completed the comparison group surveys who were HIV-negative, four (15.4%) reported acquiring testing by the time the posttest survey was completed. The HIV-negative men in the treatment group tended to be more likely to have acquired HIV testing between pretest and posttest than the HIV-negative men in the

comparison group, but the test did not rise to the level of statistical significance after the Bonferroni procedure $\chi^2 (1, n=80)=5.30, p=.009, \phi^2=.17$.

Research Question Two

Two methods were employed to assess the effect of internalized homophobia on the outcomes of the intervention in order to find the best fit for this exploratory research. Only those variables assessed in the first four hypotheses that were found to have a significant change from pretest to posttest were intended to be assessed under question two. Therefore, only the hypothesis regarding unprotected anal intercourse was tested under research question two. Since two tests were run, the Bonferroni procedure was used to maintain the experiment-wise alpha level at .05, resulting in an operational alpha level of .025. All data and variables to be used have already been screened for missing data and outliers.

As addressed in the previous chapter, the original plan to use a stepwise regression analysis to test this hypothesis was changed given unexpected group differences on categorical variables. There were statistically significant differences found among the three treatment groups on the variables of age, race, and HIV status. Since race and HIV status are categorical, the regression analysis is precluded. Instead, an ANCOVA can be used when categorical group differences need to be controlled. This test does not provide output for slope analysis, yet does provide output on the effect of the independent (and controlled) variables on the dependent variable.

As in research question one, certain assumptions must be met in order to use ANCOVA. These assumptions include normally distributed data on all relevant variables, linear relationships between the covariates and the dependent variables, and homogeneity of regression slopes for the covariates. For normality, both unprotected anal intercourse at pretest and the gain

score for the change in unprotected anal intercourse had non-normal distributions as tested by the K-S statistic and skewness and kurtosis scores. These were addressed with the same procedure (logarithmic data transformation with constant for unprotected anal intercourse at pretest and inverse transformation for the gain score) as used in research question one with similar improvements in skewness and kurtosis (Data transformation statistics and equations can be found in Appendix D). Since ANCOVA is not highly sensitive to non-normality, these adjustments should facilitate valid results.

To assess for linear relationships between independent and dependent variables, scatterplots were created. A scatterplot was generated for each interval level independent variable and covariate with each dependent variable, and all scatterplots indicated a linear trend. Finally, to assess for homogeneity of regression slopes among the covariates, a separate ANCOVA was run for each dependent variable using a custom model to assess for interaction among factors and covariates. As seen in Tables 25-26, there were no interaction effects for either of the models, meaning that homogeneity of regression slopes can be assumed and any significant main effects can be interpreted.

Table 25: ANCOVA Summary Table for Interaction Effects of Factors and Covariates: Unprotected Anal Intercourse at Posttest

Source	df	F	p	η^2
HIV status	1	.095	.758	.002
Race	1	1.582	.213	.025
Age	1	.241	.625	.004
Unprotected Anal Intercourse at Pretest	1	6.598	.013*	.096
Internalized Homophobia	1	.808	.372	.013
HIV Status * Race * Age * Unprotected Anal Intercourse at Pretest * Internalized Homophobia	1	1.961	.129	.087
Error	62			
Total	72			

* *alpha level set at .05 significance*

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

Table 26: ANCOVA Summary Table for Interaction Effects of Factors and Covariates: Change in Unprotected Anal Intercourse

Source	df	F	p	η^2
HIV status	1	4.487	.038*	.067
Race	1	.400	.529	.006
Age	1	.738	.394	.012
Internalized Homophobia	1	.403	.528	.006
HIV Status * Race * Age * Internalized Homophobia	1	1.439	.232	.085
Error	62			
Total	72			

* *alpha level set at .05 significance*

BOLD = Interaction Statistics; η^2 = effect size (partial eta squared)

The results for Levene's test of equality of error variances follow in Table 26. Neither dependent variable violates this assumption. Given the finding of homogeneity of regression slopes, the considerable decrease of skewness and kurtosis of these variables through data transformations, the equality of error variances, and the robustness of the ANCOVA test when assumptions are violated, the results from tests of these data should be valid.

Table 27: Summary Table for Levene's Test of Equality of Error Variances for Research Question Two Dependent Variables

Variable	df	F	p
Unprotected Anal Intercourse at Posttest	(1, 67)	.685	.564
Change in Unprotected Anal Intercourse	(1, 67)	1.689	.178

* *alpha level set at .05 significance*

For the first method to address this hypothesis, the general linear model was used. The score on the posttest for unprotected anal intercourse was entered as the dependent variable, race and HIV status were controlled through the use of fixed factors, age was controlled as a covariate, and the pretest score for unprotected anal intercourse and internalized homophobia were entered as independent variables. The pretest score for unprotected anal intercourse was entered as a covariate in order to control for the pre-intervention level of the dependent variable, with the goal of accounting for the pretest contribution in the model to better highlight the effect of internalized homophobia. This method provides results that enable the researcher to speak to

the amount of change in the dependent variable that can be attributed to the independent variable while controlling for group differences and pretest levels of the dependent variable. As shown in Table 28, internalized homophobia did not contribute to the variance in unprotected anal intercourse at posttest when controlling for the scores on the pretest and the group differences. There was only one significant main effect: Unprotected anal intercourse at pretest.

Table 28: ANCOVA Summary Table for Unprotected Anal Intercourse at Posttest

Source	df	F	p	η^2	$1 - \beta$
HIV status	1	1.453	.232	.022	.22
Race	1	.084	.773	.001	.08
Age	1	.010	.923	.000	.05
Unprotected Anal Intercourse at Pretest	1	58.793	<.001*	.475	1.00
Internalized Homophobia	1	.105	.747	.002	.06
Error	65				
Total	71				

* *alpha level set at .025 significance.*

η^2 = effect size (partial eta square); $1 - \beta$ = Power.

Given the high correlation between the pretest and posttest for unprotected anal intercourse ($r = .702$, $p < .001$), it accounted for a significant amount of the variance in the dependent variable as seen in Table 27 ($\eta^2 = .475$, $p < .001$), and may be masking the effect of internalized homophobia. To avoid this limitation, the second method computed a new variable that represents the change in unprotected anal intercourse from pretest to posttest (a gain score), and this new variable was then used as the dependent variable in the analysis. The gain score was calculated by subtracting the posttest score from the pretest score. Therefore, a positive gain score means that a participant reported fewer acts of unprotected anal intercourse in the 30 days after the intervention than in the 30 days before the intervention. Since the gain score contains the data from the pretest, the pretest was dropped from the model as a covariate.

The general linear model was also used for the second method. The gain score was entered as the dependent variable, race and HIV status were controlled through the use of fixed

factors, age was controlled as a covariate, and internalized homophobia was entered as the independent variable. As shown in Table 29, the ANCOVA conducted found no significant main effects. Internalized homophobia did not contribute to the variance in the change in unprotected anal intercourse when controlling for the scores on the pretest and the group differences. Removing the pretest score for unprotected anal intercourse and using the gain score appears to move the model closer to significance for internalized homophobia, but it does not rise to the level of statistical significance as set using the Bonferroni procedure.

Table 29: ANCOVA Summary Table for Change in Unprotected Anal Intercourse

Source	df	F	p	η^2	$1 - \beta$
HIV status	1	.042	.838	.001	.06
Race	1	1.291	.260	.019	.20
Age	1	.002	.962	.000	.05
Internalized Homophobia	1	2.770	.101	.04	.38
Error	66				
Total	71				

* *alpha level set at .025 significance.*

η^2 = effect size (partial eta square); $1 - \beta$ = Power.

Review of Research Hypotheses

Seven hypotheses were tested for the two research questions. The first six hypotheses explored the first research question: Is the Relationships, Intimacy, and Sex workshop effective? The seventh hypothesis tested explored the second research question: Does internalized homophobia negatively effect outcomes of the Relationships, Intimacy, and Sex workshop? Ten hypotheses (six for research question one and four for research question two) were originally proposed to be assessed. However, the four hypotheses for the second research question were to be conducted based on findings of statistical significance from the first four hypotheses from the first research question. Therefore, not all hypotheses that were planned were tested. The findings for each hypothesis are summarized below.

Research Question One

Hypothesis one. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would decrease participants' amount of unprotected anal intercourse at 30-day posttest as compared to a no-treatment control group.

Finding: This hypothesis was supported. The treatment group showed a greater statistically significant decrease in unprotected anal intercourse from pretest to posttest than the comparison group.

Hypothesis two. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would decrease participants' number of anal sex partners at 30-day posttest as compared to a no-treatment control group.

Finding: This hypothesis was not supported. The treatment group showed no statistically significant difference in the number of anal sex partners at posttest when compared to the no-treatment control group.

Hypothesis three. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would increase participants' level of comfort with communicating about wearing a condom as compared to a no-treatment control group.

Finding: This hypothesis was not supported. The treatment group showed no statistically significant difference in the level of comfort with communicating about wearing a condom at posttest when compared to the no-treatment control group.

Hypothesis four. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would increase participants' level of comfort with putting condoms on oneself and one's sexual partner as compared to a no-treatment control group.

Finding: This hypothesis was not supported. The treatment group showed no statistically significant difference in level of comfort with putting condoms on oneself and one's sexual partner at posttest when compared to the no-treatment control group.

Hypothesis five. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would increase participants' level of HIV prevention knowledge at 30-day posttest as compared to a no-treatment control group.

Finding: This hypothesis was supported. The treatment group showed a greater statistically significant increase in HIV prevention knowledge from pretest to posttest than the comparison group.

Hypothesis six. It was hypothesized that completion of the Relationships, Intimacy, and Sex workshop would increase the acquisition of HIV testing of the HIV-negative participants at 30-day posttest as compared to a no-treatment control group.

Finding: This hypothesis was not supported. The treatment group did not show a statistically significant difference in acquisition of HIV testing at posttest when compared to the no-treatment control group.

Research Question Two

Hypothesis one. It was hypothesized that the degree of internalized homophobia would account for a significant part of the variance in the change in participants' unprotected anal intercourse.

Finding: This hypothesis was not supported. The degree of internalized homophobia did not account for a significant part of the variance of the change participants' unprotected anal intercourse.

CHAPTER VI

Discussion

This final chapter reviews the objectives and results of the study. The significance of the study results for both research questions will be reviewed and interpreted in the context of the literature. The limitations of the study will be evaluated and will be considered in light of their impact on the interpretation and generalizability of the findings. Recommendations for revisions to the intervention, evaluations of future studies, and evaluations of assessment tools are made. Implications of the study results for the Sexual Health Model, Minority Stress Theory, and community collaborations and evaluation design are explored.

Study Objectives

One of the primary objectives of this study was to evaluate the effectiveness of the Relationships, Intimacy, and Sex Workshop, which was specifically designed for Caucasian men who have sex with men (MSM). The workshop focuses on relationships, communication, dating, internalized homophobia, self-esteem, and HIV/STD prevention information. It is unique in that it is highly interactive and focuses on sex in a positive and non-shaming way while exploring methods to decrease HIV risk behaviors such as unprotected anal intercourse. The second objective of the study was to assess the effect of the level of participants' internalized homophobia on the outcomes of the intervention.

Discussion

The discussion of the study results will be organized into three sections. The first section will revisit the argument in support of evaluating innovative HIV prevention interventions for

MSM. The second section reviews the outcomes of the intervention in light of the literature, and the third section addresses the effect of internalized homophobia on the outcomes of the intervention.

Need for Effective Interventions for MSM

As has been established, HIV is a significant threat to public health, particularly for MSM. As of December, 2004, 23 years since the beginning of the AIDS era in the U.S., almost half of all deaths due to AIDS have been among MSM, over a quarter of a million individuals (CDC, 2004c). Recent surveillance data from 2003 also show that new diagnoses are occurring at exceedingly higher rates (63%) among MSM than all other groups combined.

Unfortunately there are very few effective interventions tailored to meet the prevention needs of the MSM community. It has been widely agreed that outcome research for HIV prevention interventions is needed to assess for effectiveness of these interventions for MSM (Elford & Hart, 2003; Kelly & Kalichman, 1995; Kelly, Murphy, Sikkema, & Kalichman, 1992; Rosser, et al., 2002; Vu, et al., 2002). However, there are significant barriers to these evaluations including limited theoretical models, unrealistic methodological research standards, and limited evaluation materials.

The present study operated in the context of these barriers while creatively working to solve them. For example, instead of using limited social cognitive models (Robinson, Bockting, Rosser, Miner, & Coleman, 2002; Wight, Abraham, & Scott, 1998), this study was supported by the more flexible and non-judgmental Sexual Health Model and the culturally specific Minority Stress Theory. The barrier of unrealistic methodological research standards was addressed by using a rigorous quasi-experimental control group design and analyzing the data using analysis of covariance to further increase the precision and power. Lastly, the barrier of a dearth of

evaluation materials was addressed by the study team by creating original materials. Almost all evaluation materials (e.g., outcome measurements) were created specifically for this study, but were based on both a review of the literature of the most important elements to be assessed in an outcome evaluation and the specific needs and curriculum of the intervention. These issues are discussed fully below.

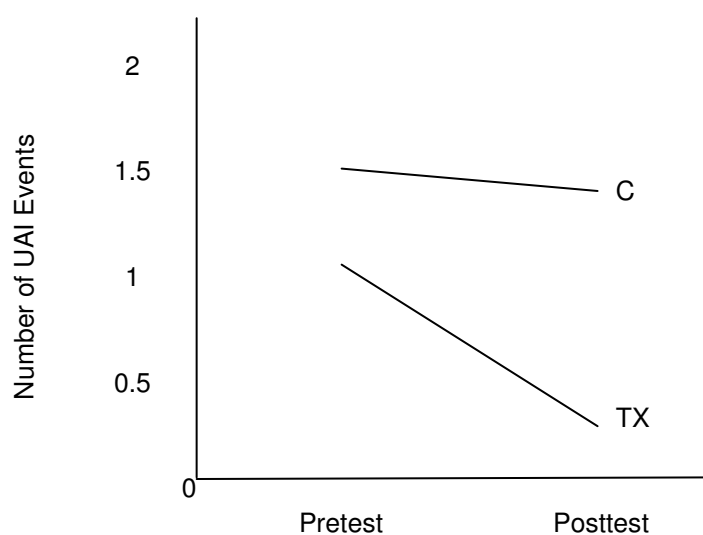
Research Question One

Based on the results presented in the previous chapter, it can be concluded that the Relationships, Intimacy, and Sex workshop could be a new effective intervention in the fight for HIV prevention. Two of the six hypotheses regarding effectiveness of the intervention were supported by the results. Specifically, there was a decrease in unprotected anal intercourse and an increase in HIV prevention knowledge. The finding that unprotected anal intercourse decreased significantly more in the treatment group than it did in the comparison group is the most important result of the study. This finding is similar to the meta-analyses of HIV prevention interventions by Herbst and colleagues (2005) and O’Leary and colleagues (1998). Herbst and colleagues found several key intervention elements that are also present in the Relationships, Intimacy, and Sex workshop including delivery to a small group (20 or fewer participants in the Herbst et al. study), interpersonal skills training, multiple delivery methods (including group discussions, lectures, demonstrations, and role plays/practice), and having at least four hours of intervention exposure/dosage. One significant dissimilarity was that effective interventions in the Herbst meta-analysis all spanned at least three weeks. The three-session version of the Relationships, Intimacy, and Sex workshop was two weeks long, the two-session version was one week long and the single session was conducted over a single day. This difference does not support the span of three weeks as a minimum for an effective intervention found by Herbst and

colleagues. O’Leary and colleagues also reported a dissimilarity from the Relationships, Intimacy, and Sex workshop as the interventions included in their meta-analysis were all delivered over multiple sessions. The study intervention was delivered in both multiple and single sessions.

Graph 1 puts in stark relief the magnitude of the UAI change between groups, and the data support the notion that the intervention had a large effect on this change. The graph highlights how the comparison group had no statistically significant change in unprotected anal intercourse between the pretest and posttest in the absence of any intervention. The treatment group has a clear and dramatic decline. While all surveys were written (no in-person interviews) and were conducted confidentially, it is possible that some of this change could be due to social desirability bias. In this case, social desirability bias might be seen as participants under-reporting risk behavior at the posttest with the hope that they would be seen in a positive light by the facilitator and researcher.

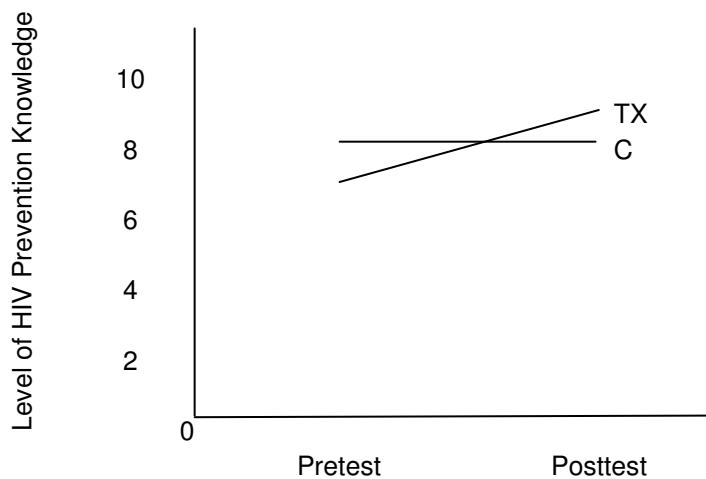
Graph 1: Change in Unprotected Anal Intercourse from Pretest to Posttest between Groups



TX = Treatment group; C = Comparison Group

A less dramatic but still clear change is apparent in Graph 2. This graph depicts the change in HIV prevention knowledge from pretest to posttest for the different groups. While there was a statistically significant difference between the treatment and comparison groups at pretest, this difference was controlled for as a covariate in the analysis. The comparison group performed as expected in the absence of an intervention with no change in knowledge, and the data lend credible support to the idea that the intervention contributed significantly to this positive change. While it has been shown that knowledge alone does not change risk behavior (DiClemente, Forrest, & Mickler, 1990; Kelly, Murphy, Sikkema, & Kalichman, 1993; Norris & Ford, 1991), it is a prerequisite for individuals to make informed choices about their own level of sexual risk. Further, Stein and Nyamathi (2000) found that individuals who increased their level of HIV prevention knowledge were also more likely to acquire testing after the intervention – another key outcome. A limitation of this finding is the low to moderate level of internal consistency for the HIV prevention knowledge scale, $\alpha=.704$ for the sample. This is discussed more in the recommendations below.

Graph 2: Change in HIV Prevention Knowledge from Pretest to Posttest between Groups



TX = Treatment group; C = Comparison Group

The results did not support the second through fourth hypotheses of the first research question. There were no statistically significant changes in number of anal sex partners, level of comfort with communication about wearing condoms, or level of comfort with putting condoms on self and others. Implications of these findings are addressed below.

The power to test each of these hypotheses was low, but for different reasons. Three factors need to be considered for each unsupported hypothesis retrospectively: Sample size, mean differences, and standard deviations. For anal sex partners, the mean difference was negligible (-.04) and not in the predicted direction, so mean difference was the primary contributor to the lack of power for that test. These results are also not in line with the findings of the meta-analyses of Herbst and colleagues and O’Leary and colleagues who found that in the majority of the rigorous evaluations they assessed, number of sex partners decreased. This is an unexpected and disappointing finding that does not reflect well on the intervention.

The two hypotheses regarding comfort with condoms were both found to have significance at the trend level ($p < .10$) but were not statistically significant. For comfort with communicating about wearing a condom, the mean difference was reasonable (.80), but the standard deviation in the sample was high (1.89) relative to the mean difference. For comfort with putting condoms on self and others, the mean difference was lower (.55) and the standard deviation (1.6) was high relative to the mean. Since both of these hypotheses appear to be trending to significance, a small to moderate increase in sample size or mean difference or a decrease in the standard deviation could increase power enough such that the findings would be statistically significant. If these findings moved from the trend level to statistical significance, they would also support the findings of Herbst and colleagues that small group interventions

improve comfort with condom use. Recommendations to accomplish this goal are discussed below.

The data also reflected a strong trend toward the conclusion that the treatment group was more likely than the comparison group to acquire an HIV test after the end of the intervention, yet the finding was not statistically significant. In spite of these results, the finding that 44.4% of the men in the treatment group acquired HIV testing (compared to 15.4% of the men in the comparison group) is important and of practical significance. Men who are unaware they are HIV-positive may be unknowingly fueling the epidemic (Murphy, et al., 2004). As more individuals who are unsure of their HIV status are tested, more will become aware of their HIV status and be able to access medical care which ultimately decreases transmission (CDC, 2003a).

Research Question Two

Internalized homophobia did not have an effect on the change in unprotected anal intercourse in this sample. However, internalized homophobia did reach the trend level of significance in the analysis of its effect on the change in UAI from pretest to posttest for the treatment group. This lack of statistical significance was an unexpected finding, and it does not support much of the HIV prevention literature related to internalized homophobia. In their assessment of the effect of internalized homophobia on HIV prevention social services, Huebner, Davis, Nemeroff, and Aiken (2002) found that internalized homophobia was inversely related to gay men's self-efficacy for condom use, inhibiting their confidence and comfort in using condoms. While the current study was not able to assess the condom comfort hypotheses given they were unsupported by the data, the absence of a negative effect of internalized homophobia on unprotected anal intercourse does not support the findings of Huebner and colleagues.

Similarly, the findings of Herek and Glunt (1995), that internalized homophobia was negatively associated with feelings of self-efficacy for safer sex, were unsupported by the findings of this study.

A potential contributing factor to the finding that internalized homophobia did not have an effect on the change in unprotected anal intercourse could be the relatively moderate level of internalized homophobia in the entire sample. While the treatment group tended to have a higher level of internalized homophobia than the comparison group, there was no significant difference between the groups. It may be that one of the hypotheses of Huebner and colleagues (2002) was upheld in that those with the highest levels of internalized homophobia do not participate in workshops or surveys directed to gay men, and may not even be aware that these activities are occurring in the community. Supporting this hypothesis was the finding that the attrition group tended to have higher levels of internalized homophobia, but the difference was not found to be statistically significant. Overall however, the findings of Huebner and colleagues are not supported by the results of this study, as they found that internalized homophobia negatively effected outcomes for men in an HIV prevention workshop.

Another potential reason for the lack of an effect of internalized homophobia on the outcomes may be the data collection tool used to measure internalized homophobia. Overall, the tool had moderate to strong reliability for the treatment group ($\alpha=.851$), but the instrument is still fairly new and relatively untested. It could be that the sample did have a higher level of internalized homophobia and the instrument was neither reliable nor sensitive enough to make an accurate assessment. There have also been no tests of the instrument's validity conducted to date, so it is also possible that even given its face and content validity, it may provide a weak

assessment of internalized homophobia. Recommendations regarding this tool are provided below.

Limitations

It was known that the design implemented for this study had both expected and potential limitations. These limitations include the lack of randomization, selection biases, and differential attrition. They are discussed in this order below.

Lack of Randomization

The lack of randomization into groups for this study certainly had a negative impact on the representativeness of the sample to the population and the equivalence of the groups. For those in the treatment group, it must be expected that they are not representative of the population in some ways, but it cannot be known how they are different. The potential lack of representativeness limits the applicability of the results to the larger population, even with sampling efforts that sought out as broad a sample as possible. Future evaluations of this intervention would benefit from randomization into treatment and comparison groups.

Self-Selection Bias

Self-selection bias is also a concern for the study. Surprisingly, men who entered the intervention reported more internalized homophobia than the men who participated in the comparison group. It was expected that the opposite may occur and that those with higher levels of internalized homophobia would avoid a small social setting with other gay men (such as the workshop) and instead prefer to engage in the more solitary activity of completing surveys for the comparison group. Since internalized homophobia was controlled for as a covariate in all relevant analyses, some limitation of this bias was achieved.

Similarly, there was also an expectation that those men with high levels of internalized homophobia would not elect to participate in the workshop or comparison surveys, and may not even be aware of the study activities and therefore not be able to opt to participate. There were many advertisements (see Appendix C for examples) placed in local gay magazines and shops for both groups, but individuals with high levels of internalized homophobia may not read these magazines or go to these shops. Given the relatively moderate level of internalized homophobia in the study sample, a limitation of the study is that it may not have been able to successfully reach those men who have higher levels of internalized homophobia.

While there were significant differences between the treatment and comparison groups in pretest levels of comfort with communicating about wearing condoms, HIV prevention knowledge, and internalized homophobia, it is unclear if there were other unmeasured qualitative differences between the groups. While the original methods to recruit samples were very similar, the agency was given permission by the funder to add two outreach workers in December, 2005 specifically to recruit participants into the workshop. These part-time staffers were representative of the local Caucasian gay community and spent their time in local gay establishments recruiting groups of men for the intervention. Due to a lack of funding, no such effort was put forth for the comparison group, and this could contribute to some unmeasured differences between the groups. Further, it is possible that the qualitatively different offerings for each group (a small group of men getting together to talk about relationships, intimacy, and sex as opposed to completing surveys in solitude) sampled different groups. It would be best if the comparison group was representative of a group of men who would also participate in a workshop, but this may not have been the case.

A similar potential limitation of the study, while not explicitly a selection bias, is non-equivalence between the three treatment groups. Comparison analyses found that these groups were different in age, race, and serostatus. While there were no differences in internalized homophobia or outcomes, it is possible that the men in the three different treatment groups were different in ways that were not measured, potentially increasing error and bias in the results. The treatment groups may also be differently representative of the population as a whole, with some being more representative and others being less so. Without randomization, representativeness across treatment groups cannot be assumed.

Differential Attrition

It was also expected that individuals with higher levels of internalized homophobia would drop out of the treatment group more often than those with lower levels of internalized homophobia. However, comparison analyses between those who completed the intervention and those who did not complete the intervention found that internalized homophobia may have contributed to the attrition only at the trend level of significance. The only statistically significant difference between those who completed and those who did not was race. Given that the agency's mandate from their funder was to provide services to Caucasian MSM and the preponderance of men in the group were Caucasian, it is possible that the African American men in the groups felt uncomfortable and elected not to complete the intervention. Qualitative data regarding the lack of completion for African Americans in the treatment group were not collected.

Recommendations and Implications

The finding of the decrease in unprotected anal intercourse in the treatment group relative to the comparison group must be strongly considered. Given that unprotected anal intercourse

provides the highest likelihood of new HIV infections among men who have sex with men, any significant reduction in this risk behavior strongly supports the recommendation to continue to provide the intervention.

The intervention does not succeed in all it is trying to accomplish, however. There was no reduction in anal sex partners for the treatment group participants, and only a tendency toward an increase in comfort with communicating about wearing condoms and comfort with putting condoms on oneself and others. The agency should consider ways of strengthening these components considering the importance of condoms in the fight against HIV/AIDS, and recommendations are provided below.

The intervention also appears to be increasing participants' knowledge of HIV prevention methods and risk behaviors. Without knowledge of how HIV spreads and how it can be prevented, sexually active MSM may not know their own level of risk and what they can do to change their behavior.

Another finding of practical significance, but not statistical significance, was the difference in acquisition of HIV testing after the intervention between the treatment and comparison groups. Given the importance of knowing one's HIV status, and subsequent acquisition of medical care, this is a significant outcome of the intervention and also lends support to the recommendation that the intervention should continue to be provided.

In terms of internalized homophobia, the agency should consider changing the way it addresses this issue in the context of the intervention. Based on the limited results of this study, internalized homophobia did not appear to have an effect on the change in unprotected anal intercourse in the treatment group. It may be that internalized homophobia could be de-emphasized in future versions of the intervention.

Recommendations for Revisions to the Curricula

Given the findings of this study, the challenge of attrition, and the qualitative feedback from participants, the intervention would benefit considerably from an informed revision. One of the characteristics of curricula of reputationally strong programs (C-RSPs; Eke, Mezoff, Duncan, & Sogolow, in press) is clearly defined program messages. It could be that mixing HIV prevention messages with social and mental health messages serves to cloud the issues in the minds of the participants. A clear focus on issues most salient for HIV prevention, and less on social and mental health issues, could increase effectiveness. For example, social and mental health content areas that could be de-emphasized in the revised curriculum could be self-esteem, internalized homophobia, sexual compulsivity, body image, and spirituality. HIV prevention content areas that could be amplified or added include condom use and comfort, creative safer sex, abstinence, limiting sexual partners, healthy sexual relationships, safer dating, and intimacy. In particular, the findings of the study suggest that the changes in comfort with condom use and communication are approaching significance. If these subject areas are emphasized more strongly in the intervention, it could have the effect of changing these key participant attitudes in a statistically significant way. This same logic applies to the importance of the acquisition of HIV testing, and it too should be more greatly emphasized in future iterations of the Relationships, Intimacy, and Sex workshop.

A significant contribution of this study can be seen in the adaptation and evaluation of a long-standing effective behavioral intervention, the Partners in Prevention (PiP) program (Kelly, St. Lawrence, Hood, & Brasfield, 1989). As has been suggested in the literature, HIV prevention interventions that had been proven effective early in the epidemic, particularly prior to the introduction of Highly Active Anti-Retroviral Therapies, need to be updated and re-evaluated

(Elford & Hart, 2003). While there are considerable differences between the PiP intervention and the Relationships, Intimacy, and Sex workshop, the core elements are the same. The primary difference between the interventions is in the length or dosage of the sessions, since the PiP intervention was conducted over 12 weekly sessions, each lasting 75-90 minutes, and the Relationships, Intimacy, and Sex workshop was delivered in two different versions over three different time spans. It cannot be said that the Relationships, Intimacy, and Sex workshop is based on the PiP, but the core elements of the PiP were integrated into the Relationships, Intimacy, and Sex curriculum. Future efforts to update the PiP curriculum should be significantly informed by the current study, and are encouraged to use a strong theoretical basis per the findings of Herbst and colleagues (2005).

Recommendations for Future Studies

Once the curriculum is revised it will need to be piloted. As the new workshop becomes stabilized, a study that includes a full process evaluation that assesses the delivery of the intervention to better understand the impact of key components of the intervention should be conducted in concert with an outcome evaluation with randomization that would facilitate conclusions about the causes of workshop outcomes. This new evaluation should be considerably informed by the current study. A full prospective power analysis should be conducted for each outcome variable using effect sizes found in the current study to ensure that the effects of the intervention can be found. The current study may have benefited from a larger sample size for the three hypotheses that trended toward significance, and the future evaluation will have more precise effect size estimates to use in its power analysis.

In the language of government policy described in chapter two, this study could serve to stabilize the workshop at the point of C-RSPs, (Eke, Mezoff, Duncan, & Sogolow, in press) and

facilitate its movement to the next phase in intervention maturity, the Replicating Effective Programs (REP) project (Sogolow, et al., 2000). The REP project takes interventions that have been rigorously evaluated and have evidence of effectiveness and disseminates these interventions to others in the HIV prevention community with guidance on how best to replicate the interventions in other regional communities. This study contributes to moving the Relationships, Intimacy, and Sex workshop forward in this evaluation lifecycle process.

Recommendations for Assessment Tools

The findings of the study also support recommendations for improvements in the Short Internalized Homonegativity Scale (SIHS) and the HIV prevention knowledge scale. The SIHS did achieve a moderate to strong internal consistency score ($\alpha=.851$), but still lacks adequate support from the literature to claim anything beyond face and content validity. The untested validity may be a contributing factor to the lack of findings for the second research question. Additional validity assessments are recommended for this scale.

The HIV prevention knowledge scale was generated specifically for this study and had not been previously tested. It does correlate very well with the Relationships, Intimacy, and Sex workshop and can claim face and content validity. However, the internal consistency for the scale ($\alpha=.704$) is relatively low, and no validity tests have been conducted. The scale appears to be precise enough to measure HIV prevention knowledge in the scope of this intervention's curriculum, and to show change over time. To increase the utility of this scale, additional items should be added that reflect HIV prevention knowledge more broadly, and other HIV knowledge scales currently in use should be included in this process. A larger tool could then be assessed using an exploratory factor analysis to better understand what the tool is measuring and how the

items inter-relate. From there, it is recommended that further validity tests and confirmatory factor analyses be conducted to assess the scale and confirm what is being measured.

Implications for the Sexual Health Model

While it was not the intention of the study to evaluate the Sexual Health Model, the findings of the current study imply support for it. The case has been made that the Sexual Health Model and the Relationships, Intimacy, and Sex workshop are well supported by the HIV prevention literature. The intervention was not explicitly based on the Sexual Health Model, but does have a very high level of correlation with the model's ten key components. Six of the ten key components of the Sexual Health Model are present in the Relationships, Intimacy, and Sex workshop curriculum including the following: 1) Talking about sex, 2) culture and sexuality, 3) sexual health care and safer sex, 4) challenges, 5) positive sexuality, and 6) intimacy and relationships. Perhaps most importantly, the Relationships, Intimacy, and Sex workshop was based in a strong sex-affirmative foundation, facilitating frank and open discourse about sex in a non-judgmental environment – the central element of the Sexual Health Model.

The Relationships, Intimacy, and Sex workshop also had much in common with an intervention evaluated by Rosser and colleagues (2002) designed for MSM and called the Man-to-Man Sexual Health Seminar. Both interventions had a sex-positive tone and included curriculum components of sexual communication, barriers to healthy sexuality, internalized homophobia, HIV and STDs, sexual decision making, and safer sex. The Man-to-Man seminar also found a reduction in unprotected anal intercourse in comparison with a treatment group at follow-up, but much of that difference was found in an increase in unprotected anal intercourse (UAI) in the comparison group rather than a decrease in UAI in the treatment group. The findings of the Relationships, Intimacy, and Sex workshop are arguably stronger since the

difference in UAI between the treatment and comparison groups was due primarily to the decrease in UAI in the treatment group, while there was no change in the comparison group.

The Relationships, Intimacy, and Sex workshop is somewhat unusual in that it was developed by program staff to meet a specific need in the community, to prevent HIV among Caucasian MSM, and was not based a priori on a theoretical model. This does not support the findings of the meta-analysis by Herbst and colleagues (2005), who found that most effective interventions are based a priori on a theoretical foundation. In spite of this, the very high correlation between the curriculum and the model reflect positively on both the model and the intervention. Additionally, future revisions of the curriculum are strongly encouraged to include the Sexual Health Model and operationalize the elements of the model that are being implemented.

Based on these findings, it can be argued that the Sexual Health Model makes a worthy contribution to the creation or adaptation of HIV prevention interventions. Future evaluations of the Sexual Health Model should include the findings of this study, but with caveats that the model was not fully operationalized in this study, nor was it explicitly evaluated.

Implications for Minority Stress Theory

It was also not the intention of the study to evaluate the Minority Stress Theory, but the findings appear to provide equivocal support for it. Minority Stress Theory, as conceptualized by Meyer (2003), states that there are four factors that contribute to stress for sexual minorities: Internalized homophobia, experience of prejudice events, expectations of rejection, and hiding and concealing one's identity. Meyer's premise was that gay men in a heterosexist society are subjected to chronic stress directly related to their minority status and stigmatization and this contributes to a host of negative outcomes for these men.

The current study only assessed one factor of Minority Stress Theory, internalized homophobia, and did not operationalize the other factors explicitly. Therefore, any attributions to the Minority Stress Theory based on these findings must be limited. While the study conducted by Huebner and colleagues (2002) was not based in Minority Stress Theory, it is the only research that has been published that assesses the hypothesis that internalized homophobia negatively effects the outcomes of HIV prevention interventions. While Huebner and colleagues found support for the hypothesis, the current study did not find any statistically significant effect of internalized homophobia on HIV prevention outcomes.

It is quite possible that the lack of support for the findings of Huebner and colleagues has more to do with the low power (.38) of the data than it does with Minority Stress Theory. The prospective power analysis looked specifically at the outcomes of UAI for the intervention itself, and did not consider the power needed to see a projected effect size for the effect of internalized homophobia on these outcomes. This is a limitation of the current study, and would need to be taken into account in any future research considering internalized homophobia and Minority Stress Theory. The trend level of significance that was found for the effect of internalized homophobia on unprotected anal intercourse supports Minority Stress Theory and the work of Huebner and colleagues, so overall the results are equivocal.

Future research that seeks to understand the impact of internalized homophobia on intervention outcomes should strongly consider the use of Minority Stress Theory. This research should operationalize all four elements of Minority Stress Theory in order to fully test the theory and assess for effects of minority stress on intervention outcomes for sexual minorities. This research may uncover unknown relationships between these factors, and research that assesses

all four factors will provide the most valid insight on Minority Stress Theory and its potential impact on sexual minorities.

Community Collaborations and Evaluation Design

The establishment of collaborative relationships between researchers and evaluators with community-based service providers and social workers has also been widely agreed to be an important strategy for the goal of finding effective interventions and improving HIV prevention efforts by empirical researchers in the field (Dodd & Meezan, 2003; Fetterman & Wandersman, 2005; Kelly, Murphy, Sikkema, & Kalichman, 1993; Patton, 1997; Ross & Williams, 2002). The results of this study suggest that overall the collaboration between researcher and host agency was a successful one. In this study the host agency had an innovative intervention integrated with a long-standing effective behavioral intervention, the social work researcher had the expertise needed to conduct an effective evaluation, and both worked together closely as a collaborative team. The study succeeded in conducting an evaluation *with* the program, instead of *to* the program.

While the collaboration between the evaluator and the program staff was strong, it is also important to note that the needs of the agency trumped the needs of the evaluation in a significant way, and led to a considerable limitation: The change in the delivery of the intervention from being a nine-hour three-session workshop to being a six-hour two- or one-session workshop. This change is an excellent example of what Morell (2005) referred to as a change in program action causing “unintended consequences” to an evaluation (p. 444).

Morell (2005) suggests that some changes in program actions are foreseeable while others are not, and an agile evaluation will be flexible enough to account for these changes. This evaluation was designed to compare the outcomes of the treatment and the comparison groups,

and the design suited that purpose. The current study was agile enough such that some differences between groups could be controlled for in the subsequent analysis. However, the study was not designed to assess the delivery of the intervention, hence no data were captured to monitor process variables. This provided for a significant unexpected weakness as there are no data available to shed light on the potential differences and similarities between how the intervention was delivered across the three-session, two-session, and one-session groups. While the facilitator reports that the only adjustments were in the delivery method of the activities (dyadic and full-group the three-session and only full-group in the two- and one-session), there is no data available to bolster this claim. The evaluation lacked the agility to support this claim with data.

Conclusion

The overarching goal of this study was to evaluate an intervention that was designed to prevent the spread of HIV through assessment of its outcomes. Broadly speaking, this goal was achieved. The intervention's sponsors now have more information to support their efforts in nurturing this young program into a mature effective behavioral intervention which will serve to prevent future HIV infections. With the relative paucity of HIV prevention interventions with proven track records of effectiveness for the community of men who have sex with men, evaluations of these types of interventions must continue.

In the future, social workers as a community and representatives of a discipline are encouraged to be more involved in these types of evaluations and research. Social workers often bring the strong clinical and community background required to create and implement an intervention such as this one, but just as often are absent when the interventions need to be rigorously evaluated. Social workers make strong contributions to the improvement of many

social problems, and HIV prevention research can become one more area of excellence for the discipline.

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APPENDIX A
CONSENT FORMS

Unique Identifier: _____

POSITIVE IMPACT, INC.
Consent Document for Relationships, Intimacy and Sex Workshop

Dear Workshop Participant,

You are invited to participate in a research study titled “Caucasian Men who have Sex with Men: Sexual Behavior, Self-Esteem and HIV”, which is being conducted by Bryce Smith, School of Social Work, University of Georgia, (404) 388-6490, under the direction of Kevin DeWeaver, Ph.D., School of Social Work, University of Georgia, (706) 542-5473.

The purpose of this study is to better understand how effective the Relationships, Intimacy and Sex workshop is in teaching participants about HIV and its transmission and in helping participants to engage in safer sexual behaviors.

If you should choose to participate in this study, the following documents that you complete will be shared with the researcher:

- The pre-test before the workshop starts.
- The short session evaluations you will complete for each of the three sessions.
- The post-test at the end of the workshop.
- The posttest measure that you will complete 30 days after the workshop ends. Once you complete the posttest measure you will receive a gift certificate (worth approximately \$20) as a token of our appreciation for your effort in completing the materials.
- If for some reason you choose not complete all three sessions and you tell the facilitator why you decided to drop out, the reason will be shared with the researcher.

Please also be aware that the researcher of this project will only have access to your data after your name, zip code, and date of birth have been removed, so your information will be kept anonymous to the evaluator. Further, the researcher will not have access to any progress notes or other information that arises in the course of the workshop that you share in confidence with the facilitator. The facilitator may share informal comments about the workshop itself with the researcher, but your confidentiality will be maintained.

If you grant permission to have your de-identified information included in the research, please place an “X” in the “Yes” line below. If you do not want to have your de-identified information included, please place an “X” in the “No” line. Please DO NOT INITIAL the lines below, only use an “X” to signify your preference. Your participation in this study is completely voluntary and you may participate in the workshop regardless of your preference to share the data or not. You may withdraw at any time without penalty.

Yes _____ No _____

[Please DO NOT Initial, place an “X” in the corresponding blank.]

If you have any questions do not hesitate to ask now or at a later date. You may contact the researcher (Bryce Smith) via email (abcsmith@uga.edu) or phone (404-388-6490).

Thank you for the invaluable help that you are providing by participating in this research study.

Bryce D. Smith, LCSW
School of Social Work
University of Georgia
Tucker Hall
Athens, Georgia 30602
abcsmith@uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

Unique Identifier: _____

Consent Document for Relationships, Intimacy and Sex Study

Dear Study Participant,

You are invited to participate in a research study titled “Caucasian Men who have Sex with Men: Sexual Behavior, Self-Esteem and HIV”, which is being conducted by Bryce Smith, School of Social Work, University of Georgia, (404) 388-6490, under the direction of Kevin DeWeaver, Ph.D., School of Social Work, University of Georgia, (706) 542-5473.

The purpose of this study is to better understand how effective the Relationships, Intimacy and Sex workshop is in teaching participants about HIV and its transmission and in helping participants to engage in safer sexual behaviors. The workshop is provided by Positive Impact, Inc., a local nonprofit organization. This part of the study is gathering information from men who are not participating in the workshop. If after completing the surveys you are interested in learning about and participating in the workshop, you will be eligible to do so.

If you should choose to participate in this study, the following documents that you complete will be shared with the researcher:

- The pre-test survey, which should take approximately 15-20 minutes to complete.
- The post-test survey that you will complete 30 days after the pre-test. This should also take 15-20 minutes. Once you complete the posttest measure you will receive a gift certificate (worth approximately \$20) as a token of our appreciation for your effort in completing the materials.

You have been mailed the pre-test survey, along with this consent form, and a self-addressed stamped envelope (SASE). Next, you will complete the survey and use the envelope to return it. You will receive the post-test survey 30 days later with another SASE, and return it the same way. Your responses will be entered into a database and the paper copies kept under lock and key by the researcher until they are destroyed.

If you return the attached survey that will serve as consent for your data to be included in the study.

If you have any questions do not hesitate to ask now or at a later date. You may contact the researcher (Bryce Smith) via email (abcsmith@uga.edu) or phone (404-388-6490).

over-

Thank you for the invaluable help that you are providing by participating in this research study.

Bryce D. Smith, LCSW
School of Social Work
University of Georgia
Tucker Hall
Athens, Georgia 30602
abcsmith@uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX B

DATA COLLECTION INSTRUMENTS

POSITIVE IMPACT, INC.

Men Who Have Sex with Men

Pre-Assessment Measure

S-0704-

Unique Identifier Code

☐ **Pre-Assessment Measure**

Sessions Completed: (*Check ALL modules attended*)

☐ **Session 1**

☐ **Session 2**

☐ **Session 3**

☐ **No Sessions Attended—Pre-Assessment Survey**

Final Revision April 2005

1.	What is your date of birth?	<div style="display: flex; justify-content: space-around; width: 100%;"> Month Day Year </div>
<hr/>		
2.	What is your age?	<div style="display: flex; align-items: center;"> Years Old </div>
<hr/>		
3.	What is your zip code?	<div style="display: flex; align-items: center;"> </div>
<hr/>		
4.	Are you Hispanic or Latino?	<div style="display: flex; align-items: center;"> 1 Yes </div> <div style="display: flex; align-items: center;"> 2 No </div>
	<i>(Please circle <u>only one</u> response)</i>	
<hr/>		
5.	What is your race?	<div style="display: flex; align-items: center;"> 1 Caucasian/White </div> <div style="display: flex; align-items: center;"> 2 African American/Black </div> <div style="display: flex; align-items: center;"> 3 Asian </div> <div style="display: flex; align-items: center;"> 4 Other </div>
	<i>(Please circle <u>only one</u> response)</i>	
<hr/>		
6.	What is your highest level of educational achievement?	
	<i>(Please circle <u>only one</u> response)</i>	
		<div style="display: flex; align-items: center;"> 1 Less than High School </div> <div style="display: flex; align-items: center;"> 2 High School Degree or Equivalent </div> <div style="display: flex; align-items: center;"> 3 Some College coursework </div> <div style="display: flex; align-items: center;"> 4 Bachelor's Degree </div> <div style="display: flex; align-items: center;"> 5 Some Graduate coursework </div> <div style="display: flex; align-items: center;"> 6 Graduate Degree </div>
<hr/>		
7.	If you are currently in a relationship, How would you characterize it?	
	<i>(Please circle <u>only one</u> response)</i>	
		<div style="display: flex; align-items: center;"> 1 Closed/monogamous </div> <div style="display: flex; align-items: center;"> 2 Closed/monogamous, but I “play” secretly </div> <div style="display: flex; align-items: center;"> 3 Open, only “play” together </div> <div style="display: flex; align-items: center;"> 4 Open, “play” together or separately </div> <div style="display: flex; align-items: center;"> 5 Open, only “play” separately </div> <div style="display: flex; align-items: center;"> 6 I am not currently in a relationship </div>
<hr/>		

8. Which of the following most accurately describes your sexual orientation?

(Please circle only one response)

- 1 Homosexual/Gay/Primary preference for male sex/romantic partners
- 2 Heterosexual/Straight/Primary preference for female sex/romantic partners
- 3 Bisexual/Equally interested in male and female sex/romantic partners
- 4 Unsure of my sexual orientation

9. Have you ever been tested for HIV/AIDS?

(Please circle only one response)

- 1 Yes
- 2 No ► If NO skip to Question # 13

10. When was the last time you were tested for HIV/AIDS?

Month_____ Year_____

11. Are you HIV positive?

(Please circle only one response)

- 1 Yes
- 2 No/Unsure ► If NO/UNSURE skip to Question # 13

12. Date of HIV positive diagnosis:

Month_____ Day_____ Year_____

13. Have you ever been diagnosed with any of the following?

(Please circle ANY that apply)

- 1 Syphilis
 - 2 Gonorrhea
 - 3 NGU (non-gonococcal urethritis)
 - 4 Chlamydia
 - 5 Genital herpes
 - 6 Genital warts
 - 7 Hepatitis A
 - 8 Hepatitis B
 - 9 Hepatitis C
-

14. In the last 30 days, how many times have you engaged in the following? *(If none, please write "0")*

Number of Times
In Last 30 Days

- A) Been the receptive (bottom) partner in unprotected anal intercourse (bareback/without a condom)? _____
- B) Been the insertive (top) partner in unprotected anal intercourse (bareback/without a condom)? _____
- C) Engaged in unprotected oral sex (without a condom)? _____
- D) Shared needles with another person (for tattoos, drug use, etc.)? _____

15. Please circle the number that corresponds to the best answer for you for each statement:

- | | <u>Never</u> | <u>Sometimes</u> | <u>Often</u> | <u>Always</u> |
|--|--------------|------------------|--------------|---------------|
| A) My sexual appetite has gotten in the way of my relationships. | 1 | 2 | 3 | 4 |
| B) My sexual thoughts and behaviors are causing problems in my life. | 1 | 2 | 3 | 4 |
| C) My desires to have sex have disrupted my daily life. | 1 | 2 | 3 | 4 |
| D) I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors. | 1 | 2 | 3 | 4 |
| E) I sometimes get so horny I could lose control. | 1 | 2 | 3 | 4 |
| F) I find myself thinking about sex at work or school. | 1 | 2 | 3 | 4 |
| G) I feel that my sexual thoughts and feelings are stronger than I am. | 1 | 2 | 3 | 4 |
| H) I have to struggle to control my sexual thoughts and behaviors. | 1 | 2 | 3 | 4 |
| I) I think about sex more than I would like to. | 1 | 2 | 3 | 4 |
| J) I have experienced severe negative consequences as a result of my sexual behavior (job loss, arrest, etc.). | 1 | 2 | 3 | 4 |

16. In the last 30 days, how many **DIFFERENT** anal intercourse partners (insertive and receptive) have you had? _____

17. Of your **DIFFERENT** *anal* intercourse partners in the last 30 days, with how many of them did you initiate a discussion about HIV status? _____

18. In the last 30 days, how many *times* have you engaged in anal intercourse (Receptive or insertive and considering ALL Partners)? _____

19. Considering the number of *times* you have engaged in anal intercourse in the last 30 days, how many times did you use a condom? _____

20. Considering the number of *times* you have engaged in anal intercourse in the last 30 days, how many times were you high or intoxicated? _____

21. In the last 30 days, how often have you felt embarrassed when you talked to a sex partner about safer sex issues?

(Please circle only one response)

- 1 Every time
- 2 Most of the time
- 3 Sometimes
- 4 Rarely
- 5 Never
- 6 I have not talked with a sex partner about safer sex issues in the past 30 days

22. In the last 30 days, how often have you carried condoms?
(Please circle only one response)
- | | |
|---|-------------------------|
| 1 | <u>All</u> of the time |
| 2 | <u>Most</u> of the time |
| 3 | <u>Some</u> of the time |
| 4 | <u>Rarely</u> |
| 5 | <u>Never</u> |
-

23. In the last 30 days, which, if any, of the following substances have you used?
(Please circle ALL that apply)
- | | |
|---|---|
| 1 | Alcohol |
| 2 | Cocaine/Crack |
| 3 | Marijuana/Hashish/pot/weed/Mary Jane/420 |
| 4 | Methamphetamine/Tina/crystal/meth/speed/ice |
| 5 | Inhalants/poppers/snappers/Rush |
| 6 | I have not used ANY of these substances in the past 30 days |
-

24. Please circle the number that best represents your level of agreement with the following statements.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Moderately Agree
4 = Strongly Agree

I feel that I am a person of worth at least on an equal basis with others.	1	2	3	4
I feel that I have a number of good qualities.	1	2	3	4
All in all I am inclined to feel that I am a failure.	1	2	3	4
I am able to do things as well as most other people.	1	2	3	4
I feel I do not have much to be proud of.	1	2	3	4
I take a positive attitude toward myself.	1	2	3	4
On the whole, I am satisfied with myself.	1	2	3	4
I wish I could have more respect for myself.	1	2	3	4
I certainly feel useless at times.	1	2	3	4
At times I think I am no good at all.	1	2	3	4

25. Please circle the number that best represents your level of agreement with the following statements.

1 = Strongly Disagree
 2 = Moderately Disagree
 3 = Neither Agree nor Disagree
 4 = Moderately Agree
 5 = Strongly Agree

Barebacking increases intimacy between men	1	2	3	4	5
Barebacking makes sex more romantic	1	2	3	4	5
Barebacking is sexier than sex with condoms	1	2	3	4	5
Barebacking is more “butch” and manly	1	2	3	4	5
Barebacking affirms love between men	1	2	3	4	5
Barebacking is “hotter” than sex with condoms	1	2	3	4	5
There are psychological benefits to barebacking	1	2	3	4	5
Barebacking affirms masculinity	1	2	3	4	5
There are emotional benefits to barebacking	1	2	3	4	5

26. In the last 30 days, which of the following best describes your actual condom use behavior during oral sex?

(Please circle only one response)

- 1 I always use a condom for oral sex
- 2 Most of the time I use a condom for oral sex
- 3 Sometimes I use a condom for oral sex
- 4 I rarely use a condom for oral sex
- 5 I never use a condom for oral sex
- 6 I do not engage in oral sex

27. In the last 30 days, where have you typically sought sexual partners?

*(Please circle **ANY** that apply)*

- | | |
|---|---|
| 1 | Sex clubs (Flex, Steam, etc.) |
| 2 | Internet sites (chat rooms, personal ads, etc.) |
| 3 | Public spaces (video booths, parks, restrooms) |
| 4 | Private spaces (friends, private parties) |
| 5 | Bars/nightclubs |
| 6 | 900 numbers/sex hotlines/phone sex operators |
| 7 | Gyms/workout clubs |
| 8 | None of these |

28. Please rate your level of comfort with the items below using this scale:

1 = Very Comfortable
2 = Mostly Comfortable
3 = Mostly Uncomfortable
4 = Very Uncomfortable

- | | | | | |
|---|---|---|---|---|
| A. Buying condoms at the store. | 1 | 2 | 3 | 4 |
| B. Putting a condom on yourself. | 1 | 2 | 3 | 4 |
| C. Putting a condom on your partner. | 1 | 2 | 3 | 4 |
| D. Being identified as a gay or bisexual man. | 1 | 2 | 3 | 4 |
| E. Asking your sexual partner his HIV status. | 1 | 2 | 3 | 4 |
| F. Asking your partner to put on a condom. | 1 | 2 | 3 | 4 |
| G. Being asked by a sex partner to wear a condom. | 1 | 2 | 3 | 4 |
-

29. Please circle the number that corresponds to the best answer for you for each statement:

1 = Strongly Disagree
2 = Mostly Disagree
3 = Somewhat Disagree
4 = Neither Agree nor Disagree
5 = Somewhat Agree
6 = Mostly Agree
7 = Strongly Agree

I am comfortable about people finding out that I am gay.	1	2	3	4	5	6	7
It is important to me to control who knows about my homosexuality.	1	2	3	4	5	6	7
I feel comfortable discussing homosexuality in a public setting.	1	2	3	4	5	6	7
Even if I could change my sexual orientation I wouldn't.	1	2	3	4	5	6	7
Most gay men cannot sustain a long-term committed relationship.	1	2	3	4	5	6	7
Most gay men prefer anonymous sexual encounters.	1	2	3	4	5	6	7
Gay men tend to flaunt their sexuality inappropriately.	1	2	3	4	5	6	7
Gay men are generally more promiscuous than straight men.	1	2	3	4	5	6	7
I often feel intimidated while at gay venues.	1	2	3	4	5	6	7
Social situations with gay men make me feel uncomfortable.	1	2	3	4	5	6	7
I feel comfortable in gay bars.	1	2	3	4	5	6	7
Making an advance to another man is difficult for me.	1	2	3	4	5	6	7

Based on your understanding, please respond to the following statements as **True** or **False**

		<u>True</u>	<u>False</u>
--	--	-------------	--------------

- | | | | |
|-----|---|---|---|
| 30. | The HIV virus can be transmitted through kissing and sharing food. | 1 | 2 |
| 31. | The HIV virus can be transmitted through pre-ejaculate fluid (pre-cum). | 1 | 2 |
| 32. | The HIV virus can be transmitted by swallowing semen (cum). | 1 | 2 |
| 33. | Two HIV-positive men can have unprotected sex together because once you are infected, you cannot get infected again. | 1 | 2 |
| 34. | As long as the receptive (bottom) partner douches thoroughly after unprotected anal intercourse, he can avoid getting infected with HIV. | 1 | 2 |
| 35. | If an HIV-positive man has an “undetectable viral load,” that means he does not have enough HIV in his blood to infect anyone else with HIV. | 1 | 2 |
| 36. | Some people are actually immune to HIV. | 1 | 2 |
| 37. | I believe most men are honest about their HIV status. | 1 | 2 |
| 38. | It’s inevitable that if you are a sexually active man who has sex with other men in a major city, eventually you will contract HIV. | 1 | 2 |
| 39. | You can tell if someone is HIV-positive just by looking at them. | 1 | 2 |
| 40. | If you only have oral sex, you’re not at risk for HIV. | 1 | 2 |
| 41. | If I have unprotected (bareback) sex on Saturday night with an HIV positive man, but the following Wednesday I get tested for HIV and my test comes back negative, that means I did not contract HIV from the man I had sex with on Saturday. | 1 | 2 |
| 42. | If I get an “indeterminate” HIV test result, that means I am HIV negative. | 1 | 2 |
| 43. | If a person is going to use a condom for safer sex, it is important that the condom contain nonoxynol-9. | 1 | 2 |
| 44. | I believe that I have a pretty good screening system in place to figure out who is “safe” to play (have sex) with and who is “not safe.” | 1 | 2 |
| 45. | I think it is really the HIV positive man’s responsibility to disclose his status and inform his partner. | 1 | 2 |

*Based on your understanding, please respond to the following statements as **True** or **False***
True False

- | | | | |
|-----|---|---|---|
| 46. | I think it is really the HIV negative man's responsibility to ask his partner if he is HIV positive. | 1 | 2 |
| 47. | Early withdrawal before ejaculation could reduce but does not eliminate the risk of HIV virus transmission. | 1 | 2 |
| 48. | I think anonymous sex with another man is the hottest sex. | 1 | 2 |
| 49. | In the past, I have had sex partners try to talk me into having unprotected anal intercourse when I wanted to use a condom. | 1 | 2 |
-

You have reached the end of this assessment.

THANK YOU FOR COMPLETING THIS FORM!

POSITIVE IMPACT, INC.

Men Who Have Sex with Men

Comparison Group Measure

S-0704-

Unique Identifier Code

☐ **Comparison Group Measure**

☐ **No Sessions Attended—Comparison Group Survey**

Final Revision November 2005

1.	What is your age?	_____ Years Old
----	--------------------------	-----------------

2.	Are you Hispanic or Latino?	1 Yes
	<i>(Please circle <u>only one</u> response)</i>	2 No

3.	What is your race?	1 Caucasian/White
	<i>(Please circle <u>only one</u> response)</i>	2 African American/Black
		3 Asian
		4 Other

4.	What is your highest level of educational achievement?	
	<i>(Please circle <u>only one</u> response)</i>	
		7 Less than High School
		8 High School Degree or Equivalent
		9 Some College coursework
		10 Bachelor's Degree
		11 Some Graduate coursework
		12 Graduate Degree

5.	If you are currently in a relationship, How would you characterize it?	
	<i>(Please circle <u>only one</u> response)</i>	
		1 Closed/monogamous
		2 Closed/monogamous, but I “play” secretly
		3 Open, only “play” together
		4 Open, “play” together or separately
		5 Open, only “play” separately
		6 I am not currently in a relationship

6. Which of the following most accurately describes your sexual orientation?

(Please circle only one response)

- 1 Homosexual/Gay/Primary preference for male sex/romantic partners
- 2 Heterosexual/Straight/Primary preference for female sex/romantic partners
- 3 Bisexual/Equally interested in male and female sex/romantic partners
- 4 Unsure of my sexual orientation

7. Have you ever been tested for HIV/AIDS?

(Please circle only one response)

- 1 Yes
- 2 No ► If NO skip to Question # 11

8. When was the last time you were tested for HIV/AIDS?

Month_____ Year_____

9. Are you HIV positive?

(Please circle only one response)

- 1 Yes
- 2 No/Unsure ► If NO/UNSURE skip to Question # 11

10. Date of HIV positive diagnosis:

Month_____ Day_____ Year_____

11. Have you ever been diagnosed with any of the following?

(Please circle ANY that apply)

- 1 Syphilis
 - 2 Gonorrhea
 - 3 NGU (non-gonococcal urethritis)
 - 4 Chlamydia
 - 5 Genital herpes
 - 6 Genital warts
 - 7 Hepatitis A
 - 8 Hepatitis B
 - 9 Hepatitis C
-

12. In the last 30 days, how many times have you engaged in the following? (If none, please write "0")

**Number of Times
In Last 30 Days**

- A) Been the receptive (bottom) partner in unprotected anal intercourse (bareback/without a condom)? _____
- B) Been the insertive (top) partner in unprotected anal intercourse (bareback/without a condom)? _____
- C) Engaged in unprotected oral sex (without a condom)? _____
- D) Shared needles with another person (for tattoos, drug use, etc.)? _____

13. Please circle the number that corresponds to the best answer for you for each statement:

	<u>Never</u>	<u>Sometimes</u>	<u>Often</u>	<u>Always</u>
A) My sexual appetite has gotten in the way of my relationships.	1	2	3	4
B) My sexual thoughts and behaviors are causing problems in my life.	1	2	3	4
D) My desires to have sex have disrupted my daily life.	1	2	3	4
D) I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors.	1	2	3	4
E) I sometimes get so horny I could lose control.	1	2	3	4
F) I find myself thinking about sex at work or school.	1	2	3	4
G) I feel that my sexual thoughts and feelings are stronger than I am.	1	2	3	4
I) I have to struggle to control my sexual thoughts and behaviors.	1	2	3	4
I) I think about sex more than I would like to.	1	2	3	4
J) I have experienced severe negative consequences as a result of my sexual behavior (job loss, arrest, etc.).	1	2	3	4

14. In the last 30 days, how many **DIFFERENT** anal intercourse partners (insertive and receptive) have you had? _____

14. Of your **DIFFERENT** *anal* intercourse partners in the last 30 days, with how many of them did you initiate a discussion about HIV status? _____

16. In the last 30 days, how many *times* have you engaged in anal intercourse (Receptive or insertive and considering ALL Partners)? _____

17. Considering the number of *times* you have engaged in anal intercourse in the last 30 days, how many times did you use a condom? _____

18. Considering the number of *times* you have engaged in anal intercourse in the last 30 days, how many times were you high or intoxicated? _____

19. In the last 30 days, how often have you felt embarrassed when you talked to a sex partner about safer sex issues?

(Please circle only one response)

- 1 Every time
 - 2 Most of the time
 - 3 Sometimes
 - 4 Rarely
 - 5 Never
 - 6 I have not talked with a sex partner about safer sex issues in the past 30 days
-

20. In the last 30 days, how often have you carried condoms?
(Please circle only one response)
- | | |
|---|-------------------------|
| 1 | <u>All</u> of the time |
| 2 | <u>Most</u> of the time |
| 3 | <u>Some</u> of the time |
| 4 | <u>Rarely</u> |
| 5 | <u>Never</u> |
-

21. In the last 30 days, which, if any, of the following substances have you used?
(Please circle ALL that apply)
- | | |
|---|---|
| 1 | Alcohol |
| 2 | Cocaine/Crack |
| 3 | Marijuana/Hashish/pot/weed/Mary Jane/420 |
| 4 | Methamphetamine/Tina/crystal/meth/speed/ice |
| 5 | Inhalants/poppers/snappers/Rush |
| 6 | I have not used ANY of these substances in the past 30 days |
-

22. Please circle the number that best represents your level of agreement with the following statements.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Moderately Agree
4 = Strongly Agree

I feel that I am a person of worth at least on an equal basis with others.	1	2	3	4
I feel that I have a number of good qualities.	1	2	3	4
All in all I am inclined to feel that I am a failure.	1	2	3	4
I am able to do things as well as most other people.	1	2	3	4
I feel I do not have much to be proud of.	1	2	3	4
I take a positive attitude toward myself.	1	2	3	4
On the whole, I am satisfied with myself.	1	2	3	4
I wish I could have more respect for myself.	1	2	3	4
I certainly feel useless at times.	1	2	3	4
At times I think I am no good at all.	1	2	3	4

23. Please circle the number that best represents your level of agreement with the following statements.

1 = Strongly Disagree
 2 = Moderately Disagree
 3 = Neither Agree nor Disagree
 4 = Moderately Agree
 5 = Strongly Agree

Barebacking increases intimacy between men	1	2	3	4	5
Barebacking makes sex more romantic	1	2	3	4	5
Barebacking is sexier than sex with condoms	1	2	3	4	5
Barebacking is more “butch” and manly	1	2	3	4	5
Barebacking affirms love between men	1	2	3	4	5
Barebacking is “hotter” than sex with condoms	1	2	3	4	5
There are psychological benefits to barebacking	1	2	3	4	5
Barebacking affirms masculinity	1	2	3	4	5
There are emotional benefits to barebacking	1	2	3	4	5

24. In the last 30 days, which of the following best describes your actual condom use behavior during oral sex?

(Please circle only one response)

- 1 I always use a condom for oral sex
- 2 Most of the time I use a condom for oral sex
- 3 Sometimes I use a condom for oral sex
- 4 I rarely use a condom for oral sex
- 5 I never use a condom for oral sex
- 6 I do not engage in oral sex

25. In the last 30 days, where have you typically sought sexual partners?

(Please circle ANY that apply)

- | | |
|---|---|
| 1 | Sex clubs (Flex, Steam, etc.) |
| 2 | Internet sites (chat rooms, personal ads, etc.) |
| 3 | Public spaces (video booths, parks, restrooms) |
| 4 | Private spaces (friends, private parties) |
| 5 | Bars/nightclubs |
| 6 | 900 numbers/sex hotlines/phone sex operators |
| 7 | Gyms/workout clubs |
| 8 | None of these |
-

26. Please rate your level of comfort with the items below using this scale:

1 = Very Comfortable
2 = Mostly Comfortable
3 = Mostly Uncomfortable
4 = Very Uncomfortable

- | | | | | |
|---|---|---|---|---|
| A. Buying condoms at the store. | 1 | 2 | 3 | 4 |
| B. Putting a condom on yourself. | 1 | 2 | 3 | 4 |
| C. Putting a condom on your partner. | 1 | 2 | 3 | 4 |
| D. Being identified as a gay or bisexual man. | 1 | 2 | 3 | 4 |
| E. Asking your sexual partner his HIV status. | 1 | 2 | 3 | 4 |
| F. Asking your partner to put on a condom. | 1 | 2 | 3 | 4 |
| G. Being asked by a sex partner to wear a condom. | 1 | 2 | 3 | 4 |
-

27. Please circle the number that corresponds to the best answer for you for each statement:

1 = Strongly Disagree
2 = Mostly Disagree
3 = Somewhat Disagree
4 = Neither Agree nor Disagree
5 = Somewhat Agree
6 = Mostly Agree
7 = Strongly Agree

I am comfortable about people finding out that I am gay.	1	2	3	4	5	6	7
It is important to me to control who knows about my homosexuality.	1	2	3	4	5	6	7
I feel comfortable discussing homosexuality in a public setting.	1	2	3	4	5	6	7
Even if I could change my sexual orientation I wouldn't.	1	2	3	4	5	6	7
Most gay men cannot sustain a long-term committed relationship.	1	2	3	4	5	6	7
Most gay men prefer anonymous sexual encounters.	1	2	3	4	5	6	7
Gay men tend to flaunt their sexuality inappropriately.	1	2	3	4	5	6	7
Gay men are generally more promiscuous than straight men.	1	2	3	4	5	6	7
I often feel intimidated while at gay venues.	1	2	3	4	5	6	7
Social situations with gay men make me feel uncomfortable.	1	2	3	4	5	6	7
I feel comfortable in gay bars.	1	2	3	4	5	6	7
Making an advance to another man is difficult for me.	1	2	3	4	5	6	7

Based on your understanding, please respond to the following statements as **True** or **False**.

		<u>True</u>	<u>False</u>
28.	The HIV virus can be transmitted through kissing and sharing food.	1	2
29.	The HIV virus can be transmitted through pre-ejaculate fluid (pre-cum).	1	2
30.	The HIV virus can be transmitted by swallowing semen (cum).	1	2
31.	Two HIV-positive men can have unprotected sex together because once you are infected, you cannot get infected again.	1	2
32.	As long as the receptive (bottom) partner douches thoroughly after unprotected anal intercourse, he can avoid getting infected with HIV.	1	2
33.	If an HIV-positive man has an “undetectable viral load,” that means he does not have enough HIV in his blood to infect anyone else with HIV.	1	2
34.	Some people are actually immune to HIV.	1	2
35.	I believe most men are honest about their HIV status.	1	2
36.	It’s inevitable that if you are a sexually active man who has sex with other men in a major city, eventually you will contract HIV.	1	2
37.	You can tell if someone is HIV-positive just by looking at them.	1	2
38.	If you only have oral sex, you’re not at risk for HIV.	1	2
39.	If I have unprotected (bareback) sex on Saturday night with an HIV positive man, but the following Wednesday I get tested for HIV and my test comes back negative, that means I did not contract HIV from the man I had sex with on Saturday.	1	2
40.	If I get an “indeterminate” HIV test result, that means I am HIV negative.	1	2
41.	If a person is going to use a condom for safer sex, it is important that the condom contain nonoxynol-9.	1	2
42.	I believe that I have a pretty good screening system in place to figure out who is “safe” to play (have sex) with and who is “not safe.”	1	2
43.	I think it is really the HIV positive man’s responsibility to disclose his status and inform his partner.	1	2

*Based on your understanding, please respond to the following statements as **True** or **False**.*

		<u>True</u>	<u>False</u>
44.	I think it is really the HIV negative man's responsibility to ask his partner if he is HIV positive.	1	2
45.	Early withdrawal before ejaculation could reduce but does not eliminate the risk of HIV virus transmission.	1	2
46.	I think anonymous sex with another man is the hottest sex.	1	2
47.	In the past, I have had sex partners try to talk me into having unprotected anal intercourse when I wanted to use a condom.	1	2

You have reached the end of this assessment.

THANK YOU FOR COMPLETING THIS FORM!

APPENDIX C

STUDY ADVERTISEMENTS



Relationships, Intimacy, and Sex

**A FREE
Workshop for
Gay
& Bisexual Men**

**Earn a
participation
bonus!**

Positive Impact, Inc.
139 Ralph McGill Blvd.
Suite 301
Atlanta, Georgia 30308

Workshop Schedule

DECEMBER
2005

Tue 12/6 & 12/13; 6 - 9 pm
Wed 12/7 & 12/14; 6 - 9 pm
Sat 12/10; 11 am - 5 pm
Tue 12/20; 10 am - 4 pm

JANUARY
2006

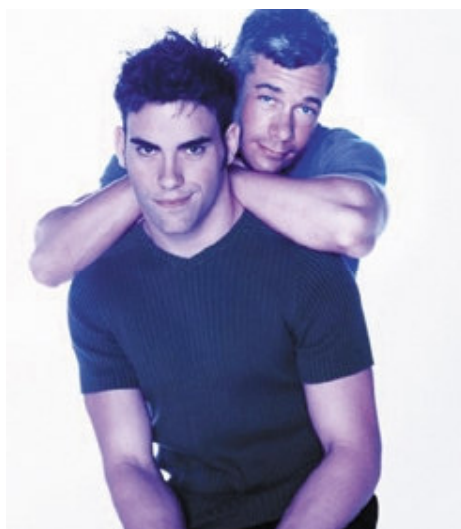
Sat 1/7; 10 am - 4 pm
Tue 1/10; 11 am - 5 pm
Wed 1/4 & 1/11; 6 - 9 pm
Tue 1/24 & 1/31; 6 - 9 pm

FOR MORE INFO CONTACT:

DANNY SPROUSE

404 589 9040

<http://positiveimpactinc.tripod.com/>



Are You a Gay, White Male?

EARN \$20 by participating in a Research Survey! All you have to do is complete a 15-20 minute survey twice in one month.

CALL 404.388.0337

APPENDIX D

DATA TRANSFORMATION STATISTICS

This Appendix contains tables that provide supporting documentation regarding the data transformations that were performed for the study beyond those listed in the text. The documentation includes three tables: One containing the logarithmic equations that were used to transform non-normal distributions, another containing the Kolmogorov-Smirnov (K-S) statistics and p-values before and after data transformations, and the last containing the levels of skewness and kurtosis before and after data transformations were conducted. The reader is encouraged to return to the beginning of chapter five for a full explanation of the procedures used to acquire these statistics and make these transformations.

Logarithmic Equations used to Transform Non-Normal Data Distributions of Dependent Variables

Variables	Logarithmic Equation
Condom Communication at Pretest	$\text{Log}_{10}(X - 1)$
HIV Prevention Knowledge at Pretest	Reflect using $(11 - X)$, then $\text{Log}_{10}(X)$
Unprotected Anal Intercourse at Pretest	$\text{Log}_{10}(X + 1)$
Change in Unprotected Anal Intercourse	$1/(X+4)$

X represents the values of the original variable.

Normality of Distributions of Dependent and Independent Variables in the Treatment Group and Comparison Group Before and After Transformations

Treatment Group Transformations

Variables	Pre-Transformation		Post-Transformation	
	K-S Statistic	p	K-S Statistic	p
Condom Communication at Pretest	.234	<.001*	.269	<.001*
HIV Prevention Knowledge at Pretest	.233	<.001*	.152	<.001*
Unprotected Anal Intercourse at Pretest	.356	<.001*	.396	<.001*
Change in Unprotected Anal Intercourse	.400	<.001*	.418	<.001*

Comparison Group Transformations

Variables	Pre-Transformation		Post-Transformation	
	K-S Statistic	p	K-S Statistic	p
Condom Communication at Pretest	.315	<.001*	.355	<.001*
HIV Prevention Knowledge at Pretest	.215	<.001*	.190	<.001*

* *alpha level set at .05 significance*

Note: No transformations were required for the comparison group data for the variables Unprotected Anal Intercourse at Pretest and Change in Unprotected Anal Intercourse.

Levels of Skewness and Kurtosis before and after Data Transformation

Variable	Group	Skewness and Kurtosis	Pre- Transformation	Post- Transformation
Condom Communication at Pretest	Treatment	Skewness	.693	.133
		Kurtosis	-.787	-1.610
	Comparison	Skewness	1.970	.954
		Kurtosis	3.823	-.265
HIV Prevention Knowledge at Pretest	Treatment	Skewness	-1.207	.051
		Kurtosis	.760	-.610
	Comparison	Skewness	-1.032	-.144
		Kurtosis	1.039	-.644
Unprotected Anal Intercourse at Pretest	Treatment	Skewness	2.325	1.348
		Kurtosis	4.931	.583
Change in Unprotected Anal Intercourse	Treatment	Skewness	2.616	-1.456
		Kurtosis	6.916	1.682

Note: No transformations were required for the comparison group data for the variables Unprotected Anal Intercourse at Pretest and Change in Unprotected Anal Intercourse.