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# Adapting Mpowerment to a Rural Area

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

ADAPTING MPOWERMENT TO A RURAL AREA

A dissertation submitted in partial fulfillment of

the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

PUBLIC HEALTH

by

Michael Scott Tims

2012

To: Interim Dean Michele Ciccazzo  
Robert Stempel College of Public Health & Social Work

This dissertation, written by Michael Scott Tims and entitled Adapting Mpowerment for a Rural Area, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Date of Defense: March 29, 2012

The dissertation of Michael Scott Tims is approved.

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## DEDICATION

I would like to dedicate this work to my parents, Mike and Ellen Tims, for the support and patience with this overly lengthy endeavor. This work would not have ever been completed without the support and inspiration of Dr. Jennifer Langhinrichsen-Rohling who never gave up on me. Special thanks to James Green, whose support and encouragement through this process was priceless.

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ABSTRACT OF THE DISSERTATION  
ADAPTING MPOWERMENT FOR A RURAL AREA

by

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Professor H. Virginia McCoy, Major Professor

As HIV/AIDS continues to disproportionately impact men who have sex with men (MSM) (CDC, 2010a), effective and timely prevention strategies for this population must be developed. Specifically, evidence-based interventions that can be easily adapted and have proven effectiveness are needed. Hence, the purpose of the current study was to assess the impact of the Mpowerment Project (Hayes, Rebchook, & Kegeles, 2003), a community level HIV prevention program originally designed for young urban gay men, when adapted for rural gay men. The Mpowerment Project is recognized as evidence-based intervention by the CDC (CDC, 2009b). The current study is an extension of this research, assessing Mpowerment model fidelity and the behavioral and attitudinal changes that occurred among participants. Data were collected from participants in a rural area of southeast Idaho from 2002-2004. Data were collected prior to M-Group participation and at a three months follow-up. The 66 individuals completing the M-Group pre and posttest assessment also attended a minimum of three study events and a maximum of 226 events.

Results revealed no significant changes in attitudinal variables and all but one behavioral variable among Rural Mpowerment (R-MP) participants. The one significant behavior change was an increase in reported safer sex discussion among

friends, indicating a possible change in the social norm regarding safer sex. Results also indicate that program fidelity was maintained and the Mpowerment Project is adaptable to rural areas. However, there was no indication of attitudinal changes in participants of this study. There were no changes in behavioral variables aside from discussion about safer sex with friends increasing. The lack of evidence-based interventions for rural gay men highlights the need for further research on the community impact of the Mpowerment Project on rural participants.

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## Chapter 1: Introduction

HIV/AIDS has often been perceived as an urban issue, with little attention paid to rural areas. According to the Rural Center for AIDS Prevention (RCAP), approximately 5-8% of new AIDS cases each year are diagnosed in individuals who live in non-metropolitan areas, with 56,209 rural AIDS diagnoses recorded by 2007 (RCAP, 2009). HIV infection in males in rural areas is three times that of females, with over half of new infections occurring among men who have sex with men (MSM) (RCAP, 2009).

The current study consisted of an analysis of data collected from an implementation of the Mpowerment Project (MP) (Hays, Rebchook, & Kegeles, 2003; Kegeles, Hays, & Coates, 1996) in Idaho from May 2002 through August 2004. The data collected for this study were designed to monitor the adaptation and impact of an MP in a rural community.

The Idaho statewide Community Planning Group (CPG) completed a needs assessment in 2000 that demonstrated high-risk behaviors in men who have sex with men (MSM) in the state; in addition, the majority of cases in Idaho at that time were identified as MSM. In 2001, some of the original MP researchers gave a presentation on MP during a CPG meeting that sold the community on the use of MP. The CPG felt that that MP offered many benefits to rural men and that the social focus of the project would work well in areas that were not typically gay friendly. There was no data or evidence to support that MP was the best or most efficient intervention for the community, but the CPG felt that the training, technical support, and evidence base was enough reason to implement the project.

The Rural-Mpowerment Project (R-MP) did not publish the results of the data collected during the project and did not write any official reports on the results of the study. The PhD candidate, Scott Tims, was the coordinator of the study, and this dissertation is the only report on the research conducted. The R-MP was not required to assess the impact of the MP in the community for their funding. The Center for Disease Control and Prevention (CDC) funding provided was strictly to ensure that evidence-based HIV prevention was occurring; MP met that requirement. This dissertation project is assessing data collected during a community-based implementation of the project. The project being assessed was not a formal research project, but it was an implementation of the project in a community based on direction from the statewide community planning group. Institutional Review Board (IRB) approval for the attitudinal and behavioral data collected was obtained from Idaho State University in May/June 2004 through an expedited submission. Informed consent to participate in the limited data collection/research was obtained. All data collected were kept separate from project information. The IRB submission was to look at the data collected as part of the M-Group, not the overall project.

This study is important to HIV prevention research because, despite epidemiological evidence that supports an increase in rural HIV cases, no community level MSM HIV prevention programs have been developed, evaluated, and disseminated for use in rural areas. There is also limited research on the impact of translation on evidence-based interventions. Given the limited number of HIV prevention interventions for young MSM, there is a need to develop evidence-based interventions for rural MSM populations (Harper, 2007). The MP, with a focus on community social norms and built-

in structural support, is an attractive intervention for use in a rural area that has limited resources and community support for gay men. The purpose of the current study was to assess implementation fidelity and to determine if there were behavioral and attitudinal changes in participants from pre- to post-intervention in the R-MP.

Specifically, the research questions addressed in this dissertation are:

- Research Question 1: Can the MP be implemented to fidelity in a rural area?
- Research Question 2: What attitudinal changes occurred in R-MP participants?
- Research Question 3: What behavioral changes occurred in R-MP participants?

In addition, comparison between the original urban study and the current project's rural participants are presented to determine if the program's outcomes are similar for the two different populations.

The next chapter will provide an overview of relevant literature, research related to rural HIV prevention, and the original research on the MP.

## Chapter 2: Literature Review

### **HIV in the U.S.**

Since being identified in 1981, approximately 1.7 million people in the United States (U.S.) have been infected with HIV, the virus that causes AIDS, according to the Centers for Disease Control (CDC, 2010b). There are an estimated 1.2 million people living with HIV in the U.S., with an approximate 550,000 total AIDS-related deaths. While annual HIV incidence has decreased since its peak in the 1980's, the U.S., there are estimated to be about 56,300 new infections each year, with one in five of those individuals unaware of their infection (CDC, 2010a). Despite best efforts, this number has not decreased in almost a decade. In addition, the spread of HIV to rural areas of the U.S. is an important threat to public health (Yarber, Milhausen, Huang, & Crosby, 2008).

HIV/AIDS has often been seen as an urban issue, with little attention paid to rural areas, whose populations see HIV as an urban problem (Berry, McKinney, & McClain, 1996). A rural area is defined by the U.S. federal government as a community of fewer than 50,000 people. Although the rate of HIV among rural MSM is lower than among their urban counterparts, MSM is the most common mode of transmission in rural areas, and there is evidence to support that rural MSM still engage in high-risk behaviors for HIV infection (Rosser & Horvath, 2008).

### **Rural HIV**

Approximately 5-8% of new AIDS cases each year are diagnosed in individuals who live in non-metropolitan areas, with 56,209 rural AIDS diagnoses recorded by 2007 (CDC, 2010b; RCAP, 2009). During 2001, the southern rural U.S., which contains one-

third of the U.S. population, had 40% of U.S. AIDS cases and 46% of new AIDS cases. By 2007, this increased to 67% of all new rural AIDS cases (RCAP, 2009; Zuniga, Buchanan, & Chakravorty, 2005). The rural south also reports a high percentage of female cases and high racial and ethnic disparities with few of those infected having easy access to medical care (RCAP, 2009; Zuniga, Buchanan, & Chakravorty, 2005). HIV infection in males in rural areas is three times that of females, with over half of new infections occurring among MSM (RCAP, 2009).

Despite the risk of HIV infection, research has demonstrated that young MSM continue to engage in high levels of unsafe sex, as this group accounts for 53% of new infections (CDC, 2010a). There is some consensus among researchers that MSM under the age of thirty accounts for the largest percentage of new HIV infections (Hall, Byers, Ling, & Espinoza, 2007). Of even greater concern is that approximately 48% of newly diagnosed MSM did not know their HIV status and almost 1/3 had not received HIV testing in the previous year (CDC, 2010a).

MSM accounts for the majority of HIV/AIDS cases in the rural United States (Bowen, Williams, & Horvath, 2004; Rosser & Horvath, 2008). Many factors have impeded HIV prevention in rural areas including funding, poverty, low perceived risk, seasonal migration, and low rural seroprevalence (Bowen, Williams, & Horvath, 2004).

HIV prevention efforts are often rare or non-existent in rural areas, due to a number of factors including stigma, lack of trained providers, geographic isolation, financial barriers, and homophobia. These are not necessarily unique to HIV or rural healthcare, but they do impact the provision of services. Rural HIV prevention and care must be adaptable and “fit” the community it services (RCAP, 2009). While prevention

efforts have focused on urban areas with highly accessible concentrations of MSM, few, if any, programs specifically for rural MSM have been developed, empirically tested, and widely distributed. Because rural MSM are at high risk for HIV infection, prevention efforts for rural areas must integrate into their programming the realities of rural life (RCAP, 2009).

For rural MSM, issues related to homophobia, lack of openly friendly venues and geographic isolation increase the risks associated with HIV infection (Bowen, Williams, & Horvath, 2004). In order to find sex partners MSM may turn to public sex environments (e.g., highway rest areas), the Internet, or travel to urban areas that may have a higher seroprevalence (Bowen, Williams, & Horvath, 2004).

In addition to the lack of resources, stigma related to sexual orientation impacts the physical and mental health of MSM (Preston, D'Augelli, Kassab, & Starks, 2007). Stigma is defined here as an attribute that can be deeply discrediting (Preston, D'Augello, Kassab, & Starks, 2007). It is a multifaceted issue that refers to prejudice, mistreatment, and discrimination. MSM in rural areas may be more impacted by stigma due to the lack of tolerance of diverse lifestyles, greater fear of HIV, and the reduced sense of anonymity (Preston, D'Augello, Kassab, & Starks, 2007; Harper, 2007).

Preston and colleagues (2007) found MSM in rural areas with low self-esteem reported higher numbers of sexual partners than men with high self-esteem. They found that stigma from the community is a factor that underlies the sexual risk taking of rural MSM. Interestingly, the study found perceived stigma from the community to be indirectly related to levels of sexual risk. Sexual risk taking behavior in rural men may be a coping mechanism to deal with the intolerance experienced in their daily lives.



Despite evidence that HIV infection rates are increasing in rural areas, research on the risk behaviors of rural MSM is sparse (Preston, D'Augello, Kassab, & Starks, 2007; RCAP, 2009). While urban and rural MSM share common sexual behaviors, there are other factors that impact rural MSM (specifically gay identified MSM), which may increase their risk for HIV infection (Preston, D'Augello, Kassab, & Starks, 2007). Yarbrough (2003) completed a qualitative study of the difficulties facing rural gay adolescents and concluded that isolation as well as difficulties coming out and experiencing abuse, both physical and mental, were common. Abuse was associated with coming out at an early age, which led to increased feelings of loneliness and isolation from family and peers.

With an identified need for attitudinal support, MSM in rural areas have few venues in which to seek assistance. Meyer (2003) has described a model that links stress and mental health problems experienced by lesbians, gays, and bisexuals to stigmatization. Whether rural MSM are hidden or out and whether they feel good about themselves or not, they must endure the stress of being constantly vigilant about their sexual orientation to avoid discrimination (Preston, D'Augello, Kassab, & Starks, 2007). Research has shown that a strong connection to the gay community can buffer the stress of stigma (Meyer, 2003). However, rural MSM often live in areas where there is not a strong gay community and in which they may not publically identify themselves as gay (Preston, D'Augelli, Kassab, & Starks, 2007). Preston and colleagues (2007) suggest that the stigma rural MSM face is linked directly to risky sexual behavior, due to their increased risk for reduced self-esteem and internalized homophobia.

Geographic isolation and social stigma provide significant barriers to the provision of services in rural areas (Mamary, Toevs, & Brunworth, 2004). Zuniga and colleagues (2005) surveyed 521 AIDS service organization, both public and private, in the southeast to identify and describe current HIV education and prevention activities in rural communities. Their results indicate that a lack of funds and qualified staff are major barriers to HIV interventions.

For young gay men in rural areas, the importance of contextual factors is crucial. Just as cultural factors relate to sexual behavior in gay men, societal/contextual factors impact behavior as well (Harper, 2007). Specifically, gay men are impacted by societal level factors of heterosexism and masculine ideology and by individual-level factors of sexual and ethnic identity development (Harper, 2007). Both societal and individual-level factors may have a greater impact on rural men because they are less likely to have a supportive network of peers. Several studies show that negative attitudes toward same-sex sexual expression (whether self-directed or to others' behavior), was related to increased unprotected anal intercourse as well as other negative adult health outcomes (Harper, 2007; Friedman, Marshal, Stall, Cheong, & Wright, 2007).

Few research studies have specifically explored sexual risk taking behaviors in rural U.S. populations in comparison to urban areas (RCAP, 2009). Yarber and colleagues (2008) compared heterosexual rural and non-rural single, young adults from a national survey. They found no differences in risk and protective factors for HIV infection (i.e., lifetime number of penile-vaginal intercourse partners, frequency of unprotected intercourse, condom use at last sex, ever having had an HIV test, and discussing correct condom use with a healthcare professional).

## **Advancing HIV Prevention: Evidence-Based Interventions**

The Centers for Disease Control and Prevention (CDC) unveiled a new initiative in April 2003 to strengthen HIV prevention in the United States (CDC, 2003). This plan, *Advancing HIV Prevention: New Strategies for a Changing Epidemic (AHP)* includes four key strategies: (1) making voluntary HIV testing a routine part of medical care, (2) implementing new models for diagnosing HIV infections outside medical settings, (3) preventing new infections by working with persons diagnosed with HIV and their partners, and (4) further decreasing perinatal HIV transmission.

AHP included the introduction of the Diffusion of Effective Behavioral Interventions (DEBI) program to health departments and community-based organizations (CBO) (Collins, Harshbarger, Sawyer, & Hamdallah, 2006). The DEBI project was created in response to increased pressure for accountability for prevention services from Congress and a call for the use of evidence-based practice from the Institute of Medicine (Collins, Harshbarger, Sawyer, & Hamdallah, 2006).

The goal of the DEBI project was to develop and coordinate a national-level strategy to provide training, capacity building, and technical assistance on the new “interventions in a box.” The intervention in a box concept was meant to provide anyone doing HIV prevention a “box” with everything needed to implement the evidence-based project, along with training on the materials and their use (Collins, Harshbarger, Sawyer, & Hamdallah, 2006). Each DEBI had standardized training and a set of core elements, those considered essential to implementation of the program. This was a major paradigmatic shift for CBO and health departments, many of whom had received HIV funding for 20 or more years to develop their own “homegrown” programs. Of concern

to community groups, including the Idaho Community Planning Group, was whether research based programs could translate effectively to the needs of community settings. The DEBI projects were developed for urban settings and were rolled-out with little to no instruction on how to adapt them to different communities or other populations. Rural communities were left with the task of adapting expensive and/or complicated programs with little or no guidance.

Overall, the AHP initiative called for major changes in the service and delivery of HIV prevention programming and HIV testing, especially for rural areas. Specifically, “homegrown” programs, or locally developed interventions, were no longer fundable, and new grants and funding were based on implementing DEBI Project interventions. For over two decades communities had a great deal of control and power over their programming and how the funds were used. Most rural HIV prevention providers had developed “homegrown” interventions they felt were effective, regardless of whether evidence had been obtained to substantiate their view. It was believed that the DEBI project, by standardizing evidence-based practice and providing evidence-based interventions in a box, would elevate the effectiveness of prevention programming and reduce new HIV infections (Collins, Harshbarger, Sawyer, & Hamdallah, 2006). However, several issues were immediately identified that impacted DEBI implementation including cost efficiency, effectiveness in the community, and adaptation. CDC’s Prevention Research Synthesis (PRS) team apparently did not consider economic issues (Lyles et al., 2006). Cost effectiveness is important for understanding the intervention, in addition to being able to better allocate limited funding to agencies implementing these programs (Lyles et al., 2006).

## Evidence Based Community-Level Interventions

HIV behavioral interventions are conducted at various levels of delivery – individual, group, and community (CDC, 2009a). Community-level interventions (CLIs) have study and design characteristics that are different from individual- and group-level interventions (ILI and GLI) (CDC, 2009a). These differences, including the scope of the intervention, require efficacy criteria that differ somewhat from those for evaluating ILIs and GLIs. The Prevention Research Synthesis team (PRS) at CDC (2009a) developed efficacy criteria specific for identifying evidence-based CLIs (CDC, 2009a).

The efficacy criteria for best-evidence CLIs and efficacy criteria for promising-evidence CLIs reflected the current state of community-level HIV behavioral intervention research published between January 1988 and May 2008 (CDC, 2009a). According to CDC, CLI research was still in an early stage of development, with future research needing to include a larger number of communities, more rigorous design features, and solutions for issues of validity (CDC, 2009a). For CDC to consider a CLI study to be eligible for efficacy review, it must meet the definition of “community” and “community-level intervention study” as follows (CDC, 2009a):

1. “Community—A group of individuals that exists prior to the intervention whose members share one or more common characteristics and a common geographic area, and relate with one another in a way that may influence their HIV risk.” (CDC, 2009a, p.1)

- a. “Common characteristic—a shared trait or feature or quality, which may include, but is not limited to, race/ethnicity, culture, religion, social economic status, education level, behavior, identity, customary beliefs or practices, social norms, and other underlying motivators.” (CDC, 2009a, p.1)
  - b. “Geographic area—a physical region, area, or medium (e.g., internet) where people live, congregate, or frequent.” (CDC, 2009a, p.1)
2. “CLI study—An evaluation study of an intervention intended to reduce the HIV risk of an entire community. A CLI study does the following:
- a. Directly or indirectly influences the knowledge, attitudes, social norms, or behaviors of individuals in the targeted community.
  - b. Provides the intervention where individuals of the targeted community are likely to be; and
  - c. Delivers the intervention broadly (not only to those assessed) and broadly assesses community members (not only those who received the intervention).” (CDC, 2009a, p.1)

Currently, CDC (2012) has over 50 evidenced-based interventions available online at [effectiveinterventions.org](http://effectiveinterventions.org). Interventions vary from individual to community level and for a variety of target populations. However, MP is still the only community-level intervention for MSM, and no other intervention for rural MSM has been listed.

## **The Mpowerment Project**

MP (Hays, Rebchook, & Kegeles, 2003; Kegeles, Hays, & Coates, 1996) is a community level HIV prevention program that has been widely researched and adopted for use in urban areas. It was recognized as “evidence based” by the Centers for Disease Control and Prevention, meeting the criteria established by the PRS (CDC, 2011; Rebchook et al. 2006). MP is a community building project that incorporated HIV prevention (i.e., safer sex) as a basic component. Through outreach, education, and social events, the MP created new social networks for young gay men. While the MP model had been shown to be effective in changing HIV risk in urban areas (Kegeles, Hays, & Coates, 1996), it had not been empirically tested in rural areas of the country. The following is a description of the MP intervention and the PRS criteria used to determine its evidence-based classification.

### **Mpowerment Intervention Description**

MP’s target population is young gay men. The original target age was men 18-29 years old. The goals of MP were to eliminate or reduce sexual risk behaviors and to increase condom use among participants (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

MP is based on an empowerment model where a core group of 10-15 young gay men design and carry out all project activities (CDC, 2009b; Kegeles, Hays, & Coates, 1996). The intervention consists of four integrated activities: formal and informal outreach, “M-groups,” and an ongoing publicity campaign (CDC, 2009b; Kegeles, Hays, & Coates, 1996). For formal outreach, young gay men went to gay venues to discuss and promote safer sex, deliver appealing informational literature on HIV risk reduction, and

distribute condoms (CDC, 2009b; Kegeles, Hays, & Coates, 1996). MP also developed and organized social events (e.g., dances, video parties, picnics, discussion groups) to attract young gay men (CDC, 2009b; Kegeles, Hays, & Coates, 1996). M-groups were peer-led, 2-3 hour meetings of 8-10 young gay men who discuss factors that contributed to unsafe sex, such as misconceptions, beliefs that safer sex is not enjoyable, and poor sexual communication skills (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Through skills-building exercises, the men practiced correct condom usage and safer sex negotiation (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Free condoms and lubricant were distributed and participants were encouraged to conduct informal outreach, encouraging their friends to discuss safer sex (CDC, 2009b; Kegeles, Hays, & Coates, 1996). The publicity campaign attracted men to the project by word of mouth and through articles and advertisements in gay newspapers (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

### **Theoretical Basis**

MP is based on the theory of diffusion of innovations. Individuals are more likely to adopt new behaviors on the basis of favorable evaluations of the innovation conveyed to them by similar and respected peers (Kegeles, Hays, & Coates, 1996). One of the goals of the MP was to make safer sex a norm for the target community. Based on the diffusion of innovation theory, only 15-20% of the local young MSM needed to be reached in order for community norms to change.



### **Urban MP Intervention Duration**

MP was designed to be ongoing. Successive groups of participants were recruited over time. Based on diffusion of innovation, the project would need to continuously recruit participants to reach a critical mass in the community.

### **Intervention Settings**

The original evaluation study was conducted in Eugene, Oregon, and Santa Barbara, California. A key feature of MP is that the project had its own space where most social events and meetings were held and that served as a drop-in center where young men could meet and socialize during specified hours (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Formative research from Kegeles and colleagues (1996) found that young gay men did not want to go to AIDS services organizations for HIV prevention service.

### **Staffing**

MP was provided by young gay men, trained by the original researchers in a two day MP training. The project had a variety of “project coordinators” who were responsible for day to day operations of the project in conjunction with the Core Group and Outreach teams (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

### **Original MP Study Sample**

The original MP study by Kegeles and colleagues in 1996 included a baseline study sample of 268 men characterized by the following: 81% white, 7% Asian or Pacific Islander, 6% Latino, 4% African-American, 2% other; 100% male; 86% gay, 14%

bisexual; mean age of 23 years; median education level – some college (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

### **Original MP Community Descriptions**

The communities utilized in the original research were urban areas that were comparable with the following characteristics: contained a large state university; attracted young people from the surrounding county; had similar population size; had an AIDS community-based organization, with no programs or activities explicitly for young gay men; contained 1 or 2 gay bars; were 1 to 2 hours away from a larger community; and had fewer AIDS cases than in larger AIDS epicenters (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Young gay men were eligible for participation in the study if they were 18-29 years old and resided in the intervention or comparison community.

The two communities utilized in the original MP were assigned to 1 of 2 groups: intervention (Eugene, Oregon; 159 participants) and wait list control (Santa Barbara, California; 109 participants) (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Eugene, Oregon was randomly selected to receive the intervention first (CDC, 2009b; Kegeles, Hays, & Coates, 1996). The wait list control community received no specific intervention, but AIDS prevention brochures and posters were available at the bars, at HIV-antibody test sites, and on campus (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

### **Key Intervention Effects**

Overall, MP conducted in an urban environment demonstrated reduction in reports of unprotected anal intercourse among non-primary partners but mixed results with boyfriends (Kahn, Kegeles, & Beltzer, 2001; Kegeles, Hays, & Coates, 1996). The

MP was one of the few science-based programs to undergo a cost effectiveness study. It was found to be a cost effective strategy for HIV prevention, saving \$700,000-\$900,000 over 5 years (Kahn, Kegeles, & Beltzer, 2001; Kegeles, Hayes, & Coates, 1996). These were compelling reasons for the Idaho CPG to select MP for implementation.

### **Original MP Research Relevant Comes Measured and Follow-Up Time**

The MP intervention retained 65% of participants at 12 months post-baseline; Wait list control retained 81% at 12 months post-baseline (CDC, 2009b; Kegeles, Hays, & Coates, 1996). Participants' self-reported sex behavior during past 2 months, including any unprotected anal intercourse, unprotected anal intercourse with non-primary partners or boyfriends, number of sex partners, were reported at baseline and 12 months post-baseline.

### **Original MP Significant Findings**

The following significant findings were reported:

1. "The Mpowerment intervention community showed a significant decrease in the proportion of men that reported engaging in any unprotected anal intercourse at the follow-up assessment compared to the wait list control community (CDC, 2009b; Kegeles, Hays, & Coates, 1996).
2. "The proportion of men engaging in any unprotected anal intercourse significantly reduced from the baseline to the follow-up in the MP Intervention community compared to the Wait List

control community ( $p < .05$ , one-tailed test)” (CDC, 2009b; Kegeles, Hays, & Coates, 1996).

The dissertation study hypotheses were proposed based on these encouraging findings from urban areas.

### **Evidence Based Rating**

Based on CDC’s Prevention Research Synthesis criteria (CDC, 2009a), MP did not meet criteria for “*best-evidence*” due to having “only one community per study arm, a low retention rate (<70%) in the intervention arm, and a differential retention rate (16%)” (CDC, 2009b). In addition, 32 men who moved from the intervention community before the start of the intervention were not included in the calculation of retention rate. However, the research was classified as “*good*” and MP was included in CDC’s compendium of effective interventions.

### **Follow-Up Research**

Kegeles, Hays, and Coates (1999) published a second MP study, extending their research on the Eugene and Santa Barbara locations, implementing MP in the wait list control location (Santa Barbara). In this study, a stronger design--a time-lagged multiple baseline design was used. Participants in each community were assessed twice, at baseline and one year after the intervention. To increase statistical power, participants were recruited and assessed a second time. Multiple baseline assessments allowed for observing “naturally occurring changes” in behavioral and psychosexual variables (Kegeles et al., 1999).

Participants in this extended study included 137 men from Eugene (the original intervention site) and 110 from Santa Barbara (the original wait list control) at the one year follow-up (Kegeles et al., 1999). The mean age was 23.2, median education level was “some college,” 86% identified as “gay,” 14% “bisexual,” and one-third had a boyfriend. There was a 12% loss to attrition between the two baseline assessments, with no significant differences on any variables reported (Kegeles et al., 1999).

Results were similar to the original study, with a reduction in the proportion of men who reported engaging in unprotected anal intercourse (38.3-30.9%), 19.2-13.6% with non-primary partners, and 57.7-41.8% with boyfriends (Kegeles et al., 1999). The behavioral changes were maintained at the one year follow-up with non-primary partners, but mixed results were found in regards to sex with boyfriends (Kegeles et al., 1999).

Additionally, this study included an assessment of a variety of attitudinal variables, such as enjoyment of safer sex/unsafe sex, condom barriers, communication skills, social norms, friends support, self-efficacy, and misperceptions. Overall, there were no reported secular changes, and the intervention had little impact on these variables (Kegeles et al., 1999). The only significant change was an increase in enjoyment of safer sexual practices, and some increases post-intervention in communication skills and an increase in the social norm regarding safer sex (Kegeles et al., 1999).

### **Adaptation of Interventions**

While a great deal of time, effort, and energy has gone into developing effective HIV prevention programs, little research has been done on the factors needed to successfully adapt and implement these programs in different communities or to

determine if it is efficacious to do so (Collins, Harshbarger, Sawyer, & Hamdallah, 2006; Copenhagen, Chowdhury, & Altice, 2008; Rebchook, Kegeles, & Hubener, 2006; Veniegas et al., 2009; Wingood & DiClemente, 2008). There is “tension” in the literature about the importance of implementing interventions with fidelity to the original “research model” versus the need to “tailor and adapt” to the community setting (Rebchook, Kegeles, & Hubener, 2006). Rebchook (2006) outlines three types of reinvention or community implementation, with different impacts on fidelity. Organizations can “reinvent” an intervention by adding something new, with fidelity being easily maintained (Rebchook, Kegeles, & Hubener, 2006). Organizations can also choose to change or modify an existing component, which can be minor or major and the impact on fidelity is based on the level of change (Rebchook, Kegeles, & Hubener, 2006). Third, an organization can delete or so radically change a component that the program is no longer recognized and would not meet fidelity to the original (Rebchook, Kegeles, & Hubener, 2006). Previous research has shown that reinvented interventions can be more responsive to community needs, and thus have a benefit to the community (Rebchook, Kegeles, & Hubener, 2006; Rogers, 2003). However, Rebchook and colleagues (2006) point out that that reinvention should not be so far from original project fidelity that the desired impact of the project is unattainable (Rebchook, Kegeles, & Hubener, 2006). However, there is no clear way to measure the impact of “reinvention” has on the outcomes of participants.

Noar (2008) completed a meta-analysis on behavioral risk interventions that targeted specific risk populations and found that on average, behavioral interventions decreased the odds of unprotected sex by 32%, decreased the odds of new STDs by 35%, and decreased the odds of overall risky behavior by 28%. As a strategy to reduce new

HIV infections, behavioral interventions are the most promising tool available. A variety of urban, evidence-based HIV prevention programs exist that target MSM. However, rural communities, face the challenge of finding appropriate and effective programs that can be adapted to meet the needs of rural MSM while being implemented with limited resources. Thus, community-level intervention may provide the most comprehensive prevention package for rural MSM. For example, MP provides community structure for young gay men while promoting healthy behaviors. Thus, MP could have impact greater than just a single dose HIV prevention program.

### **Adaptation of Intervention to Community Settings and Fidelity**

Effectiveness in the community is the extent that the intervention works in the real world (Lyles et al., 2006). The DEBIs and MP were created under controlled research environments and all demonstrated effectiveness at reducing HIV transmission or behavioral changes to reduce HIV risk. The DEBI Project provided training to communities focusing on maintaining the fidelity to the core elements of the program that was believed to result in the previously achieved (evidence-based) outcomes. However, there was no strategy to assess the effectiveness of the DEBI interventions in different communities or to assess fidelity. This leads to the question of whether the results of prevention programs developed in urban areas translate to rural areas. Evidence-based interventions do not impact the HIV/AIDS pandemic if not implemented correctly (Kegeles et al., 2011). Thus the primary focus of the current research project to measure fidelity along with attitudinal and behavioral changes.

Lyle and colleagues (2006) also address the issue of what to do if the DEBIs do not meet the needs of the community being served. Given that DEBI interventions were tested on specific populations, other target groups may not have an intervention that is appropriate. For example, no current CDC evidence-based intervention (EBI) was developed for use in rural MSM populations, nor are there guidelines to address the context of delivery.

Each DEBI program has a set of core elements, which are considered essential for intervention fidelity (quality of implementation); however, implementation of these core elements may vary greatly depending on the implementation site. For example, staffing levels, age, funding levels, and organization capacity all impact how a final core element will look in any given community. While some “adaptation and tailoring” is undoubtedly necessary, significant deficits in implementation of core elements may undermine program effectiveness. Core elements are defined as “required components of the intervention being implemented”; the implication being that the absence of these elements indicates the program may lack fidelity and have reduced effectiveness. Rebchook, Kegeles, and Hubener (2006) found that only a few studies had undertaken the task of evaluating the diffusion of these programs into community-based settings. Factors related to diffusion into community settings are discussed below.

A study of school delinquency interventions found them “not to be implemented with sufficient strength and fidelity to produce a measurable difference” (Fagan & Mihalic, 2003). A large percentage of those who were provided materials to implement the program were not using them. The data indicate a great deal of variation on the quality of implementation. Fagan and Fagan and Mihalic (2003) hypothesized that as



programs are more widely disseminated the variability in implementation will increase, highlighting the need for greater attention to process evaluation.

Wilson and Miller (2003) reviewed HIV prevention interventions that were designed to be culturally specific to their respective target populations. They suggested that integrating cultural concepts into prevention programming is more effective than focusing on content and presentation of information (Harper, 2007; Wilson and Miller, 2003). Wilson and Miller go on to say that HIV prevention expands the definition of culture to include “the cultures of sex and sexual identity as distinct cultural influences” (p.192).

Rosser and Horvath (2008) found that HIV prevention in rural America varies in perceived success, with most states receiving only an “average” grade for efforts. Lack of infrastructure support was associated with less successful states, with more infrastructure (especially gay community infrastructure) associated with more successful prevention efforts. Rural areas may be the perfect arena for intervening on a community level, providing a community “infrastructure” that could lead to more successful efforts. The aforementioned geographic diversity and isolation experienced by rural MSM creates a lack of community and may foster negative community norms and risk behaviors.

### **Implementation of the Mpowerment Project**

Rebhook and colleagues (2006) looked at the implementation and “scale up” of MP in the U.S., as MP was part of the DEBI Project. The purpose of their Translating Research Into Practice (TRIP) study was to look at issues related to translating research into practice, share data from 69 community-based organizations (CBOs) implementing

MP, and present data on how well the agencies implemented the MP model to fidelity; the TRIP study did not assess changes in HIV risk or outcomes for project participants. Since MP was included in the AHP initiative, the materials were adapted, created and marketed to CBOs who were then encouraged to implement the project. MP was an attractive option as it was the only community level program for young gay men approved by CDC.

Rebhook and colleagues (2006) defined all the intervention components that were considered “core elements” or essential parts of the intervention needed to replicate the project.

## **MP Core Elements**

### **Operating structure**

**Core Group:** MP was run by a core group of volunteers from the target community (Kegeles et al., 1996; Rebhook et al., 2006). As the project was ongoing, membership changed over time. The core group was responsible for planning and carrying out activities and events and developing the safer sex messaging that was core to the project (Kegeles et al., 1996; Rebhook et al., 2006).

**Coordinators:** Coordinators were the paid project staff and should be gay/bisexual men from the target community and were part of the core group. Their primary goals were to facilitate the empowerment of the core group, to recruit diverse young men into the project, and ensure all aspects of the intervention were implemented (Kegeles et al., 1996; Rebhook et al., 2006).

Volunteers: Essential for the project's success in reaching the community and mobilizing young gay men, volunteers helped spread messages and information about the project into the community. Volunteers devoted less time to the project but were very important (Kegeles et al., 1996; Rebchook et al., 2006).

Community Advisory Boards (CAB): CABs were composed of “community elders,” community partners, health department officials, etc., that could help guide and lead the project. CABs were essential in getting community input and support in the original project. CAB usefulness varies, based on the community. For example, an established agency may have had a board of directors that could fill a similar role (Kegeles et al., 1996; Rebchook et al., 2006).

### **Project Components**

Project Space: The project should have its own, dedicated space for events and activities. The space should serve as a “drop-in” center for young gay men and should provide condoms, lubricant, and referrals to other community services. Overall, the space should be a gay friendly/positive venue (Kegeles et al., 1996; Rebchook et al., 2006).

Formal Outreach: MPs outreach involves teams of young gay men who go to popular venues to promote safer sex with themed outreach activities, outreach events that attract young gay men by providing social activities. Events range from movie nights to large dance party events (Kegeles et al., 1996; Rebchook et al., 2006).

M-groups: These are peer led 2-3 hour meetings where participants address factors that contribute to unsafe sex (Kegeles et al., 1996; Rebchook et al., 2006). The

group utilizes skills building activities, including role plays and demonstrations to address the issues that may impact HIV risk behavior (Kegeles et al., 1996; Rebchook et al., 2006). This is the one component of the project where participants receive the largest “dose” of HIV education/prevention activities (Kegeles et al., 1996; Rebchook et al., 2006).

**Ongoing Publicity Campaign:** Overall, the publicity campaign is used to attract young men to the project and to promote the events and activities (Kegeles et al., 1996; Rebchook et al., 2006).

Since 2002 MP has been marketed by CDC and listed in the *Compendium of Effective Interventions*. All agencies wishing to implement the MP were directed to the Center for AIDS Prevention Studies (CAPS) that houses the MP researchers and team. CBOs contacting MP staff were invited and recruited to be part of the longitudinal TRIP cohort (Rebchook et al., 2006).

### **TRIP Study Methods and Results**

Each CBO that was enrolled completed several semi-structured interviews with MP staff at 6 month intervals for at least 18 months to evaluate their use of the MP materials, implementation fidelity, and barriers and facilitators to implementation (Rebchook et al., 2006). In the baseline interviews, participants were asked about their experience with each core element and whether it was implemented as described, modified, or dropped (Rebchook et al., 2006).

Over 854 organizations contacted the TRIP Study researchers between 2002 and 2005. Of those, 76 CBOs who were implementing or about to implement MP were asked

to participate in this study, with three declining and four “passively declining” by not returning phone calls (Rebchook et al., 2006).

Results indicated that MP was being implemented across the U.S., with projects in 45 different states (Rebchook et al., 2006). While designed for relatively small urban areas, 75% were in communities larger than 200,000 and 1 in 10 projects were in very small towns or semi-rural areas (Rebchook et al., 2006). The majority of projects in the TRIP study had altered the original age range of 18-29, with some focusing solely on young (<18) with some extending the upper range. There was no difference in outcome based on the size of the area the project was implemented (urban projects were not doing better than rural projects).

The TRIP research assessed core element implementation based on interview responses. If all staff interviewed agreed the core element was present, then it was classified as “being implemented”, if all agreed it was not being implemented it was classified as “not implemented”, mixed reports led to a classification of “modified”.

Figure 1 shows the self-reported fidelity ratings from the CBOs in the TRIP study (Rebchook et al., 2006).

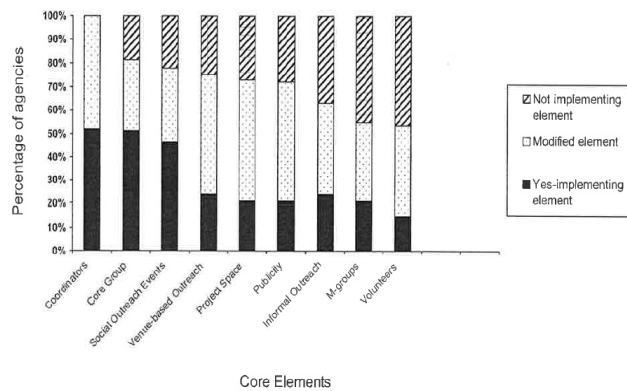


Figure 1: TRIP Study Core Element Outcomes (69 CBOs)

Fidelity to implementation varies greatly among CBOs, with coordinators, core group, and social outreach events being maintained most often, with M-Group and volunteers being most often dropped.

While some modification or adaptation was necessary, Rebchook and colleagues (2006) pointed out that modifications such as no publicity or no M-Group, inherently impacted the intervention and negatively impacted the process necessary for risk reduction to occur (Rebchook et al., 2006). Overall, the study found that MP was implemented in a variety of ways, based on the resources of the implementing agency. Several core elements were frequently dropped, and several agencies had insufficient budgets to do the project (based on the opinion of the original researchers). One limitation of this study is the lack of behavioral or attitudinal data from project participants to determine changes. The current study is an expansion of the TRIP study, because it includes not only an assessment of MP fidelity, but an assessment of behavioral and attitudinal impacts.

### **Summary**

The literature review has explored HIV/AIDS epidemiology in urban and rural areas. It shows that, while many interventions have been designated as evidence-based by the CDC, all of them were designed for urban areas. None of the DEBI interventions were designed for rural areas. This leads to the question whether an evidence-based intervention designed for urban areas could be adapted for a rural area and implemented with fidelity.

MP was selected for implementation for rural southeast Idaho by community leaders and the statewide CPG. Due to the limited availability of evidence-based interventions for rural areas, the MP training and technical assistance made it an ideal program from the community perspective. MP offered the community an effective program that appeared adaptable to the needs of a rural community.

The benefits of the MP for rural use are its ability to meet the diverse community needs of rural gay men and its theoretical basis that allows for diffusion of the message without needing to reach every community member. In addition, the program is marketed not as an HIV prevention program but as a community building project designed to “build a stronger, safer community.” By not targeting HIV directly, MP is somewhat free of the stigma associated with more traditional HIV prevention programs. Earlier research by Kegeles, Hayes and Coates (1996) found perceived stigma to be a factor negatively impacting HIV prevention programming for young gay men.

The central research questions to be addressed in this dissertation are:

1. Can MP, a CDC-designated evidence-based intervention, be implemented to fidelity in a rural area?
2. What are the attitudinal impacts participants experienced as a result of the MP?
3. What are the behavioral changes that occurred as a result of MP?

This research is an enhancement of current MP studies by looking at implementation fidelity and behavioral and attitudinal factors.

The following specific hypotheses will be addressed using secondary data collected as a result of implementing MP in a rural area:

Hypothesis 1.1: There will be no difference between the core elements and key characteristics of MP in the urban versus rural areas (i.e., presence of core group, M-group, project space, large and small scale events, formal and informal outreach).

Hypothesis 2.1: Rural participants in M-Group sessions will report significant attitudinal changes in the following variables: attitudes toward safer sex, safer sex self-efficacy, internalized homophobia, self-esteem, enjoyment of unsafe sex, sexual communication self-efficacy, and interpersonal barriers from baseline to three-month follow-up.

Hypothesis 3.1: There will be a significant decrease in the frequency of unprotected sexual behaviors (anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.

Hypothesis 3.1a: There will be a significant decrease in the frequency of unprotected sexual behaviors (anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.

Hypothesis 3.2: There will be a positive correlation between MP participation and discussion about safer sex with friends from baseline to three-month follow-up.



## Chapter 3: Methods

The Rural Mpowerment Project (R-MP) was funded through a grant from the Idaho Department of Health and Welfare HIV/STD program. The funding required data collection to show process variables and recommended data collection to measure behavior change; the data included in this study were collected for that purpose, but was never analyzed. Institutional Review Board (IRB) approval for the attitudinal and behavioral data collected was obtained from Idaho State University in May/June 2002, through an application and approval for expedited review. Informed Consent to participate in the limited data collection/research was obtained from all participants. All data collected were kept separate from project information. The IRB approval was obtained to collect behavioral and attitudinal data as part of the M-Group, not to evaluate the overall intervention.

### **Participants**

Participants were initially recruited through a snowball sampling technique (Biernacki, & Waldorf, 1981). There were no active gay organizations in the community, aside from one local gay bar. The initial recruiting of one individual by the project coordinator ultimately parlayed itself into a group of sixteen men that became the initial core group of the R-MP and initial M-Group participants.

Once the project began, an intense outreach effort was made to recruit new members and to routinely stay in contact with all participants. E-mail addresses, telephone numbers, and mailing addresses were obtained from the participants who

would provide such information. An e-mail listserv was established and weekly updates about events were sent, as were monthly calendar postcards listing opportunities to participate in R-MP activities. In contrast to the original *Urban Mpowerment Project*, (U-MP), which relied heavily on media advertising and outreach to local gay establishments to recruit participants, the implementation of a R-MP relied on electronic communication, regular mail (for those who were willing to receive it), and face-to-face promotion among members of the existing small social network of young gay men in the community.

In addition, a volunteer-based outreach team was formed that visited the local gay bar at least one weekend per month to provide information to patrons and invite them to project events. Due to the rural nature of the community, the project was very well-known and popular. Once a participant was involved, the project coordinator and project volunteers took responsibility to enroll them into an M-Group. M-Groups were small, one time, three hour group level intervention offered to participants (Kegeles, Hays, & Coates, 1996). The three-hour M-Group session included discussions of safer sex, communication, condom use, and dating/relationships issues. M-Groups were scheduled to occur on a monthly basis.

M-Groups were based on the script provided by the original researchers, included in the MP manual. The groups were led by the project coordinator or project volunteers who completed training on the M-Group. To ensure consistency, participants who attended the M-Group completed a process monitoring survey at the end of the group, assessing topics taught/discussed during the group. The project coordinator and volunteers provided the group based on the manual, with no changes or additions.

## **Operating Structure-Rural Mpowerment (R-MP)**

The following is a description of the R-MP core elements and operating structure. Included are descriptions of adaptations and changes based on available materials from the original research on Urban MP (U-MP). It should be noted that detailed information on what the core element and operating structure looked like in real life were not available. An MP Manual was published a year after the R-MP started. However, the original researchers did provide ongoing telephone-based technical support that was utilized by R-MP to shape the program to be as similar as possible to the original MP model.

In keeping with the program's empowerment philosophy, R-MP had a core group of 6-10 during the two-year project period. The original research suggested a group of 12 to 20 young gay/bisexual men from the community. The core group was designed to coordinate and conduct all activities and events. R-MP Core Group members played a somewhat expanded role as the project had only one paid, part-time project coordinator. The core group met weekly and was responsible for all small and large outreach events, planning activities, and developing project materials.

Volunteers from the young gay/bisexual men's community carry out the bulk of activities and were a key component of the original MP. For R-MP, core group and volunteers were often the same individuals as the community was smaller and there was less of a participant pool to recruit from. There were some individuals who did volunteer and were not part of the core group, but this was not the norm for R-MP. The Community Advisory Board (CAB) was comprised of men and women from the AIDS, gay and lesbian, public health, and university communities in U-MP, who met monthly

with the core group to offer advice on project activities. They also provide a link between the project and their respective organizations and communities. Later iterations and publication on MP state that a CAB is not a required core element. However, for R-MP the CAB was instrumental for ensuring the project survived. Due to the conservative nature of the community, several attempts were made by university administration and community members to have the project discontinued. The CAB included a variety of strong advocates from different organizations who interceded on several occasions and provided a “buffer,” which allowed the project to continue.

Each U-MP had its own space, which was typically a house in a community setting, separate from the host organization. The U-MP space served as the headquarters for the project and as a community center for young gay and bisexual men. The project space is where the most social events and staff meetings are held. During certain hours it also serves as a drop-in center where young men can meet and socialize. The center provides participants with information about other community organizations and services and makes referrals to these agencies as appropriate. Safer sex materials are also freely available there. R-MP did not have a dedicated space and was housed as part of a campus women’s center, later moving into the campus health service building. The move to Health Services space allowed the project to have dedicated rooms and office space that became a drop-in center and project space. While not standalone, this space provided a convenient and safe space for participants. Community feedback was that R-MP would not have been safe to have a standalone dedicated project space; participants expressed concern about community actions that might occur. One strategy R-MP employed early on was to use a community coffee house as a project space. The space

was made available after hours, and a weekly coffee night provided a project space for participants to meet. This was done to bridge any perceived gap from community members who might not want to drop into space on the university campus.

U-MP formal outreach included two components: outreach teams and outreach events. Outreach teams of young men go to settings frequented by young gay/bisexual men to promote safer sex. This often includes “zaps” at local bars or a performance at the local community’s gay pride festival. Zaps are very brief activities that attract attention and promote safer sex in a fun and entertaining manner. R-MP had a much smaller outreach effort. As the only community-based group, there were no other events to attend. The only gay bar in town did allow outreach to occur, but was not receptive to performance style zaps. Outreach members frequented the bar on a monthly basis, often in costume, and distributed materials and safer sex kits.

Informal outreach was described as young gay/bisexual men communicating with their friends in casual conversations about the need to engage in safer sex. The goal was to develop a process of communication that promoted safer sex across the entire community. This was one of the easiest elements to implement, as safer sex messages and supplies were supplied at all R-MP events.

M-groups were described to help participants clear up misconceptions about safer sex, increase the enjoyment of safer sex, build communication skills for negotiating safer sex, address interpersonal issues that may interfere with safer sex, learn how to support their friends to have safer sex. This component of the intervention had a manual that had been put together from one of the pilot test sites. It included a script and activities that included role plays, brainstorming, and discussions about safer sex and relationships.

The M-Group was a critical component; it was the only described education focused core element. In essence, participants not attending an M-Group did not receive any standardized education about safer sex or HIV risk. Those individuals would, in theory, be reached through informal outreach activities. M-Groups in R-MP were taught by the project coordinator initially, but were later provided by core group members who had been trained by the project coordinator.

U-MP also sponsored an ongoing publicity campaign in the gay community to communicate its goals and activities. U-MP focused on gay community advertising to reach its target group and to stay “under the radar” of mainstream media to avoid attracting negative attention. R-MP did not have access to any gay advertising venues; materials produced could be shared at the local university and directly to participants. R-MP relied on a strong web presence and e-mail to reach participants. Print materials targeted to gay men were removed. There was an effort to ensure that confidentiality and privacy was respected for participants, who were often not “out” in the community; participants were always able to opt out or not supply contact information without penalty.

U-MP recommends 2.5 FTE project coordinators, in addition to the agency support staff and supervision. This area was the most different from the original U-MP intervention. R-MP had one project coordinator for 20 hours per week. There was no direct supervisor for the project, but a faculty member from campus who was available for consultation as needed. The project coordinator for R-MP was responsible for running the project, writing and reporting to the funding agency, and overall evaluation efforts. During year two, the project coordinator received an additional grant, and

another part-time coordinator was hired who took over outreach and recruitment activities.

### **Evaluation Design Activities**

The funding provided by the State Health Department required an annual report on process variables. Basically, the funders were interested in how many groups were held and how many different participants were reached. To meet the funding requirements, sign in sheets at all events were used and an ACCESS Database created to track participants.

In addition, the project coordinator (dissertation author) used the tools provided in the MP replication package and provided a survey to participants who attended an M-Group and asked them to complete a three month follow-up to assess M-Group content and changes in attitudes and behavior. The data were collected with the hope to do further evaluation on the R-MP, however this was never done. This dissertation is the first time the data have been analyzed.

The evaluation design used in this study is a pre- and post-test (3 months) design, using survey data from M-Group participants. All data items used self-reported information. Baseline data were obtained at the beginning of the M-Group sessions. The follow-up assessment was mailed to participants.

### **Data Collection Protocol**

Participants who attended an M-Group completed a pre-test survey before the group began. The project coordinator or group facilitator explained the study to the participants, emphasized the voluntary and anonymous nature of the questionnaire (see

Appendix 1), and then distributed the instrument along with an informed consent form. Once signed, the consent forms were sealed in an envelope to protect the confidentiality of those who participated. Participants then completed the questionnaire and returned it to the project coordinator or group facilitator. In addition, participants completed a mailing label in order to receive the follow-up post-test questionnaire. The entire process of obtaining consent and collecting data took approximately 20 minutes. Three months after their initial M-Group attendance, participants were sent a follow-up questionnaire in the mail. The follow-up questionnaire was identical to the initial questionnaire except for the added instructions directing them to fill out the survey while thinking about the previous three months. All participants were informed as part of the consent process that participation in the research portion (survey at M-Group and follow-up) were optional and there was no penalty for choosing not to participate.

Other than the consent form, the participant's name was not retained or associated in any way with data collected for this study. However, names and contact information were retained for notification of future project activities. Names or other identification information were not attached to the assessment. These procedures were used to protect the confidentiality of the participant's identity in the data. Institutional Review Board (IRB) approval from Idaho State University was obtained for the evaluation period included in this study. Only the project coordinators had access to data and participation information.



## **Instruments and Measures**

Data for this study were collected using a self-administered questionnaire requesting self-reported personal information. Strengths of a self-report survey include being able to study large samples of people fairly easy, examine a large number of variables, and, if samples are selected at random and are large enough, generalize the results to a larger populations. They can be carried out relatively cheaply (Holo, 2011).

However some weaknesses of self-report surveys include the following: participants may not respond truthfully, either because they cannot remember or because they wish to present themselves in a socially acceptable manner, cause and effect relationships usually cannot be established as other variables that could have had an effect may not have been considered, it may be difficult to obtain a random sample of the population because some people who are selected refuse to answer questions or it may be difficult to obtain a full list of the population from which to select a random sample. In addition, there is no way you can be certain that what people say they do accords with their actual behavior (Holo, 2011).

However, behavioral research relies on self-report surveys from participants to determine program impact due to the low cost and relative ease. All data collected from for this study were self-report and should be interpreted with that in mind.

The M-Group survey assessed a wide variety of knowledge, skills, attitudes and behaviors; all assessment instruments used were taken from the original MP (Kegeles, Hayes, & Coates, 1996) See Appendix 1 for the survey instrument. The following measures were collected and examined for this study:

1. Demographic information: race/ethnicity, age, & relationship status.
2. Sexual behavior: A brief sexual behavior checklist asked participants to provide frequency (never, once, 2-10 times, 11-20 times, more than 20 times) of sexual behaviors related to HIV risk, such as unprotected anal, oral, and vaginal sex, during the previous 3 months (Kegeles, Hays, & Coates, 1996). Vaginal sex was included as a variable based on feedback from the Community Advisory Board; they felt many of the participants could be in heterosexual relationships and not “out.”
3. Attitudinal factors. A series of brief scales (two to four items per scale, rated on a six point scale (“strongly disagree” to “strongly agree”)) were used to assess the following HIV-related attitudes (Kegeles et al., 1999):
  - a. Attitudes toward safer sex: condom barriers, the perception of undesirable consequences of attempting to engage in safer sex (see Appendix 1).
  - b. Safer sex self-efficacy: perception of one’s ability to engage in safer sex.
  - c. Sexual communication: perception that one can effectively communicate about safer sex with partners.

- d. Interpersonal barriers to safer sex: perceived barriers preventing safer sex
4. A brief 8 item scale assessed self-reported self-esteem, four items per scale, rated on a six point scale (“definitely yes” to “definitely no”) (Kegeles, Hays, & Coates, 1996). A brief 8 item scale assessed Internalized homophobia, rated on a six point scale (“definitely yes” to “definitely no”) (Kegeles, Hays, & Coates, 1996).
5. Diffusion of community norms. Participants were asked how often they had discussed safer sex with a friend. Responses were coded as number of self-reported conversations (Kegeles, Hays, & Coates, 1996).

All the preceding variables were measured using the same assessment tools that were used in the original MP intervention research (Kegeles, Hays, & Coates, 1996).

### **Process and Fidelity Monitoring**

As previously noted, basic demographic information was collected from all participants when they first engaged in a project activity and their subsequent attendance at all events was recorded. A Microsoft ACCESS database was used to record participant attendance and all information related to project events. To assess fidelity, a fidelity rating scale developed by Rebchook and colleagues (2006) (see Appendix 2). Developed as part of the longitudinal TRIP study, the fidelity rating scale assesses the presence or

absence of each identified MP Core Element and whether it was “present,” “modified” or “absent/deleted.”

A review and comparison of original project elements was conducted to determine if the rural project included all the core elements and key characteristics of MP (as defined by Rebchook et al., 2006). To determine if each core element as specified was present in the rural program, a fidelity assessment tool, developed by Rebchook and colleagues (2006) was used. The tool classified each core element, whether it was reported to have been implemented as specified in the training materials and whether it was modified or dropped.

Three MPH students were used as independent raters and completed the tool based on the data available and an interview with the original project coordinator was also conducted. If all raters agreed that the element was being implemented as specified, then the element was classified as “being implemented.” If *all* agreed that the element was not being implemented, then it was categorized as “not implemented.” If any one rater said the element was being modified, then it was classified as “modified.” Similarly, when there was a disagreement among raters concerning a particular element, that element was also classified as “modified.”

It should be noted that the fidelity rating scale and interviews were completed during the summer of 2010.

### **Original MP Core Elements**

The MP was operated by a core group of young MSM from the target population and a community advisory board (Kegeles, Hays, & Coates, 1996). The core group

consisted of 12-15 young gay or bisexual identified men who served as the decision making body of the group. Core group activities ranged from naming the project to deciding events, outreach, and social activities. The community advisory board was a group of community members who provided support and advice on the project and the direction. This often included community members who were outside the target age range of the intervention. CAB membership was fluid and changed as needed.

In addition, several project coordinators (PC) oversaw day to day operations (Rebchook, Kegeles, & Hubener, 2006). PC were young gay or bisexual identified men from the community being targeted and thus, part of the Core Group. PCs did not direct, but coordinated the program, recruited participants, and ensured all components were implemented. One benefit of the MP was that it worked within the community and was shaped by the participants. This feature made it highly adaptable compared to other evidence-based HIV prevention programs. The MP was typically housed in a dedicated project space, separate from any AIDS Service Organization (ASO), as early research demonstrated that young gay men did not want to go to ASO for prevention programs. The space was used for events and meetings and it as a drop-in center for participants. The space served as a mini resource center providing a gay friendly venue that portrays positive images and materials to those using the space. R-MP was originally housed in the campus Women's Center with an office space only. After a few months, a larger space that included a large meeting room/project space and an office was made available.

MP had formal and informal peer outreach provided by participants who served two purposes, (1) to diffuse the safer sex message and (2) recruit additional participants into the project. Outreach was the primary means of recruitment into the project, which

began the process and introduction of the safer sex message community norm (Kegeles, Hays, & Coates, 1996).

Formal outreach involved participants going to locations frequented by young gay men to communicate and encourage others about safer sex (Kegeles, Hays, & Coates, 1996). Informal outreach was accomplished through project participants communicating with their friends in casual settings about engaging in safer sexual behaviors.

M-Groups were small, one time, three hour group level intervention offered to participants (Kegeles, Hays, & Coates, 1996). M-Groups focused on factors Kegeles and colleagues' research had shown impacted HIV risk behaviors. These factors included misperceptions that safer sex was not enjoyable, poor sexual communication skills, and interpersonal issues. Fifteen to 20% of the target population should attend M-Groups, according to the diffusion of innovation theory, for a social norm to be adopted in a community (Kegeles, Hays, & Coates, 1996). R-MP M-Groups were as similar to the original M-Group as possible.

A small scale publicity campaign was ongoing throughout the project (Kegeles, Hays, & Coates, 1996). It was targeted to gay themed publication and venues to avoid mass attention or media. It included articles, magazine advertisements, flyers, outreach materials and word of mouth from outreach and core group members.

### **Data Analyses**

Data analyses for this study are described below after the statement of each research question and hypothesis.

**Research question 1: Can the MP be implemented to fidelity in a rural area?**

Hypothesis 1.1: There will be no difference between the core elements and key characteristics of MP in the urban versus rural areas (i.e., presence of core group, M-group, project space, large and small scale events, formal and informal outreach).

Analysis: A review and comparison of original project elements was conducted to determine if the rural project included all the core elements and key characteristics of MP (as defined by Rebchook et al., 2006). The tool classified each core element, whether it was reported to have been implemented as specified in the training materials, whether it was modified, or dropped. Scores from the raters were tabulated, and mean for each core element were computed.

**Research question 2: What attitudinal changes occurred with R-MP participants?**

Hypothesis 2.1: Rural participants in M-Group sessions will report significant attitudinal changes in the following variables: attitudes toward safer sex, safer sex self-efficacy, internalized homophobia, self-esteem, enjoyment of unsafe sex, sexual communication self-efficacy, and interpersonal barriers from baseline to three-month follow-up.

Analysis: Hypothesis 2.1 was analyzed using profile analysis. The dependent variables were attitudinal variables including attitudes toward safer sex, safer sex self-efficacy, self-esteem, internalized homophobia, sexual communication self-efficacy, interpersonal barriers, and internalized homophobia. The independent variable was defined by pre-intervention and post-intervention status.

To examine the assumption of homogeneity of variance Box's M Test of Equality of Covariance Matrices was run. This test was run to determine if the seven dependent variable distributions were equal across the two levels of the independent variable (pre, post).

Using SPSS 17.0 GENERAL UNIVARIATE MODEL MULTIVARIATE, a between-groups Analysis of Variance was conducted to determine if the profiles of the two groups (pre and post) differed across the dependent variables. The independent variable was pretest versus posttest intervention and the dependent variables were the seven attitudinal variables in hypothesis 2.1. The basic question posited: What attitudinal changes occurred in R-MP participants as a result of the intervention?

Profile analysis was used to provide a graphic means of visually seeing data that was then tested for significance (Macedo & Waterson, 2011). Profile analysis is the multivariate version of repeated measures or mixed ANOVA. Profile analysis is commonly used with comparing the same independent variable between groups over different time points and when there are several measures of the same dependent variable. In this study, different behavioral and attitudinal measures (DV) were measured pre- and post-intervention. Box's M Test of Equality of Covariance Matrices was used to examine the assumption of homogeneity of variance.

**Research question 3: What behavioral changes occurred in R-MP participants?**

Hypothesis 3.1: There will be a significant decrease in the frequency of unprotected sexual behaviors (anal, oral or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.



Hypothesis 3.2: There will be a positive correlation between MP participation and discussion about safer sex with friends from baseline to three-month follow-up.

Analysis: Hypothesis 3.1 was analyzed using profile analysis. The dependent variables were the five identified risky sexual behaviors including anal sex without a condom, vaginal sex without a condom, mouth to anus sex without a protective barrier, mouth to penis sex without a condom, and mouth to vagina sex without a protective barrier. The independent variable was defined by pre-intervention and post-intervention status.

In addition, a profile analysis, labeled Hypothesis 3.1a, was completed on the five sexual behaviors with protection to determine changes following the interventions. The dependent variables were frequency of oral, anal, or vaginal sex with protection and the independent variable was intervention status (pre- and post-intervention).

To examine the assumption of homogeneity of variance, Box's M Test of Equality of Covariance Matrices was conducted. This test was used to determine if the five dependent variable distributions were equal across the two levels of the Independent variable (pre, post).

Using SPSS 17.0, a between-groups analysis of variance was conducted to determine if the profiles of the two groups (pre versus post) differed across the dependent variables. The independent variable was pretest versus posttest intervention and the dependent variables were the five sexual risk behaviors with protection

In addition to the profile test, a within subjects test was conducted to determine if differences exist after collapsing across group or risky behaviors respectively existed.

Analysis: Hypothesis 3.2 was analyzed with a paired sample t-test to determine the differences between safer sex discussions among friends pre and post M-Group participation. Participation was defined as attendance at any R-MP event. Safer sex discussions were assessed by self-report with the question “How many times in the last month have you encouraged a friend to have safer sex?”

### **Power**

The statistical package G\*Power3 (Cunningham & McCrum-Gardner, 2007) was used for power and samples size analysis. A power analysis indicated that to detect a small effect size (.15) for the intervention, a sample size of 68 would yield high power (83%) for MANOVA with a significance level  $p < .05$ .

For Hypothesis 2.1 (attitudes toward safer sex, safer sex self-efficacy, internalized homophobia, self-esteem, enjoyment of unsafe sex, sexual communication self-efficacy, and interpersonal barriers) from baseline to three-month follow-up, a power analysis indicated that to detect a small effect size (.15), a sample size of 74, would yield medium power (74%) for MANOVA with a significance level  $p < .05$ .

For Hypothesis 3.1 (unprotected sexual behaviors, anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up, a power analysis indicated that to detect a small effect size (.15), a sample size of 74, would yield medium power (74%) for MANOVA with a significance level  $p < .05$ .

For Hypothesis 3.1a (protected sexual behaviors, anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up, a power analysis

indicated that to detect a small effect size (.15), a sample size of 74, would yield medium power (74%) for MANOVA with a significance level  $p < .05$ .

For Hypothesis 3.2, (a positive correlation between MP participation and discussion about safer sex with friends) from baseline to three-month follow-up, a power analysis indicated that to detect a small effect size (.15), a sample size of 67, would yield high power (89%) for MANOVA with a significance level  $p < .05$ .

## Chapter 4: Results

This chapter presents a summary of the results from the implementation of MP in rural Idaho (R-MP). The sample descriptions include demographics on the entire population that participated in the R-MP (N=258), a comparison of the 87 who attended an M-Group and the 66 who completed a pre and post assessment survey. All data analyses are based on participants who completed pre and post M-Group assessment (n=66) collected at baseline and three month follow-up.

This chapter is organized into the following sections: sample description; research questions; descriptive analysis; and various statistical outcomes and results needed to answer the research questions. All data labeled as *rural* were collected as a result of this study, the Rural MP (R-MP). All data labeled as *urban* are from the first evaluation study as reported by Kegeles and colleagues (1996) for MP with an urban sample (U-MP).

A priori, Repeated Measure Analysis of Variance (R-ANOVA) was to be used for all pre- post- intervention analyses, but during the initial analyses, skew and kurtosis was high and violated the assumption of normality. The justification for conducting a profile analysis, even though the assumption of normality was not met is that this test is robust to non-normality and homogeneity of variance. “Unless there are fewer cases than DVs in the smallest group, and highly unequal sample sizes, deviation from normality of sampling distributions is not expected.” Unless sample sizes are highly divergent or there is evidence of strong heterogeneity (variance ratio of 10:1 or larger) of the DVs, this assumption is probably safely ignored” (Tabachnik and Fidell, 2007, p.315).

### **Overall R-MP Sample**

Overall, the R-MP reached 258 participants in the community, successfully recruited 87 participants to the M-Group, and 66 completed a post-intervention follow-up. The 258 participants refers to those who participated in one or more R-MP activities. All subsequent analyses included only the 66 participants who attended the M-Group and completed a follow-up assessment (N=66).

### **Recruitment and Retention**

Participant status was tracked as part of the project's grant requirements. Table 1 provides an overview of "what happened" to participants. Almost one-fourth of the participants, defined as attending at least one project event, lived over 50 miles away from the project and were defined as not local, with an additional 17% lost to follow up. From the project coordinator interview and records review, many participants were seen only once. These individuals were typically not "out" (openly gay or bisexual) in the community and they often disappeared. Project coordinators spent considerable time on recruitment and follow-up, contacting participants using phone and email to encourage continued participation and M-Group attendance. The standard R-MP protocol was to invite participants to an M-Group at the time of first contact with the project. A total of 25 M-Groups were held, with a total of 87 participants. R-MP had 87 participants attend an M-Group and complete a baseline assessment, with 66 completing a three-month follow-up.

*Table 1: Reported Reasons for Participant Drop Out*

Reason Reported	%
Moved Away	11%
Refused to attend M-Group	10%
Never Local	24%
Attended & Completed	33%
Completed & Moved	4%
Disappeared/Lost to Follow-Up	17%
Would Not Respond	0.50%

N=258

### **Sample Description**

The mean age for participants was 26 years. Self-reported ethnicity of the sample was 85% White, 8% Hispanic, 4% American Indian and Asian Pacific Islander, and 3% “other.” Ninety-one percent of the sample identified as gay, 6% bisexual, and 3% identified as curious or “other.”

Table 2: Participation in Different R-MP Activities

Participation	n	Mean # of Events Attended	Range
Attended M-Group*	87		
Total M-Group Sessions	25		
Attended Informal Outreach Pre M-Group**	258	2.60	16.00
Attended Informal Outreach Post M-Group**	204	5.37	16.00
Attended PsychoEduc. Workshop Pre M-Group	51	0.14	0.40
Attended PsychoEduc. Workshop Post M-Group	65	0.43	0.40

N=258; \*Core Element: M-Group; \*\*Core Element Formal Outreach

### Description of R-MP Participants

The R-MP had a total of 258 participants who attend at least one or more project events from May 2002 to August 2004. Eighty-seven participants attended at least one M-Group and completed a pre-test assessment; of these, 66 completed a three-month follow-up, a 76% response rate. All analyses were conducted on participants who completed the pre- and post- intervention assessment (n=66). The 66 individuals completing the M-Group pre and posttest assessment also attended a minimum of three study events and a maximum of 226 events.

All participants who attended an M-Group completed a process monitoring assessment, to ensure that the facilitators taught all necessary components of the M-Group, described in the original research. Table 3 provides overall results from those assessments, which demonstrate that the M-Group content was consistently provided. In addition, facilitators were rated as knowledgeable and effective, and 95% of participants said they would attend the group again.

*Table 3: R-MP M-Group Process Monitoring*

<b>M-Group Topic</b>	<b>% Reported Receiving Information</b>
What is Mpowerment	100%
Ground Rules	91%
Problems Meeting Guys	93%
Safer Sex Guidelines	100%
Eroticize Safer Sex	99%
Using Condoms Correctly	100%
Sexual Negotiation Skills	100%
Encouraging Friends to Have Safer Sex	100%
N=87	



A total of 87 men participated in an M-Group. As shown in Table 4, Chi Square analyses revealed no significant differences among M-Group participants who completed a follow-up assessment compared to those who did not complete a follow-up assessment.

*Table 4: Characteristics of R-MP Participants Who Did and Did Not Complete Follow-Up Surveys and the Final Sample*

	<b>Baseline<sup>a</sup></b>	<b>No Follow-Up<sup>b</sup></b>	<b>Difference</b>	<b>p</b>	<b>Final Sample<sup>c</sup></b>
Demographic Variables					
Age, mean	24	24	0.03	.30	24
Had boyfriend, %	27	20	7.00	.30	27
Behavioral Variables					
Unprotected anal sex last 3 mo.	34%	33%	0 .03	.30	33%
Discussions with friends about safer sex, mean score	4.80	5.12	2.17	.08	4.80
Attitudinal Variables					
Enjoyment of unsafe sex, mean score	4.54	4.98	0.42	.30	4.55
Sexual communication self-efficacy, mean score	4.86	5.26	0 .40	.30	4.86
Interpersonal barriers, mean score	4.61	5.21	0.60	.29	4.61

<sup>a</sup>n=87 <sup>b</sup>n=21 <sup>c</sup>n=66

The R-MP study sample of 66 men is characterized by the following:

- *91% White, 8% Hispanic, 1% Other*
- *100% Male*
- *98% gay, 2% bisexual*
- *Mean age of 24 years*
- *Median education level—some college*

### **Reliability Analysis: Attitudinal Variables**

Table 5 depicts summary data from the reliability analysis conducted on the six attitudinal variables contained in the pre- and post-assessments. Six constructs were presented in the table including the number of items in the construct, the mean, the minimum value (min), the maximum value (max), and Cronbach's alpha ( $\alpha$ ). Cronbach's alpha ( $\alpha$ ) coefficients greater than or equal to 0.60 were considered reliable estimates of internal consistency (Cortina, 1993).

Results from the analyses revealed that all of the scales were sufficiently reliable. Cronbach's alpha for six attitudinal scales ranged from 0.70 to 0.93. For the four-item internalized homophobia scale, pre-intervention  $\alpha = .80$ , post-intervention  $\alpha = .70$ . The six-item self-esteem scale, pre-intervention  $\alpha = .83$ , post-intervention  $\alpha = .82$ .

*Table 5: Summary Statistics and Reliability Analysis on the Attitudinal Variables for R-MP*

<b>Construct</b>	<b>Cronbach's Alpha</b>	<b>Std. Alpha</b>	<b>Average Inter-Item Correlation</b>	<b>Min</b>	<b>Max</b>	<b># of Items</b>
Pre Attitude Towards Safer Sex	0.79	0.80	0.67	0.67	0.67	2
Post Attitude Towards Safer Sex	0.70	.072	0.57	0.57	0.57	2
Pre Safer Sex Self-Efficacy	0.82	0.82	0.53	0.37	0.72	4
Post Safer Sex Self-Efficacy	0.88	0.88	0.64	0.53	0.89	4
Pre Self Esteem	0.83	0.83	0.38	0.04	0.76	8
Post Self Esteem	0.83	0.83	0.38	0.18	0.58	8
Pre Sexual Communication Self-Efficacy	0.83	0.83	0.71	0.71	0.71	2
Post Sexual Communication Self-Efficacy	0.78	0.78	0.64	0.64	0.64	2
Pre Interpersonal Barriers	0.70	0.71	0.55	0.55	0.55	2

*Table 5: Summary Statistics and Reliability Analysis on the Attitudinal Variables for R-MP (cont'd)*

<b>Construct</b>	<b>Cronbach's Alpha</b>	<b>Std. Alpha</b>	<b>Average Inter-Item Correlation</b>	<b>Min</b>	<b>Max</b>	<b># of Items</b>
Post Interpersonal Barriers	0.93	0.93	0.87	0.87	0.87	2
Pre Internalized Homophobia	0.80	0.80	0.51	0.34	0.82	4
Post Internalized Homophobia	0.73	0.73	0.41	0.16	0.60	4

Note: Pre-test  $N = 66$  Post-test  $N = 66$

**Research Question 1: Can the MP be Implemented to Fidelity in a Rural Area?**

Hypothesis 1.1: There will be no difference between the core elements of MP in the urban versus rural areas (i.e., presence of core group, m-group, project space, large and small scale events, formal and informal outreach).

*Table 6: Core Element and Key Characteristic Changes*

<b>Intervention Component</b>			
<b>Core Element</b>	<b>Key Characteristic</b>	<b>Status</b>	<b>Reasons for Change</b>
Core Group and Volunteers		Maintained	
	Make Important Decisions	Maintained	
	Base decisions on the Project's Guiding Principles	Maintained	
	Memberships has racial/ethnic/socioeconomic/educational background diversity	Maintained	
	Meetings are fun, social, productive, and regularly scheduled	Maintained	
	Engage in reflective analysis of all parts of project, own role in project and own sexual risk behavior	Maintained	
	Address issues facing young gay/bisexual men	Maintained	
	Learn new skills and conduct meaningful/interesting work	Maintained	
	Support and encourage each other about safer sex	Maintained	
Create a warm, appreciative, social, and welcoming atmosphere	Maintained		

*Table 6: Core Element and Key Characteristic Changes (cont'd)*

<b>Intervention Component</b>			
<b>Core Element</b>	<b>Key Characteristic</b>	<b>Status</b>	<b>Reasons for Change</b>
Coordinators		Changed	Project could only afford .5FTE during year 1; expanded to 1FTE year two.
	Understand HIV prevention and community building	Maintained	
	Knowledgeable about local young gay/bisexual men's community	Maintained	
	Demonstrate leadership skills	Maintained	
	Oversee all project activities	Maintained	
	Promote diverse racial/ethnic/socioeconomic involvement	Maintained	
	Support Core Group and volunteers to develop and implement activities	Maintained	
	Begin the safer sex diffusion process	Maintained	
	Engage in reflective analysis of all parts of Project, own role In Project, and		

*Table 6: Core Element and Key Characteristic Changes (cont'd)*

<b>Intervention Component</b>			
<b>Core Element</b>	<b>Key Characteristic</b>	<b>Status</b>	<b>Reasons for Change</b>
Project Space		Changed	There was no standalone space; Initial project had an office and meeting room; expanded during year two to dedicated project space inside University Health Center.
	Safe and comfortable	Maintained	
	Accessible and appealing location	Maintained	
	Safer sex and HIV testing promotional posters and literature on display	Maintained	
	Condoms and lubricant available	Maintained	
	Referral information available	Maintained	
Formal Outreach		Changed	Limited venues due to area.
	Promotes safer sex and HIV testing	Maintained	
	Includes an Outreach Team that goes to venues to distribute safer sex and	Maintained	
	HIV testing promotional materials and conducts engaging performances	Changed	No performance in venue possible.
	Helps build community	Maintained	
	Hosts Social Outreach Events that provide social opportunities and promote	Maintained	This was done often, since there were limited venues.
	HIV prevention and are fun and appealing	Maintained	
	Creates opportunities for positive peer influence	Maintained	
Recruits for M-groups and other Project activities	Maintained		

*Table 6: Core Element and Key Characteristic Changes (cont'd)*

<b>Intervention Component</b>			
<b>Core Element</b>	<b>Key Characteristic</b>	<b>Status</b>	<b>Reasons for Change</b>
Informal Outreach		Maintained	
	Diffuses a norm of safer sex	Maintained	
	Uses peer influence to change behavior	Maintained	
	Achieved through nonjudgmental and supportive peer interactions	Maintained	
	Reinforced through other Project activities	Maintained	
M-Groups		Changed	M-Group script was adapted to include references that were consistent with rural life. Changes were made based on feedback from participants.
	Facilitated by well-trained and skilled Project staff and/or volunteers	Maintained	
	Address issues that are important to young gay/bisexual men	Maintained	
	Create social opportunities	Maintained	
	Eroticize safer sex	Maintained	
	Teach and motivate informal outreach	Maintained	
	Teach sexual negotiation skills	Maintained	
	Encourage Project involvement and volunteerism	Maintained	
Scheduled regularly	Maintained		



*Table 6: Core Element and Key Characteristic Changes (cont'd)*

<b>Intervention Component</b>			
<b>Core Element</b>	<b>Key Characteristic</b>	<b>Status</b>	<b>Reasons for Change</b>
Publicity Campaign		Changed	Very limited, due to rural area.
	Creates attractive and informative materials	Maintained	
	Reminds young gay/bisexual men to practice safer sex	Maintained	
	Reaches all young gay/bisexual men in community	Maintained	
	Targets young gay/bisexual men, not general community	Maintained	
Community Advisory Board		Maintained	
	Does not have day to day decision-making power	Maintained	
	Uses available local expertise	Maintained	
	Not a required Core Element	Maintained	
	Serves as resource for Core Group	Maintained	

*Table 7: Core Element Summary Scores from the Mpowerment Fidelity Rating Scale*

<b>Core Element</b>	<b>Yes</b>	<b>No</b>
Core Group	93%	7%
Coordinators	96%	4%
Volunteers	100%	0%
Community Center/Project Space	90%	10%
Community Advisory Board	100%	0%
Formal Outreach	97%	3%
M-Groups	100%	0%
Informal Outreach	100%	0%
Publicity Campaign	85%	15%
Implementing Agency	90%	10%

\*Scores based on independent observers (n=3)

Overall, the fidelity rating scores indicate that the MP Core Elements were present in the R-MP, with the majority of elements receiving a score above 95%. Publicity was the lowest rated element with 85% indicating that it was implemented with fidelity. As a rural project, the project had limited venues for advertising to the larger community.

**Research Question 2: What attitudinal changes occurred in R-MP participants?**

Hypothesis 2.1: Rural participants in M-Group sessions will report significant attitudinal changes in the following variables: attitudes toward safer sex, safer sex self-efficacy, internalized homophobia, self-esteem, enjoyment of unsafe sex, sexual

communication self-efficacy, and interpersonal barriers from baseline to three-month follow-up.

### **Univariate Outliers and Missing Data**

All participants who completed follow-up assessments (n=66) were included in this analysis; intent to treat analysis was not warranted because there was no randomization. All cases across the seven variables were examined for accuracy and found to be correctly recorded. Further, no cases with missing values were found. A test for univariate outliers was conducted for each group and none were found to exist within the distributions; thus for 2.1, 132 responses (pre-intervention = 66, post-intervention = 66) from participants were received and were entered into the profile analysis model.

Prior to examining parametric assumptions, preliminary examination of the descriptive statistics for the seven variables was presented in Table 8. As evidenced by the Table 8, pre- and post-intervention variables skew z-scores indicate normal skewness. Normality was assumed when z-skew coefficients were less than the critical value of +/- 3.29 (Tabachnick & Fidell, 2008).

Table 8: Attitudinal Descriptive Statistics for the Seven Variables by Group

<b>Variables</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>Skew</b>	<b>Kurtosis</b>	<b>z-Skew</b>
Pre-intervention							
Attitudes/Safer Sex	1.00	6.00	4.80	1.04	-0.98	1.44	-3.26
Safer Sex/Self-Efficacy	2.25	6.00	4.71	1.09	-0.50	-0.89	-1.65
Int. Homophobia	1.00	6.00	2.19	1.19	0.72	-0.05	2.45
Self Esteem	3.00	5.00	4.25	0.52	-0.43	-0.63	-1.44
Enj. Unsafe Sex	1.00	6.00	4.55	1.22	-0.63	-0.16	-2.09
Safer Sex Comm Self-Efficacy	1.00	6.00	4.86	1.22	-1.07	0.65	-3.59
Interpersonal Barriers	2.00	6.00	4.61	1.10	-0.31	-1.06	-1.05
Post-intervention							
Attitudes/Safer Sex	1.00	6.00	4.67	1.12	-0.64	0.32	-2.14
Safer Sex/Self-Efficacy	1.25	6.00	4.80	0.16	-0.97	0.37	-3.25
Int. Homophobia	1.00	5.00	2.16	0.14	0.77	-0.49	2.55
Self Esteem	2.50	5.00	4.24	0.07	-0.77	0.72	-2.59
Enj. Unsafe Sex	1.00	6.00	4.53	0.17	-0.58	-.60	-1.94
Safer Sex Comm Self-Efficacy	1.00	6.00	4.46	0.16	-1.18	0.76	-3.99
Interpersonal Barriers	1.00	6.00	4.80	0.17	-1.21	0.90	-4.11

Pre-Intervention, n=66; Post-Intervention, n=66

### **Test of Homogeneity of Variance**

Results from the Box' M Test of Equality, found that the distributions were not equal across groups,  $F(df\ 28, 49087.64) = 1.46, p = .055$ . These results suggest that the seven distributions were not equally distributed and therefore may not meet the homogeneity of variance assumption. Profile analysis is the multivariate version of repeated measures or mixed ANOVA. Because of the unequal distribution, profile analysis was used. Profile analysis is commonly used with comparing the same independent variable between groups over different time points and when there are several measures of the same dependent variable. In this study, different behavioral and attitudinal measures (DV) were measured pre- and post-intervention. Profile analysis provided a graphic means of visually seeing data that could then be tested for significance. The justification for conducting a profile analysis, even though the assumption of normality was not met is that this test is robust to non-normality and homogeneity of variance (Macedo & Waterson, 2011).

### **Profile Analysis of Hypothesis 2.1**

Results from the profile test, provided in Table 9, revealed no significant difference between groups; *Wilks Lambda* (6, 114) = .956,  $p = .509$ , partial eta squared = .044, and observed power = .338. The partial eta-squared statistic means that 3.4% of the reason why the dependent variable (attitudinal variables) varied was due to the effect of the independent variable. In addition to the profile test, a within subjects test and between subjects was conducted to determine if differences existed after collapsing across group, or risky behaviors respectively existed. Results from the within subjects

test revealed significant differences between attitudes toward risky behaviors; *Wilks Lambda* (6, 114) = .268,  $p < .000$ , partial eta squared = .732, and observed power = 1.0. Finally, there was no significant difference in attitudinal barriers between pretest scores and posttest scores;  $F(1, 119) = .005$ ,  $p < .943$ , partial eta squared = .000, and observed power = .051.

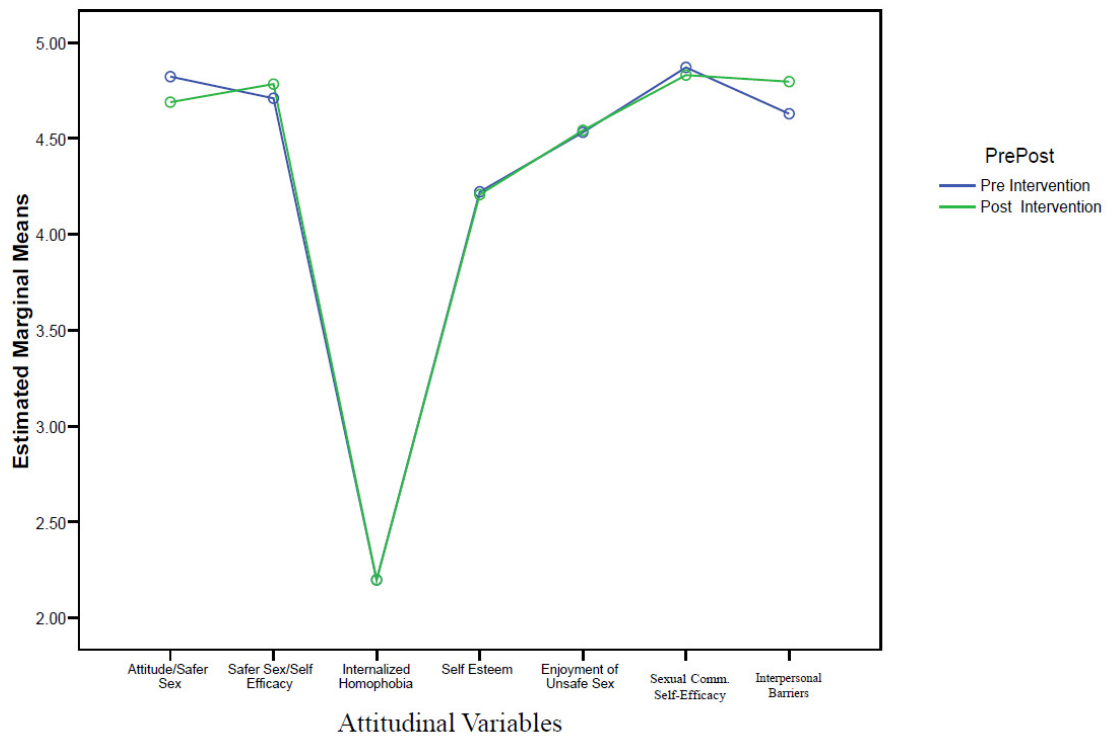
*Table 9: Differences in Attitudinal Variables Pre- and Post-Intervention*

<b>Effect</b>	<b>With Protection</b>	<b>Value</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Eta Squared</b>	<b>Observed Power<sup>b</sup></b>
Within	Wilks' Lambda	0.268	51.981b	<.001	0.732	1
Profile Test	Wilks' Lambda	0.956	.834b	0.509	0.044	0.338
Between	F-Test		.005	0.943	0.000	0.051

Note:  $df = 4, 130, 4, 130$  and  $1, 133$  respectively, a = exact statistics, b = computed at

$p < .05$

Examination of the profile graph in Figure 2 reveals that the profiles of the two groups across the seven dependent variables were not significantly different. As depicted, average pre-intervention scores were about the same on all attitudinal variables compared to the post test scores.



*Figure 2:* Estimated Marginal Means of Attitudinal Changes by Participants Pre- and Post- Intervention

Research Question 3: What Behavioral Changes Occurred in R-MP Participants?

Hypothesis 3.1: There will be a significant decrease in the frequency of unprotected sexual behaviors (anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.

Hypothesis 3.1 was analyzed using profile analysis. The dependent variables were the five identified sexual behaviors including anal sex, vaginal sex, mouth to anus sex, mouth to penis sex, and mouth to vagina sex, all without a protective barrier. The independent variable was defined by pre-intervention and post-intervention status. An additional profile analysis (labeled as Hypothesis 3.1a) was also completed on the five

dependent variables anal sex, vaginal sex, mouth to anus sex, mouth to penis sex, and mouth to vagina sex, with protection. Similarly, the independent variable was defined by pre-intervention and post-intervention status.

### **Univariate Outliers and Missing Data**

All participants who completed follow-up assessments were included in this analysis; intent to treat analysis was not warranted because there was no randomization. All cases across the five variables were examined for accuracy and found to be correctly recorded. Further, no cases with missing values were found. A test for univariate outliers was conducted for each group and none were found to exist within the distributions; thus for RQ3, 132 responses (pre-intervention = 66, post-intervention = 66) from participants were received and 132 were entered into the profile analysis model;  $n = 66$ .

Prior to examining parametric assumptions, preliminary examination of the descriptive statistics for the five variables is presented in Table 10.

As evidenced by Table 10, anal and mouth to penis skew z-scores indicate normal skewness while vaginal, mouth to anus, and mouth to vagina indicate non-normal distribution in the pre-intervention group. The post-intervention group indicates the same pattern of z-scores across the five variables. Normality was assumed when z-skew coefficients were less than the critical value of  $\pm 3.29$  (Tabachnick & Fidell, 2008).



Table 10: Descriptive Statistics for the Five Behavioral Variables Without Protection by Group

Variables	Min	Max	Mean	Std. Dev	Skew	Kurtosis	z-Skew
Pre-intervention ( <i>n</i> = 66)							
Anal sex	0.00	4.00	1.19	1.17	0.42	-0.90	1.46
Vaginal sex	0.00	2.00	0.10	0.43	4.18	16.35	14.45
Mouth to anus sex	0.00	2.00	0.09	0.37	4.51	20.16	15.59
Mouth to penis sex	0.00	4.00	1.28	1.19	0.48	-0.71	1.64
Mouth to vagina sex	0.00	1.00	0.01	0.12	8.31	69.00	28.74
Post-intervention ( <i>n</i> = 66)							
Anal sex	0.00	4.00	1.42	1.31	0.63	-0.54	2.19
Vaginal sex	0.00	3.00	0.15	0.53	3.91	15.79	13.53
Mouth to anus sex	0.00	4.00	0.27	0.78	3.15	10.16	10.91
Mouth to penis sex	0.00	4.00	1.33	1.42	0.72	-0.75	2.48
Mouth to vagina sex	0.00	1.00	0.03	0.17	5.61	30.37	19.40

Note: Standard error skew and kurtosis for pre-intervention = .289, .57 respectively and for post-intervention standard error skew and kurtosis for post-intervention = .295, .582 respectively

### Test of Homogeneity of Variance

Results from the Box's M Test found that the distributions were not equal across groups,  $F(df\ 15, 70912.35) = 4.850, p = .001$ . These results suggest that the five distributions were not equally distributed and therefore may not meet the homogeneity of variance assumption.

### Profile Analysis of Hypothesis 3.1

Table 11 provides the results from the profile test, which revealed no significant difference between groups; *Wilks Lambda* (4, 130) = .991,  $p = .885$ , partial eta squared = .009, and observed power = .11. The partial eta-squared statistic means that .09% of the reason why the dependent variable (combined five behaviors) varied was due to the effect of the independent variable. In addition to the profile test, a within subjects test was conducted to determine if differences exist after collapsing across group, or risky behaviors respectively existed. Results from the within subjects test revealed significant differences between risky behaviors after collapsing across pre and posttest intervention; *Wilks Lambda* (4, 130) = .68,  $p < .001$ , partial eta squared = .320, and observed power = 1.0. And finally, there was no significant difference in risky behaviors between pretest scores and posttest scores;  $F(1, 133) = .680$ ,  $p < .411$ , partial eta squared = .0105, and observed power = .130.

*Table 11: Differences in Behavioral Variables Without Protection Pre- and Post-Intervention*

Effect	With Protection	Value	F	Sig.	Partial Eta Squared	Observed Power <sup>b</sup>
Within	Wilks' Lambda	0.680	15.322 <sup>a</sup>	<.001	0.320	1
Profile Test	Wilks' Lambda	0.991	.289 <sup>a</sup>	0.885	.009	0.113
Between	F-Test		.680	0.411	0.005	0.130

Note.  $df = 4, 130, 4, 130$  and  $1, 133$  respectively, a = exact statistics, b = computed at  $p < .05$

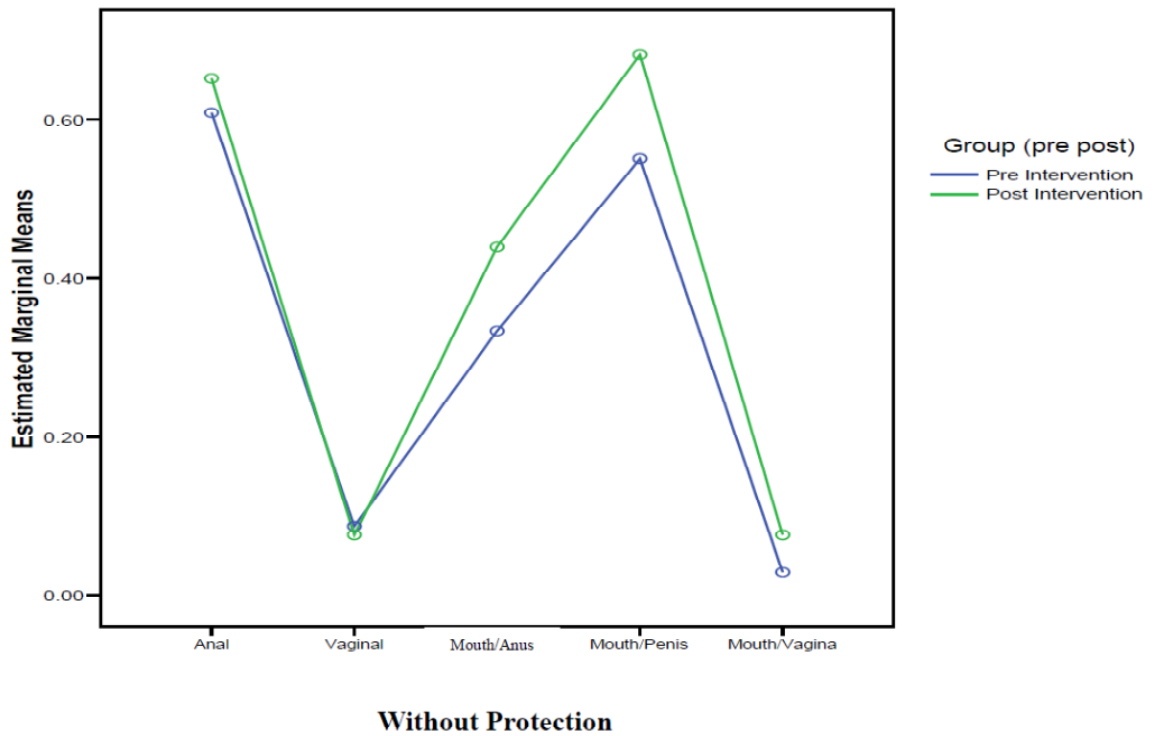


Figure 3: *Estimated Marginal Means of Self-Reported Unprotected Sexual Behavior by Participants Pre- and Post-Intervention*

Examination of the profile graph in figure 3 revealed that the profiles of the two groups across the five dependent variables were not significantly different. As depicted, average pre-intervention scores were slightly lower on all risky behaviors compared to the post test scores, but not significantly.

Hypothesis 3.1a: There will be a significant decrease in the frequency of protected sexual behaviors (anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.

#### **Univariate Outliers and Missing Data**

All cases across the five variables were examined for accuracy and found to be correctly recorded. Further, no cases with missing values were found. A test for

univariate outliers was conducted for each group and none were found to exist within the distributions; thus for 3.1a, 122 responses (pre-intervention = 66, post intervention = 66) from participants were received and 122 were entered into the profile analysis model;  $n = 66$ .

Prior to examining parametric assumptions, preliminary examination of the descriptive statistics for the five variables was presented in Table 12.

As evidenced by the table, anal and mouth to penis skew z-scores indicate normal skewness while vaginal, mouth to asshole, and mouth to vagina indicate non-normal distribution in the pre-intervention group. The post-intervention group indicates the same pattern of z-scores across the five variables. Normality was assumed when z-skew coefficients were less than the critical value of  $\pm 3.29$  (Tabachnick & Fidel, 2008).

Table 12 Descriptive Statistics for the Five Behavioral Variables With Protection by Group

Variables	Min	Max	Mean	Std. Dev	Skew	Kurtosis	z-Skew
Pre-intervention ( <i>n</i> = 66)							
Anal sex	0.00	4.00	1.19	1.17	0.42	-0.90	1.46
Vaginal sex	0.00	2.00	0.10	0.43	4.18	16.35	14.45
Mouth to anus sex	0.00	2.00	0.09	0.37	4.51	20.16	15.59
Mouth to penis sex	0.00	4.00	1.28	1.19	0.48	-0.71	1.64
Mouth to vagina sex	0.00	1.00	0.01	0.12	8.31	69.00	28.74
Post-intervention ( <i>n</i> = 66)							
Anal sex	0.00	4.00	1.42	1.31	0.63	-0.54	2.19
Vaginal sex	0.00	3.00	0.15	0.53	3.91	15.79	13.53
Mouth to anus sex	0.00	4.00	0.27	0.78	3.15	10.16	10.91
Mouth to penis sex	0.00	4.00	1.33	1.42	0.72	-0.75	2.48
Mouth to vagina sex	0.00	1.00	0.03	0.17	5.61	30.37	19.40

*Note.* Standard error skew and kurtosis for pre-intervention = .289, .57 respectively and for post-intervention standard error skew and kurtosis for post-intervention = .295, .582 respectively

### Test of Homogeneity of Variance

To examine the assumption of homogeneity of variance Box's M Test of Equality of Covariance Matrices was run. This test was run to determine if the five dependent variable distributions were equal across the two levels of the Independent variable (pre, post). Results from the test found that the distributions were not equal across groups,  $F$  (df 15, 70912.35) = 4.850,  $p$  = .001. These results suggest that the five distributions were not equally distributed and therefore may not meet the homogeneity of variance assumption.

### **Profile Analysis of Hypothesis 3.1a**

A Between-Groups Analysis of Variance was conducted to determine if the profiles pre/post-intervention differed across the dependent variables. The independent variable was pretest versus posttest intervention and the dependent variables were the five sexual behaviors with protection. The basic question stated: do behaviors change about engaging in sexual behavior with protection after intervention.

Table 13 provides the results from the profile test, which revealed no significant difference between groups; *Wilks Lambda* (4, 130) = .991,  $p = .885$ , partial eta squared = .009, and observed power = .11. The partial eta-squared statistic means that .09% of the reason why the dependent variable (combined five behaviors) varied was due to the effect of the independent variable. In addition to the profile test, a within subjects test was conducted to determine if differences exist after collapsing across group, or risky behaviors respectively existed. Results from the within subjects test revealed significant differences between behaviors after collapsing across pre and posttest intervention; *Wilks Lambda* (4, 130) = .68,  $p < .001$ , partial eta squared = .320, and observed power = 1.0. And finally, there was no significant difference in behaviors between pretest scores and posttest scores;  $F(1, 133) = .680$ ,  $p < .411$ , partial eta squared = .0105, and observed power = .130.

Table 13: Differences in Behavioral Variables With Protection Pre- and Post-Intervention

<b>Effect</b>	<b>With Protection</b>	<b>Value</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Eta Squared</b>	<b>Observed Power<sup>b</sup></b>
Within	Wilks' Lambda	0.390	50.832 <sup>a</sup>	<.001	0.610	1
Profile Test	Wilks' Lambda	0.975	.834 <sup>a</sup>	0.506	0.025	0.260
Between	F-Test		1.784	0.184	0.013	0.264

Note. df = 4, 130, 4, 130 and 1, 133 respectively, a = exact statistics, b = computed at p <.05

Examination of the profile graph in figure 4 revealed that the profiles of the two groups across the five dependent variables were not significantly different. As depicted, average pre-intervention scores were slightly lower on all risky behaviors compared to the post test scores, but not significantly.

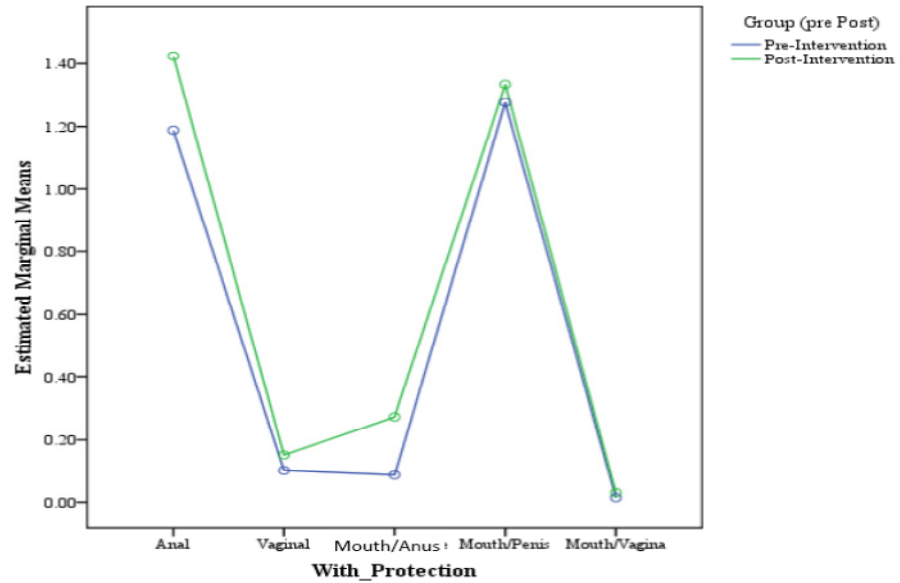


Figure 4: *Estimated Marginal Means of Self-Reported Protected Sexual Behavior by Participants, Pre- and Post-Intervention.*

Hypothesis 3.2: There will be a positive correlation between MP participation and discussion about safer sex with friends from baseline to three-month follow-up.

There was a significant difference in the scores for discussion pre-intervention ( $M=3.78$ ,  $SD=6.91$ ) and discussion post-intervention ( $M=8.26$ ,  $SD=14.10$ );  $t(69)=-3.49$ ,  $p=.001$ , as shown in Table 14. This result indicates a significant increase in discussion about safer sex with friends occurred post-intervention.

Table 14: Means and Standard Deviations of Safer Sex Discussions

Discussion about Safer Sex	M	SD
Pre-Intervention	3.78	6.91
Post-Intervention	8.26	14.10

Pre-Intervention, n=66; Post-Intervention, n=66



Pearson bivariate correlation coefficients (table 15) were computed to assess the relationships between project participation and safer sex discussions pre and post M-Group attendance. There was a low significant correlation between Pre Participation in an M-Group and Safer Sex Discussion, but no significant correlation for safe sex discussion after attendance.

*Table 15: Summary of Intercorrelations for Pre and Post M-Group Participation and Safer Sex Discussions*

<b>Measure</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1. Pre Participation	1.00**	0.29**	0.12	0.12
2. Post Participation	--	1.00**	0.15	0.15
3. Pre Discussion about Safer Sex	--	--	1.00**	0.94**
4. Post Discussion about Safer Sex	--	--	--	1.00**

\*=p<.05 \*\*=p<.001

## Chapter 5: Discussion

The current study consisted of a secondary analysis of data collected from an implementation of MP (Hays, Rebchook, & Kegeles, 2003; Kegeles, Hays, & Coates, 1996), in a rural Idaho community from May 2002 through August 2004. The original research and data collected for this study were designed to monitor the adaptation and impact of an MP in a rural community (R-MP). The purpose of this dissertation study was to assess implementation fidelity and behavioral and attitudinal changes in participants from baseline to post-intervention.

Rural HIV prevention requires an innovative approach to successfully reach those at highest risk for HIV infection, while dealing with the numerous issues inherent to rural areas. MP is a complicated, multifaceted program that allowed for community-level intervention that was adaptable to rural areas. The emphasis on socialization positions the MP to be an attractive program for rural gay men, who have limited social venues and community infrastructure, while creating a community norm of safer sex practices.

### **Research Question 1: Can the MP be Implemented to Fidelity in a Rural Area?**

Hypothesis 1.1: There will be no difference between the core elements and key characteristics of the MP in the urban versus rural areas (presence of core group, m-group, project space, large and small scale events, formal and informal outreach).

For Hypothesis 1.1, there was support that MP was implemented with fidelity in a rural area. The current project recruited young gay, bisexual and bi-curious men, similar to the original project. All core elements were present in the R-MP study.

The R-MP served as the primary community-based social group for young gay identified men in the area, which makes its role slightly different than in urban areas that may have multiple programs and agencies to provide service. The R-MP was central to the rural gay community and was the first such program to provide regular social programming for rural gay men. One of the participants stated in an early community advisory board meeting that “this project made it normal for me to walk around with a condom packet,” and he opened his bag and pulled out a packet to demonstrate his fact. However, despite anecdotal evidence, the full community impact of R-MP in changing the community norms was not measured, aside from the data reported here.

In assessing whether this R-MP reached fidelity to the model, the data presented here support this assumption. The variations of the core elements are within acceptable limits and all adaptations were made specific to the community norms and needs. In addition, no core elements were dropped. Thus all major components of the intervention existed. This is similar to other intervention studies assessing fidelity of DEBI interventions (Harshbarger et al., 2006; Kalichman et al., 2010). Given the lack of research on the translation of evidence-based interventions from research to practice, and the difficulties noted about the DEBI project, future research, and behavioral intervention development should be developed with translation issues in mind (Noar, 2008).

Was MP the best intervention for rural Idaho? The R-MP existed because of the work of the Community Planning Group, which felt strongly that a community-based intervention for young gay men (MSM) was needed. There was some evidence from a brief needs assessment and from state epidemiological reports that MSM were present and risk behaviors were occurring. However, there was no research to support the

decision that MP was the best, most efficient model for implementation. Should rural areas with limited funding implement MP, considering the scale needed for a successful project? The dose of HIV prevention or reach of R-MP was limited. Only 87 men actually received education/training on HIV risk, with the expectation that they would then spread that message. Data show an increase in communication about safer sex occurred post-intervention, but was this informal outreach enough to reduce risk for HIV infection in young gay men?

### **Research Question 2: What Attitudinal Changes Occurred in R-MP Participants?**

Hypothesis 2.1: Rural participants in M-Group sessions will report significant attitudinal changes in the following variables: attitudes toward safer sex, safer sex self-efficacy, internalized homophobia, self-esteem, enjoyment of unsafe sex, sexual communication self-efficacy, and interpersonal barriers from baseline to three-month follow-up.

Concurrently, there was no support for Research Question 2; there were no significant differences pre/post-intervention in the attitudinal variables. However, the attitudinal variable scores were remarkably similar between urban and rural samples. This could indicate that the project, despite location, attracts a group of participants that have a similar set of social skills. For both projects, in keeping with the marketing and overall theme of gay positive, it is likely that primarily open gay, bisexual, or bi-curious men would attend project events and participate in the more in depth M-group. Data from the rural project coordinators indicate that dealing with closeted or less comfortable gay men was more problematic as they did not easily assimilate into the project activities.

In the original urban research (Kegeles et al., 1996), the immediate outcomes post-intervention were significant change in enjoyment of unsafe sex, reduction in barriers to using condoms, increased communication skills, improved social norms, support from friends, safer sex self-efficacy, and reduced misperceptions; however, long term follow-up (one year) indicated that only enjoyment of safe sex, enhanced communication skills, and improved social norms were maintained. While the rural sample did not see an increase in enjoyment of safer sex or communication, there was a reported increase in safer sex discussions that could lead to an altered social norm promoting safer sex practices.

### **Research Question 3: What Behavioral Changes Occurred in R-MP Participants?**

Hypothesis 3.1: There will be a significant decrease in the frequency of unprotected sexual behaviors (anal, oral, or vaginal sex) among rural M-Group participants from baseline to three-month follow-up.

For hypothesis 3.1, there was no support for the hypothesis that there would be a decrease in the frequency of sexual behavior among participants. However, it is worth noting that the rural sample reported very little sexual activity. The reported mean frequency for anal sex ranged from 1.19-1.42 (pre/post) in the rural sample, indicating a low amount of risk activity occurring in the group. Mean rates of behavior for the urban sample were not published, but it is likely that the mean number of sex acts would be higher, given their reports of an increased number of partners. Similarly, the findings for hypothesis 3.1a were also not significant.

Hypothesis 3.2: There will be a positive correlation between MP participation and discussion about safer sex with friends from baseline to three-month follow-up.

For hypothesis 3.2: There was no significant correlation between MP participation and discussions about safe sex; however, participation in R-MP did not appear to impact safer sex discussions among participants.

There was a significant increase pre/post-intervention in discussions about safer sex. MP functions on the assumption that young gay men are most effective in influencing other young gay men and changing social norms through social networks to support behavior change (Kegeles et al., 1996). Using peers to support and encourage friends about safer sex appears to be the most significant impact of the R-MP. The increases in discussions pre- and post-intervention were significant, indicating that R-MP participants were much more likely to engage friends in discussions about safer sex after participating in the project. However, it is not clear whether an increase in discussion equates to a decrease in HIV risk.

A comparison of the original urban sample results (Kegeles, Hays, & Coates, 1996) and the R-MP reveals several interesting differences and similarities. A consistent urban finding was a significant reduction in self-reported unprotected anal intercourse, similar to what was found in the R-MP sample. However, the R-MP lacked the statistical power to detect significant change. Similarly, there were few differences in attitudinal variables between U-MP and R-MP participants, with no significant attitudinal variable differences in the R-MP. However, rural participants reported a much higher mean score on interpersonal barriers, which most likely relates to living in an unsupportive and isolated environment.

Despite being from a much larger and diverse setting, the subjects in the rural sample were all “potential targets of change” among a large and spread-out rural social network. As the Internet has become more widely used, the once isolated rural gay community has become more connected and less “alone.” When this project was started, it relied heavily on Internet chat rooms, a web site and e-mail newsletters to reach participants. Over one half of the participants traveled over 50 miles to attend program events and had the opportunity to socialize with other gay men.

Kegeles and colleagues (1996) believe there are two primary motivations why young gay men get involved with the project- ownership and sense of community. These two factors may hold true for rural areas. As the only project in a rural area that was openly gay positive, core group members and other volunteers were important to the success of the project. As the rural project had only one half-time coordinator, volunteers were largely responsible for running different aspects of the project including recruitment, marketing, and hosting events. They were also very protective of the intervention and the reputation it maintained in the community. In addition, the sense of community that was formed and the friendships were remarkable. Discussions with the project coordinators indicated that the networks that were formed early on are still present and that the project still provides the best “community” in the area. Again, many participants traveled an hour or more to participate in a weekly “coffee night,” in order to socialize and meet other people. The participants wanted friendships, social activities and social space in which to relax and be themselves (Kegeles et al., 1996).

## Conclusions

The National HIV/AIDS Strategy for the United States has clearly laid out a national plan for reducing HIV infection in the U.S., which includes rural areas. There is substantial room for improvement in HIV prevention activities in rural areas (Rosser and Horvath, 2008). With limited resources and funding, effective behavioral interventions that are easily adapted to a variety of areas are needed. The current project supports MP as adaptable to a rural setting. The outcome monitoring results, while limited in several ways, should encourage further research into MP for rural areas.

One key assumption of CDCs DEBI project and the AHP initiative to create evidence-based interventions is that an intervention, found to impact HIV risk in one community, can be packaged and implemented in other communities with similar success. There is no ongoing assessment of the impact of the DEBI initiative in changing behavior in communities, but a focus on training and implementing the programs to fidelity. Thus, fidelity is assumed to ensure behavior change. This study raises the question, is fidelity to an evidence-based intervention, enough to create behavior change? Behavior change and evidence-based practice in public health is not the same as evidence-based medical or even psychological treatments. Communities vary and implementation and assessment of evidence-based interventions must consider a multitude of other factors to be successful.

Another area that should be considered when looking at implementation of MP, or any other evidence-based program are the inherent translation issues of going from public health research to public health practice. Journal articles, MP included, do not include descriptions that provide interventionists implementing a program with enough details to



replicate the intervention (Schaalma & Kok, 2009). In essence, it was very clear in reading the original MP research what was evaluated and to use their tools, but it was not clear if what was being evaluated was the same. The original research began in the 90's has now been translated and packaged based on memory, the original research, and several years of experience and feedback from community organization. The MP training is now three days and there is now a second edition of the MP Manual. However, there is not current effort to replicate the HIV risk reduction findings of the original research or efforts to ensure that the current public health practice version of MP is the same as the original researched version. The TRIP study fidelity tool was developed almost 10 years after the initial research; can fidelity tools be developed so far after, be an accurate measure?

### **Limitations**

This study has several limitations, reducing its generalizability. All data were collected by self-report. Participants may not have responded honestly in order to present themselves in a socially acceptable manner; and may not have answered in a way that did not entirely accord with their views. For example, anecdotal evidence about the participants indicates that over half of were from a very conservative religion (Mormon); the impact of their religion and the extreme religiosity of the area may have impacted their ability to accurately report sexual behavior. Data collection that included observed behaviors or other physical tests (like STD testing) would have been helpful. In addition, data were collected at baseline M-Group (not before any project participation) and at

three months post M-Group. Any long-term impacts from participating in R-MP cannot be ascertained from this data.

Additionally, the small community that was targeted for this project may have had some issues with providing accurate self-report data. While confidentiality was explained, participants were still asked to supply personal information to individuals they may have been friends with outside the project. The self-report data, which showed no change, could be due to a desire to appear more favorable to the Project coordinator or other Core Group members.

While the project does appear to have reached fidelity, the assessments of that were done many years after the fact. There were no direct observations to measure fidelity aside from the brief M-Group content assessment. It is also somewhat questionable as to how much comparison can be made between the U-MP and R-MP, considering the earlier mentioned questions about translation.

Due to the skew and kurtosis on the sexual behaviors and attitudinal factors, profile analysis was used instead of repeated measures analysis of variance, which led to decreased power. Insufficient statistical power led to problems in analyzing the rural sample. A much larger sample of pre/post-intervention participants and a community wide baseline assessment would have allowed for a more in depth assessment of the behavioral and attitudinal impacts. The rural area made recruitment and participation in the M-Group difficult. Many participants specifically did not want to be part of the M-Group due to fear, stigma, and not wanting to discuss personal issues.

Secondly, the attrition rate at three month follow-up while not large (24% lost to follow-up), limited the power of the study. Despite the assumption a priori that a

sufficient sample size was available, actual power was far less than predicted or needed to find statistical significance. While this data were collected and IRB approved, the overall data collected and the method, instruments, and assessments could be improved. The fact that the assessments were short was very practical but also limited the conclusions that could be drawn.

The rural project also had some differences in questions asked, limiting some of the comparisons, most notably relationship status. Relationship status was not asked at both pre- and post-intervention thus making it not usable in this study. Reliance on the original research assessment tools may have limited some of the findings. The alcohol and other drug use assessment were added in after the project started and not collected on the majority of the sample. The limited data available showed almost no reported alcohol or drug use (n=6). The other measures for self-esteem and internalized homophobia were not standardized measures, which makes comparison to other studies impossible. Additionally, process data were only collected for the M-Group, not the entire project. Overall, the current study focuses on the participants who attended an M-Group, which does not capture the experience or breadth of impact the project may have had on the entire community targeted by the intervention. Too much reliance seems to have been placed on utilizing the original U-MP data collection tools, without consideration for the needs of extensive analysis. Future studies of R-MP need to develop a rural assessment protocol to fully capture the impact of the project. The rural assessment should include a complete community risk/needs assessment that could be completed annually to assess impact of MP on the community, not just the participants of the M-Group.

Follow up for the R-MP was made difficult as some participants lived several hundred miles away and had no contact with the project (either mail or online) unless they attended an event. Consideration of method of contact was taken seriously, as to not “out” a participant. However, both of these limitations are similar to issues encountered with the original research (Kegeles et al., 1996). Additionally, when comparing the R-MP and U-MP samples, there are different methodologies, limiting some comparisons across data points. In addition, no community baseline data was collected and the follow-up time periods are different.

Implementing the project in a rural area, included some political and safety issues. The project was hosted at a local university, but was always a community project. The project space was never standalone, due to safety and personnel issues. Several outside community venues were used, but the lack of a true drop in center may have limited some community participation. In addition, rural participants felt strongly the age range for the project should be 18-35, whereas the original project was for 18-29 year olds. Rural participants felt that individuals in rural areas came out later and allowances needed to be made. The age issue in the community was an ongoing issue, as there were a large number of older gay men who felt the project shunned them (although no one was ever turned away from participating).

At one point the project was forced to move departments and location as one university official felt the program was not appropriate. On several occasions project coordinators were accused of providing men for sex or in personally engaging in sexual behaviors in campus venues, because they were associated with the project. The community advisory board was extremely important in providing protection and

advocacy for the rural project in order to keep it operating. These factors are not easily assessed or captured in the data available, but should be considered in implementation assessment.

The self-reported rates of unprotected sex were very low in this sample. This may have also been impacted by the religiosity of the area. Estimates were that over three quarters of the population in the area of the project were Mormon. The extreme religious nature of the area most likely impacted sexual behaviors-either participants were less like to have sex or were less likely to admit sexual behavior. While the focus of HIV research and the development of evidence-based intervention has been on behavior change and the roll-out of projects that have demonstrated success, behavior change in a rural population of MSM may not be the best measure of success. With a much more limited selection of partners and the aforementioned difficulties of identifying as gay, the risk for HIV may fall in different areas and require interventions with different strategies and outcomes. If rural gay men are traveling outside their immediate area for sex, how does HIV prevention programming prepare them? It is a different question and set of issues to be addressed. The context of the intervention must be considered as driving the outcome needed for the population.

### **Future Research**

The Rural Center for AIDS Prevention (RCAP) (2009) published a monograph on the state of HIV prevention in rural America. In looking toward the next decade of prevention efforts, rural complacency about HIV/STD and reducing the stigma related to HIV must be addressed. In addition, building an arsenal of effective rural HIV/STD

interventions is needed. The infrastructure to support these initiatives is imperative. As referenced earlier, the R-MP was operated with less staff and significantly less infrastructure support than the U-MP. Overall, there was a degree of risk for the state agency that funded the project, which created additional stress on implementation. Some of this was related to the lack of research to support for MP as a rural intervention; it should be noted there were no evidence-based interventions for rural areas in the CDC compendium (and there still is not). Noar (2008) in his meta-analysis of behavioral interventions to reduce HIV risk pointed out that more research is needed on translation and adaptation of evidence-based interventions in relation to context; clearly rural HIV interventions fall into this category.

This study does provide some initial support for the effectiveness of using the MP in a rural area. The results indicate that the project can meet fidelity and that participants will experience increased discussions about safer sex, thus potentially decreasing their personal and community risk for HIV infection. Future studies of MP adaptation for rural areas should focus on ensuring an adequate sample with sufficient size to improve power and include a control group for a better research design. While MP has had a cost effectiveness study, a rural look at the project to determine if it is the most effective intervention for an area with already limited resources would be useful. If the majority of the population cannot attend an M-Group or reached through informal outreach, what is the long-term effect of the program?

“There are no simple solutions that will magically end rural HIV or other STDS. But there are opportunities to make a difference” (RCAP, 2009). In conclusion, as rural

HIV issues continue to be addressed, further studies on the efficacy of using urban designed HIV interventions need to occur.

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## Appendices



## Appendix 1- Survey Instrument

### M-Group Pre-Test Survey

Date \_\_\_\_\_

Thank you for coming to a Genesis Project G-Spot. Please take the time to answer the following questions. Your honest answers will help us to secure funding for future events and continually help us improve what we offer you. In 3 months we will send you another questionnaire through the mail asking similar questions.

We have devised a code that allows us to keep track of surveys while at the same time honoring your anonymity. Please take the time to fill out this code. Start by writing down the first and third letters of your first name, then the month and day of your birth, and the last four digits of your social security number.

**1<sup>st</sup> and 3<sup>rd</sup> letter of first name:** \_\_\_\_\_ **Month & Day of Birth:** \_\_\_\_\_

**Last four of SSN:** \_\_\_\_\_

1. Which of the following best describes you? (Circle one)

Gay       Bisexual       Straight       Other \_\_\_\_\_

2. What is your race or ethnic background (circle one)?

1. White
2. Hispanic/Latino
3. African American/Black
4. Asian/Pacific Islander
5. Native American
6. Other \_\_\_\_\_

3. How old are you? \_\_\_\_\_

4. Have you attended a G-Spot before? Yes No

5. My relationship status is: (circle one)

1. No boyfriend/partner
2. In a Monogamous relationship
3. In a Non-monogamous relationship (open relationship)

Please indicate how much you agree or disagree with each of the following statements by circling the number which best fits your response to each item. Use this scale:

-----1-----	-----2-----	-----3-----	-----4-----	-----5-----	-----6-----
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Moderately	Slightly	Slightly	Moderately	Strongly

- |  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 6. Safe sex is less pleasurable than unsafe sex. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. Using a condom takes the fun out of sex.      | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. Sex is unsatisfying.                          | 1 | 2 | 3 | 4 | 5 | 6 |

9. Sometimes if I'm really turned on, I have trouble only doing safe sex. 1 2 3 4 5 6
10. If someone I'm having sex with starts to do something unsafe, it is hard for me to stop him. 1 2 3 4 5 6
11. I find it difficult telling a sex partner not to do something I think is risky. 1 2 3 4 5 6
12. I have trouble letting a sex partner know that I want to have safe sex. 1 2 3 4 5 6
13. How many times in the last month have you encouraged a friend to have safer sex?  
\_\_\_\_\_ (fill in a number)

1. Do you like most aspects of your personality?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

2. Do you feel you deserve other people's respect?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

3. Are you proud of who you are?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

4. Do you feel you take good care of yourself?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

5. When you look at your life, do you feel satisfied?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

6. In general, do you feel in charge of your life?

1. Definitely yes      2. Somewhat yes      3. Somewhat no      4. Definitely no      5. Don't know

7. Do you feel you have a sense of direction and purpose in your life?

1. Definitely yes            2. Somewhat yes            3. Somewhat no            4. Definitely no    5.  
Don't know

8. Do you feel that you respect yourself?

1. Definitely yes            2. Somewhat yes            3. Somewhat no            4. Definitely no    5.  
Don't know

Please indicate how much you agree or disagree with each of the following statements by entering the number which best fits your response to each item. Use this scale:

-----1-----	-----2-----	-----3-----	-----4-----	-----5-----	-----6-----
Disagree	Disagree	Disagree	Agree	Agree	Agree
Strongly	Moderately	Slightly	Slightly	Moderately	Strongly

1. Sometimes I dislike myself for being a man who  
6  
has sex with other men.

1    2    3    4    5

2. I wish I were heterosexual.  
6

1    2    3    4    5

3. I am glad to be gay.  
6

1    2    3    4    5

4. I am proud to be a part of the gay community.  
6

1    2    3    4    5

In the past three months how many times have you engaged in the following behaviors?

	Never	Once	2-10 times	11-20 times	More than 20 times
7a. Anal sex with a condom					
7b. Anal sex without a condom					
7c. Vaginal sex with a condom					
7d. Vaginal sex without a condom					
7e. Mouth to anus sex with a protective barrier					
7f. Mouth to anus sex without a protective barrier					
7g. Mouth to penis sex without a condom					
7h. Mouth to penis sex with a condom					
7i. Mouth to vagina sex without a protective barrier					
7j. Mouth to vagina sex with a protective barrier					

## Appendix 2-Fidelity Rating Scale

## FIDELITY RATING SCALE

**Agency Name:**

**Rater's Name:**

**Date:**

Please rate each Core Element of the organization's project according to whether or not you observed each of the following key characteristics.

Core Element	Yes	No	Not observed	Notes
<b>Core Group</b>				
Sufficient size to carry out project activities				
Empowered to make vital decisions				
Critically reflects on its decisions				
Represents the diversity of the community				
Meets frequently enough to carry out project activities				
Meetings are productive				
Meetings are fun and social				
Addresses HIV prevention				
Engages in informal outreach and supports each other in safer sexual behaviors				
Has <i>not</i> become cliquish (i.e., it remains welcoming to new members, sub-groups aren't exclusive, etc.)				
<i>Was CG Adapted?</i>				
<i>Describe adaptation:</i>				

### Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
<b>Coordinators</b>				
Facilitate a community empowerment process (i.e., they don't do all the work themselves; they encourage others to get involved)				
Follow through on responsibilities in a timely manner				
Ensure that project activities are carried out				
Have conversations about safer sex with young gay/bi men in the program and throughout the community				
Demonstrate knowledge and understanding of the local young gay/bi men's community				
Demonstrate leadership skills				
Attend to the needs of a diverse community				
Are self-reflective and spend time critically reflecting on the Project's progress				
<i>Were adaptations made to Coordinators?</i>				
<i>Describe adaptation:</i>				
<b>Volunteers</b>				
Sufficient number of volunteers to carry out project activities				
Have decision-making power				
Feel welcome in the project				
Volunteering is an empowering process (e.g., learn new skills, meet new people, do worthwhile, meaningful, fun, and interesting work)				
Diverse group of volunteers who reflect the community				
Engage in informal outreach with their peers				
Volunteers integrated into all aspects of the project				
<i>Were adaptations made to Volunteers?</i>				
<i>Describe adaptation:</i>				



### Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
<b>Community Center/Project Space</b>				
The space is physically safe for young gay/bi men who attend				
The space is a safe environment for young gay/bi men to socialize and build community (e.g., ground rules are posted and enforced, men feel welcome, accepted, etc.)				
Accessible and appealing location				
Promotes safer sex				
Condoms available in multiple locations				
Comfortable				
Adequate for a project's needs				
Decorated in an appealing manner for young gay/bi men				
Space contains positive images to build pride and healthy community				
<i>Were adaptations made to Project Space?</i>				
<i>Describe adaptation:</i>				
<b>Community Advisory Board</b>				
Supports young gay/bi men to make their own decision about the project				
Is integrated into the agency structure, administration loop, or organizational culture				
Provides a helpful resource for young gay/bi men				
Draws from available expertise in the local gay, public health, educational, fund-raising, human service, and AIDS community				
<i>Were adaptations made to CAB?</i>				
<i>Describe adaptation:</i>				

Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
<b>Formal Outreach</b>				
Provides social opportunities for young gay/bi men				
Diverse range of events				
Events infused with safer sex messages				
Events are fun and appealing				
Events provide opportunity for <b>new</b> project participants or volunteers to get involved				
Events reach new, diverse groups of young gay/bi men				
Recruits new guys to M-Groups and other project activities				
Events are empowering for project volunteers and CG				
Events create a sense of community, encourage friendships and interactions				
Events happen frequently enough to hold the community's interest, sustain momentum, and maintain visibility				
Safer sex materials are attractive and appealing				
Safer sex materials address predictors of unsafe sex among young gay/bi men				
Publicity materials include all necessary information (e.g., times, dates, location, tag line, etc.)				
<i>Were adaptations made to Formal Outreach?</i>				
<i>Describe adaptation:</i>				

Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
<b>M-Groups</b>				
M-Groups happen frequently enough to meet program objectives				
New groups of diverse young gay/bi men are actively recruited into M-groups.				
Follows curriculum				
Well facilitated				
Teaches informal outreach skills				
Opportunity to learn and practice new skills (e.g. condom use, negotiating safer sex)				
Eroticizes safer sexual practices				
Provides an opportunity for young gay/bi men to socialize and get to know each other				
Addresses issues of importance to young gay/bi men (other than just HIV prevention)				
<i>Were adaptations made to M-groups?</i>				
<i>Describe adaptation:</i>				
<b>Informal Outreach</b>				
Program participants are talking about safer sex with each other.				
Program participants are talking about safer sex with other young gay/bi men.				
<i>Were adaptations made to Informal Outreach?</i>				
<i>Describe adaptation:</i>				

### Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
<b>Publicity Campaign</b>				
Publicity ideas are generated by Core Group				
Attractive to young gay/bi men				
Reaches diverse segments of young gay/bi men				
Publicity occurs often enough to attract men to the Project				
Mixed media channels are used (newspapers, fliers, internet, etc.)				
Informs young gay/bi men about the project in general				
Informs young gay/bi men about project activities in a timely manner				
Targeted to young gay/bi men and not widespread throughout general community				
Provides a reminder about the safer sex norm in the community				
Were adaptations made to Publicity?				
Describe adaptation:				
Implementing Agency				
Supervises Coordinators adequately				
Supports the efforts of the program				
Project supervisor is hands-on and involved				
Project supervisor is knowledgeable about the Mpowerment program model				
Project supervisor is knowledgeable about the agency's Mpowerment program				
Coordinators and supervisor communicate effectively with each other (e.g., behavioral objectives are written and shared)				
The program has adequate resources to function				
The agency has the capacity to implement the Project				
The agency has prioritized young gay/bi men as an important population				

### Fidelity Rating Scale (cont'd)

Core Element	Yes	No	Not observed	Notes
The agency successfully recruits and retains good Project staff.				
The Project is well planned.				
Project evaluation efforts are carried out systematically (i.e., procedures to complete paperwork are in place and followed)				
There is a good fit between contractual obligations/objectives and Project activities				
COMMENTS:				

Have any Core Elements been significantly modified?

Have any new elements been added?

	Yes	No	Not observed
The modification adds to the social focus of the project.			
The modification helps empower young gay/bisexual men.			
The modification helps promote HIV prevention.			
The modification helps diffuse messages about safer sex throughout the community.			
The modification is gay-positive.			
The modification is sex-positive.			
The modification helps build community among young gay/bi men.			
The modification is peer-based.			
Comments:			

## VITA

MICHAEL SCOTT TIMS

### EDUCATION

FLORIDA INTERNATIONAL UNIVERSITY, MIAMI, FL

Doctoral Student: Health Promotion Disease Prevention (Robert Stempel College of Public Health & Social Work)

45 semester hours completed (Anticipated completion spring 2012)

IDAHO STATE UNIVERSITY, Pocatello, ID

Doctoral Student: Clinical Psychology

49 semester hours completed (ended August 2004)

UNIVERSITY OF SOUTH ALABAMA, Mobile, AL

Master of Science: Applied Psychology, 8/2001

AUBURN UNIVERSITY, Auburn, AL

Bachelor of Arts: Psychology, 12/1998

PELL CITY CHRISTIAN ACADEMY, Pell City, AL

Advanced High School Diploma, 5/1994

### SELECTED PRESENTATIONS

Tims, M.S. (2011). The role of health promotion in mental health. Paper presented at the American College Health Association Conference, Phoenix, AZ.

Tims, M.S. (2010). Quit & Win: Process evaluation and adaptation for a college campus. Paper presented at the American College Health Association Conference, Philadelphia, PA.

Tims, M.S. & Vik, P. (2003). Genesis Project: Adapting Mpowerment for rural areas. Paper presented at 37<sup>th</sup> Annual Convention of the Association for Advancement of Behavior Therapy, Boston, MA.

Tims, M.S. (2003). Genesis Project: Mpowerment for rural gay men. (2003, April). Paper presented at Rural Center for AIDS Prevention Conference. Bloomington, IN.

Arata, C. M., Stafford, J., & Tims, M. S. (in press). High school drinking and its consequences. *Adolescence*.

Arata, C. M., Tims, M. S., & Stafford, J. (2002, August). Parent Power: The Role of Parents in Reducing Teenage Drinking. Poster session presented at Annual Meeting of American Psychological Association, Chicago, IL

White, D.B., Langhinrichsen-Rohling, J., Morgan, A., & Tims, M.S. (2002, March). The Association Among Dating Infidelity, Relationship Violence and Unwanted Pursuit. Poster presented at 2002 Southeastern Psychological Association Annual Convention, Orlando, FL.

Tims, M.S., & Langhinrichsen-Rohling, J. (2001, November). Body Image, Social Anxiety and Sexual Identity in Gay Men and Lesbians. Paper presented at the thirty-fifth annual convention of Association for Advancement of Behavior Therapy, Philadelphia, PA.

Tims, M.S., White, D.B., & Langhinrichsen-Rohling, J. (2001, November). Fear of Negative Appraisal, Body Self-Esteem, and Social Interaction Anxiety. Poster presented for the 2001 Association for Advancement of Behavior Therapy, Philadelphia, PA.

Tims, M.S., White, D., Donald-Waters, B., & Langhinrichsen-Rohling, J. (2001, March). The Associations Among Attachment, Jealousy and Dating Violence in College Students. Poster presented for 2001 Southeastern Psychological Association Annual Convention, Atlanta, GA.

White, D.B., Tims, M.S., & Langhinrichsen-Rohling (2001, March). Prevalence and Predictors of Unwanted Post-Break Up Pursuit Behaviors in Established Gay and Lesbian Relationships. Poster presented for the 2001 Southeastern Psychological Association, Atlanta, GA.

Tims, M.S., Alderson, M., Bell, T., Langhinrichsen-Rohling, J., Rohling, M., & Byrum, J. (2000, March). College students' perceptions of the risks and benefits of gambling. Poster session presented at Annual Meeting of Southeastern Psychological Association, New Orleans, LA.

Tims, M.S., Stafford, J., & Arata, C. (2000, March). Do what I say, not as I do: Parent factors in teenage drinking. Poster presented at Annual Meeting of Southeastern Psychological Association, New Orleans, LA

Stafford, J., Tims, M.S., & Arata, C. (2000, March). One for the road: High school drinking and its consequences. Poster presented at Annual Convention of Southeastern Psychological Association, New Orleans, LA.

Alderson, M., Tims, M.S., Bell, T., Langhinrichsen-Rohling, J., Rohling, M., Colson, S. (2000, March). Psychological predictors of college students gambling behavior. Poster presented at Annual Convention of Southeastern Psychological Association Convention, New Orleans, LA.

Karg, R.S., Ringeisen, H., Tims, M.S., Doepke, K., & Shapiro, S.K. (1999, August). Risky behavior in adolescents: Current data and future directions. Poster session presented at Annual Convention of American Psychological Convention, Boston, MA.