THESIS

IS GLBT COMMUNITY COMMITMENT A RISK OR PROTECTIVE FACTOR FOR HEALTH OUTCOMES?

Submitted by

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ABSTRACT

IS GLBT COMMUNITY COMMITMENT A RISK OR PROTECTIVE FACTOR FOR HEALTH OUTCOMES?

The present research applied a modified version of the investment model to the study of how gay, lesbian, bisexual, and transgender (GLBT) persons become committed to the social, political, and organizational GLBT community. Additionally, a main goal of the study was to determine if community commitment was a risk or protective factor for health behaviors and outcomes. First, a confirmatory factor analysis determined that the three theorized aspects of the GLBT community can be measured distinctly and individually. However, results did not indicate that commitment to individual aspects of the GLBT community (while controlling for commitment to other aspects) predicted individual health outcomes. It was not demonstrated that commitment to the GLBT community was either a risk or a protective factor. This research has important implications for understanding how one's community can or cannot influence health behaviors.

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INTRODUCTION

The gay, lesbian, bisexual, and transgender (GLBT) community has, in the face of adversity, valued a strong sense of community connectedness and support; not only does the community provide physical locations for GLBT members to gather, but it also allows for a strong network of GLBT individuals to be unified and supportive of one another. Like other minority communities, the GLBT community provides many supports for its members, including health and education resources, sources of social support, buffers from oppression, and opportunities to advocate for equality. Members of the GLBT community benefit from these supports in many ways. For instance, past research has found that commitment to the GLBT community predicts positive personal outcomes (Lehmiller & Konkel, in press). Specifically, having high levels of community commitment is associated with higher levels of self-esteem. Research also suggests that GLBT community involvement is associated with a greater understanding of one's GLBT identity (LeBeau & Jellison, 2009). It seems, then, that having a relationship with the GLBT community is linked to benefits to the individual.

Although connection to the GLBT community clearly provides several important benefits, this connection comes with some costs. It is well established that GLBT individuals have greater health risks and worse health outcomes compared to the heterosexual population. Gay and lesbian youth are at an elevated risk for alcohol use and abuse, including binge drinking (Baiocco D'Alessio, & Laghi, 2010). Additionally, GLBT youth's drinking habits increase over time at a higher rate compared to heterosexual youth (Marshal, Friedman, Stall, & Thompson, 2009). Frequent and heavy drinking in GLBT adult populations is also an issue, and has been documented across many studies (e.g., Aaron, Markovic, Danielson, Honnold, Janosky, & Schmidt, 2001; Stall & Wiley, 1988). Moreover, gay and bisexual men continue to be the group

with the highest risk of contracting HIV in the United States (Centers for Disease Control, 2007). These health concerns and risk behaviors may be in part related to one's connectedness to the GLBT community.

As a result of the heighted risk behaviors demonstrated by members of the GLBT community, an individual who is connected to this community may be more likely to engage in health risk behaviors themselves; some evidence exists that this is true. For instance, research has found that GLBT youth who are involved in gay recreational or social activities have higher initial levels of alcohol and marijuana use (Rosario, Schrimshaw, & Hunter, 2004). Additionally, being socially integrated in the gay community through gay establishments (e.g., bars) is predictive of higher levels of HIV-risk behavior in gay men (Fergus, Lewis, Darbes, & Butterfield, 2005). Research suggests that individuals connected to this community in certain ways may participate in these risky behaviors for multiple reasons, including the influence of social norms (e.g., Hamilton & Mahalik, 2009; Hughs & Eliason, 2002) or the influence of other community members (Fergus, Lewis, Darbes, & Kral, 2009). Thus, a growing body of research suggests that attachment to or involvement in the GLBT community may actually have *negative* consequences for GLBT individuals.

It appears then that connection to the GLBT community can operate as both a risk and a protective factor for health behaviors and outcomes, though more research is needed to understand which aspects of the GLBT community produce risk and which produce protection. The current study aims to address the seeming paradox that commitment to the GLBT community simultaneously leads some to experience positive personal outcomes, but others to experience negative personal outcomes.

Benefits of Involvement in the GLBT Community

A growing body of research is demonstrating the mechanisms by which being involved in, attached to, or integrated in the GLBT community benefits one's personal health and well-being. Social Integration Theory (SIT) offers a framework for understanding these mechanisms. The theory suggests that being positively involved in one's community leads to better outcomes for oneself, including developing a sense of self, having protection from stigmatization, and maintaining relationships with other community members (Ramirez-Valles Kuhns, Campbell, & Diaz, 2010). Perceiving a strong source of social support from the GLBT community can help to reduce the negative impact of stigma from other members of society (D'Augelli & Garnets, 1995). Being "out" (i.e., the extent to which one expresses his or her sexual orientation to others) to more people in one's social network has been shown to reduce stress (Wright & Perry, 2010). Additionally, research has shown that commitment to the GLBT community is possibly associated with self-esteem (Lehmiller & Konkel, in press). This may be, in part, because having this source of social support, reduction of stigma, and reduction of stress increases one's feelings of personal worth. Also, having and maintaining positive relationships with other GLBT individuals is associated with better generalized psychological well-being (e.g., Herek & Glunt, 1995; Ramirez-Valles, Fergus, Reisen, Poppen, & Zea, 2005). Therefore, this body of research suggests that there may be some positive benefits of being involved or integrated in specific social components of the GLBT community.

Some research suggests that engagement in the GLBT community reduces the likelihood of engaging in negative health behaviors. For instance, as GLBT youth become more involved in their social and recreational activities, their alcohol and substance abuse, at least initially, decreases (Rosario, Schrimshaw, & Hunter, 2004). Thus, commitment to these activities may

buffer against the use of alcohol and other substances. Additionally, being involved in HIV/AIDS organizations buffers against participating in health risk actions such as risky sex (Ramirez-Valles, 2002). This may be because this type of involvement could change one's perceptions of peer norms of safe sex, which is what such organizations promote. Also, by acting for the benefit of another, being involved in HIV/AIDS organizations promotes a positive self-identity. This then decreases involvement in risky behaviors, such as having unsafe sex. Finally, involvement in HIV organizations also appears to increase self-efficacy for condom use. Therefore, belonging to and being committed to one's community may actually serve as a protective factor against some risk behaviors. This body of research suggests that there may be a positive benefit to belonging to specific organizations or organized groups within the GLBT community.

It is important to note that other research on service engagement has suggested that there is no link between community membership and risk behavior. A few studies have found null effects—that being engaged in one's community does *not* lead to increased or decreased risk-taking behavior. For instance, some studies have found that community involvement in AIDS or GLBT organizations, defined as non-paid work on the behalf of others in the community, is not associated with sexual risk behavior in gay Latino men (Ramirez-Valles et al., 2010). Attachment to the GLBT community, defined as how much one feels a part of the gay community, was not associated with sexual risk behavior among gay men either (O'Donnell, Agronick, Doval, Duran, Myint-U, & Stueve, 2002). Additionally, some research suggests that just participating in the GLBT community by joining gay sports teams or religious groups has no association with sexual risk behaviors (Fergus et al., 2009), unlike social engagement (e.g., going to gay bars and establishments (D'Augelli & Hershberger, 1993; Hughes & Eliason, 2002).

Therefore, some research demonstrates that community engagement or involvement may not affect one's risk behavior at all. However, some research has demonstrated that being involved in the GLBT community may, on some levels, be a protective factor against alcohol and substance use.

Costs of Belonging to the GLBT Community

In contrast to the above literature review, a growing body of research suggests that individuals involved in GLBT communities may experience negative personal health outcomes as a result of this involvement. For instance, perceptions of what is normative sexual behavior for the gay community are predictive of sexual risk taking (Hamilton & Mahalik, 2009). From a social norms standpoint, perceptions of ingroup members' behaviors guide one's own behaviors. Other members of the GLBT community help to provide social examples of what health-risking and health-promoting behaviors to adopt, which reinforces one's own attitudes about these behaviors. For example, one study found that gay men do not perceive strong norms supportive of safe sex within the community (Choi, Han, Hudes, & Kegeles, 2002). Thus, if gay men involved in the GLBT community perceive that other gay men in their community are performing risky sexual behaviors, they may be more likely to do the same thing themselves.

Social norms also influence GLBT individuals' use of alcohol and other substances (Hamilton & Mahalik, 2009; Hughs & Eliason, 2002). Not only does one's partner's level of drinking influence an individual's drinking behavior, but perceived peer levels of drinking and going to gay bars are associated with inflated rates of alcohol use and heavy and frequent drinking among GLBT individuals. Additionally, research has shown that involvement in GLBT activities is associated with an increase in one's rate of drinking (Rosario, Schrimshaw, & Hunter, 2004), and GLBT youth use alcohol and substance abuse at higher rates than

heterosexual youth (Marshal et al., 2009). Thus, belonging to a community where one's social life revolves around visiting gay bars and establishments may put GLBT individuals at risk for higher levels of alcohol use and abuse.

The elevated rate of risk behavior among GLBT youths may be due to the high level of social engagement common among GLBT individuals, that is, the amount of time spent with other GLBT persons and the proportion of friends that are GLBT. High social engagement may be a factor in one's health risks and behaviors not only because it affects perceptions of social norms, but also potentially because more exposure provides more opportunity. Research has found that among gay men, a stronger level of social engagement is associated more sexual risk behaviors (Fergus et al., 2009). Going to gay bars and clubs, which is an important aspect of the GLBT culture for many individuals, independently predicts greater risk of contracting HIV even when controlling for alcohol use (Fergus et al., 2005). GLBT youth who have more ties to other GLBT individuals also report more frequent risky sexual behavior and more sexual partners (Wright & Perry, 2010). Of interest, the effect of engagement seems to be counteracted by experiencing more general social support, but from whom the support came was not assessed (making this finding difficult to interpret; Fergus et al., 2009). Unfortunately, however, these conclusions have relied on a relatively small number of participants and the findings across them have not been entirely consistent.

Making Sense of Competing Findings

The body of research on the costs and benefits of belonging to the GLBT community has been somewhat inconsistent and contradictory, suggesting that involvement in the GLBT community sometimes leads to positive health outcomes, but other times leads to negative health outcomes. A clear reason for this phenomenon has yet to be addressed, however, it may be due

to the shortcomings of past research. Past studies' limitations include conceptualizing "GLBT community" in different ways; for example, by defining the community as social groups and establishments (Fergus et al., 2005), by volunteerism and activism (Ramirez-Valles et al., 2010), or by recreational and social activities (Rosario, Schrimshaw, & Hunter, 2004). Additionally, studies have inconsistently defined individuals' relationship with the GLBT community. This relationship has been defined as consisting of community involvement (e.g., Ramirez-Valles et al., 2010), community integration (e.g., Fergus et al., 2005), and community attachment (e.g., O'Donnell et al., 2002). Additionally, one major shortcoming that has consistently emerged in research on this topic is the use of gay men only rather than a representative sample of the GLBT community (e.g., ; Fergus et al., 2005; O'Donnel et al., 2002; Ramirez-Valles et al., 2005).

A final shortcoming of the existing body of work in this area is the lack of theory to explain why one is involved, attached to, or integrated in one's community and how these processes are related to health-promoting and health-risking behaviors. The broader construct of *commitment* may prove to be a better indicator of one's relationship with the GLBT community and how it relates to health and well-being, and this is consistent with the Investment Model of Commitment. The Investment Model defines *commitment* as consisting of three elements: a psychological attachment to that involvement, a long-term orientation, and an intention to persist in the relationship (Arriaga & Agnew, 2001). Commitment is an all-encompassing, more thorough and parsimonious construct than other studies' definitions of community relationships (e.g., involvement, attachment, and engagement). Also, given that commitment to the GLBT community has already been found to predict positive personal and community outcomes (Lehmiller & Konkel, in press), it would thus seem to be an appropriate extension to apply it to specific aspects of this community.

In this study, I addressed these major shortcomings of the current body of work on the relationship between GLBT commitment and engagement in health-promoting and health-risking behaviors. This project adds to the literature in four important ways. First, I demonstrated that the GLBT community consists of distinct aspects (i.e., the social, political, and organizational sides of the community). Past research has examined the GLBT community in a broad sense, but as demonstrated from the above literature review, being involved or engaged in a specific aspect of the GLBT community may be what is associated with specific health outcomes. Therefore it was important to determine whether community members believed that differing aspects of the community exist. Second, I employed a much broader and more comprehensive definition of commitment by focusing on commitment to three salient domains of the GLBT community: GLBT social community commitment, GLBT political community commitment, and GLBT organizational community commitment. Assessment of commitment to each of these domains is theory-based, stemming directly from the Investment Model Scale of Commitment. I assessed the relationship between each of these domains and a set of health behaviors and outcomes (i.e., alcohol and substance use, risky sexual behavior, self-esteem, and internalized homophobia). Third, rather than combine all GLBT individuals together, I examined the relationship between commitment to the community and health behaviors separately to determine if the key relationships of interest differ for gay men and lesbians. Fourth, a sample that is more representative of the GLBT community was utilized. Participants were recruited online in order to promote diversity in gender and gender identity, geography, community type (e.g., GLBT communities in urban versus rural areas), and age. Participants were recruited from various universities across the country in order to assess whether or not GLBT youth have different risk

and protective factors for health and well-being compared to older GLBT individuals recruited online.

The hypotheses for the current study were as follows: 1) there are distinct aspects of the GLBT community that members may be committed to, including the GLBT social community, GLBT political community, and GLBT organizational community; 2) commitment to the social aspect of the community will be associated with more risky behaviors, but also higher self-esteem and lower internalized homophobia; 3) commitment to the political or organizational aspects of the community will not be associated with risky behaviors, but will be associated with higher self-esteem and lower internalized homophobia. Given the limited body of work on differences in commitment and associated outcomes as a function of GLBT status, no hypotheses regarding different effects for gay men and lesbians are put forth; rather, these analyses are exploratory.

METHOD

Participants and Recruitment

A sample of 199 self-identifying GLBT individuals were recruited. All participants were informed that they must identify as gay, lesbian, bisexual, or transgender in order to participate. Participants were 38.9% male, 51.5% female, 5% transgender, and 4.5% other. Participants predominantly identified as homosexual (66.7%), with 19.7% identifying as bisexual, 4.0% identifying as heterosexual, and 9.6% identifying as "other." Heterosexual participants were not excluded, given the inclusivity of the GLBT community and that many transgendered individuals may identify as heterosexual. The age range was from 17-77 (M = 33.5 years, SD = 14.85). Participants were predominantly Caucasian (86.4%), with a small number of individuals identifying as Asian (1.5%), Hispanic (6.6%), African American (3.0%), and "other" (2.5%). Participants came from 123 different cities from the United States and abroad, with 92% of participants living in the United States. Additionally, most participants identified as "out" to most people about their GLBT identity (M = 4.18 on a scale of 1 to 5, SD = 1.08, higher scores indicating higher levels of outness).

There were two methods of participant recruitment. First, participants were recruited from various college GLBT organizations (40%). The organizations were contacted and provided with a brief description of the study to either post in their office or e-mail to their members. Second, participants were recruited from on-line GLBT discussion boards, forums, internet sites, and e-mail listservs (60%). Previous research has found that Internet recruitment typically results in more diversity compared to traditional college student sampling (Gosling, Vazire, Srivastava, & John, 2004). Additionally, this method of recruitment has been particularly effective in the past to recruit GLBT participants (e.g., Lehmiller & Konkel, in press;

Lehmiller, 2010). In order to avoid the possibility of some participants repeatedly taking the questionnaire, internet protocol (IP) addresses were collected and carefully checked prior to data analysis (Gosling et al., 2004).

Materials and Procedure

Participants were recruited to partake in a study titled "Perceptions of the GLBT Community." Participants were provided with a brief description of the study, along with a link directing them to the online survey, which was hosted at psychdata.com. After clicking the link, participants were presented with an informed consent letter, with which they needed to agree before continuing. Participants were then brought to the main questionnaire on a secure webpage and completed all measures listed below. All data were collected anonymously. Finally, after completing the dependent measures of interest, participants were thanked and debriefed.

Demographics. Participants completed a standard measure of demographics, which inquired about their age, ethnicity, and current city of residence. Gender was assessed four ways (*male, female, transgendered male to female,* and *transgendered female to male*), and sexual orientation was selected from a comprehensive list of categories (*gay, lesbian, heterosexual, bisexual,* and *other*). Participants were given the option to self-identify as heterosexual because some transgendered individuals may consider themselves as such.

Aspects of the GLBT Community. Participants were qualitatively asked what, specifically, they feel is involved in each of the hypothesized aspects of the GLBT community (social, political, and organizational). One sample item is as follows: "What do you consider to be part of the GLBT social community?" Participants were asked if there are any other aspects of the GLBT community beyond the three theorized components that they consider essential. For

each aspect of the community, participants were asked how important it is to them on a scale ranging from 1 (*not important at all*) to 7 (*extremely important*). Additionally, participants were asked to identify which components they believed to be essential to each of the three aspects of the GLBT community, and were provided a list of potential components for the social, political, and organizational aspects. For example, participants would check whether they believed a close group of GLBT friends, gay bars and clubs, and gay sports or athletic groups (amongst others) were an essential part of their social community, and did this for each of the three aspects (see Appendix for full list of components). Participants also had the option to write in any additional essential components for each of the aspects of the GLBT community.

GLBT Community Commitment. Recently, the widely-used Investment Model Scale of Commitment (Rusbult, 1980; 1998) was modified and used to assess generalized commitment to the GLBT community (Lehmiller & Konkel, in press). The commitment measure from this scale was used in the present research, but it was again modified to assess commitment to each aspect of the GLBT community. Items included: "I feel very attached to my social group of GLBT friends" (commitment to the social aspect; α=.90), "I intend to stay in this political community" (commitment to the political aspect; α=.95), and "I am committed to maintaining my relationships with organizations in my community" (commitment to the organizational aspect; α=.96). Participants were instructed to indicate their level of agreement with each statement on a nine-point scale ranging from 1 (*do not agree at all*) to 9 (*agree completely*).

Alcohol Use Disorders Identification Test (AUDIT). Alcohol use was assessed using the AUDIT (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993), which is a 10-item survey used to identify drinking rates and problems (α=.81). Sample items include "How often do you have a drink containing alcohol?" and "How often do you have six or more drinks on one

occasion?" Scores range from 0 to 40, with 0 meaning the individual assessed is a non-drinker, and 40 indicating a serious alcohol problem. The AUDIT is a useful tool because it identifies drinking behavior on all levels of the spectrum, as well as identifies both current and chronic drinking behaviors (Saunders et al., 1993).

Illicit Drug Use. Use of illicit drugs was assessed in eight categories, derived from the National Survey on Drug Use and Health (SAMHSA, 2009) and modified from previous studies of GLBT individuals (Hamilton & Mahalik, 2009): 1) marijuana, 2) cocaine, 3) prescription drugs such as Oxycontin, 4) heroin, 5) crystal methamphetamine, 6) hallucinogens such as LSD, 7) ecstasy, and 8) other. Participants were asked how often they use each of the previous drugs on a scale of 1 (*never*) to 5 (*daily or almost daily*).

Sexual Risk Behavior. Sexual risk behavior was assessed with the same questions regardless of gender and sexual orientation, with the option of "Not Applicable" for cases where the question does not apply. Sample questions include "How many partners have you had in the past 6 months?" (open-ended response), "In the past 6 months, how often have you practiced safe sex?" (0% of the time to 100% of the time), and "I regularly get tested for STDs" (1=*strongly disagree*, 7=*strongly agree*).

Self-esteem. Self-esteem was assessed with six items from Rosenberg's (1965) widely-used Self Esteem Scale (α=.91). Items were answered on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items include "On the whole, I am satisfied with myself" and "I certainly feel useless at times" (reverse-scored).

Other Measures. Internalized homophobia was assessed with the Internalized Homophobia Scale (Martin & Dean, 1987). This is a nine-item measure that asks participants about their comfort level with their own sexuality (α=.86). Sample items include "I feel like my

sexuality is a shortcoming for me" and "I would like to get professional help in order to change my sexual orientation." Participants' level of outness (i.e., how open they are about their sexual identity) was assessed with one item: "I am 'out' to most people about my GLBT identity. All items are measured on a 7 point scale, with 1 indicating *strongly disagree*, and 7 indicating *strongly agree*. Lastly, participants' recent tobacco use was measured with 2 questions, including "How often do you smoke cigarettes?" measured on a scale of 1 (*never*) to 7 (*always*).

RESULTS

Defining the Community

In order to define each aspect of the GLBT community, open-ended questions were used to collect input from GLBT community members. Participants were asked what they considered to be a part of the social, political, and organizational communities. Participants indicated that the social community consists of any person who is GLBT or is a friend of GLBT persons, social groups specific to GLBT persons, support groups, gay bars or other gay-specific places within the community, and social gatherings—whether they be formal, such as Pride events, or informal. Examples include "I think that social gatherings at bars and clubs, as well as charity events, support group, and relationships all fall into the GLBT social community", and "All people and organizations that identify as gay, lesbian, bisexual, transgendered, queer, or supportive of these who choose to interact on a social level in some specific way with each other." Participants indicated that the political community consists of people or organizations working towards the rights and freedoms for GLBT persons, advocacy groups such as PFLAG, being aware in general of current political issues affecting GLBT community members. Examples include "Anything, any place or any person who promotes GLBTQ equality in terms of federal/state/local laws/ethics, personal safety, health and wellness", and "I think that this is about protests, voting, being out and proud, and also when you feel comfortable, standing out and refusing to settle for societal norms." Finally, participants indicated that the organizational community consists of specific GLBT advocacy groups such as the Human Rights Campaign, community centers, churches, and schools, Pride events, or any organized groups that offers support for GLBT persons. Examples include "Any type of GLBT and ally groups, be it in a community, school or other type of environment that provides a meeting space for GLBT

individuals and the primary focus is just to be a safe place to socialize and discuss issues", and "Any organization which is LGBT specific or allies of LGBT's. That includes everything from bowling leagues to political advocacy groups to faith communities."

Additionally, participants were asked to determine whether or not specific community components were essential to define the social, political, and organizational GLBT community. Overall, participants generally agreed that there were certain essential components to each of the constructs of the GLBT community (social, political, and organizational). For instance, 68.7% of participants believed that having a close group of GLBT friends was an essential part of their social community. Keeping up with current political events relevant to GLBT individuals was the most frequently supported component of the political community (70.1% agreed this was essential), and involvement in Pride events was the most frequently cited component of the organizational community (66.2%; see Table 1 for a complete review).

To test the hypothesis that there are distinct aspects to the GLBT community, an exploratory factor analysis was carried out on all of the items assessing commitment to each of the hypothesized aspects of the community (social, political, and organizational). It was hypothesized that an exploratory factor analysis of the newly created commitment scales would support the three distinct aspects of the GLBT community. An exploratory factor analysis was conducted using Principal Axis Factoring (PAF) rather than Principal Components Analysis (PCA) because each item likely provides the same information about a factor(s) as other items, and additionally, may be influenced by independent sources of error. Conceptually, it is important to understand that there is shared variance in the set of questions within the proposed three factors, and this is assumed in an EFA (Warner, 2012).

Table 1
Percentage of Participants who Indicated Each Component was an Essential Part of the GLBT Social, Political, and Organizational Community

Social Aspect Components	Percentage
A close group of GLBT friends	68.7
A network of other GLBT individuals	67.2
Gay bars and clubs	44.4
Gay sports or athletic groups	25.3
Online interactions with other GLBT persons	38.9
Informal GLBT parties or gatherings	56.6
Political Aspect Components	
Relationships with other GLBT individuals involved in political causes	58.1
Involvement in political campaigns	59.6
Donating money to GLBT political candidates or causes	47.0
Support for the democratic party/left	43.9
Support for the republican party/right	8.1
Keeping up with current political events relevant to GLBT individuals	70.7
Organizational Aspect Components	
Involvement in Pride events	66.2
Involvement in HIV awareness groups or events	49.5
Patronizing GLBT doctors, dentists, or other professionals	50.0
Donating money to GLBT organizations	51.5
Relationships with other GLBT individuals involved in these organizations	63.6

The exploratory factor analysis was carried out utilizing Kaiser Normalization and the oblique Promax rotation given the likelihood of correlated factors. The Kaiser-Meyer-Olkin (KMO) statistic was .92, indicating that the assumption of sphericity was not violated, even though the more conservative Bartlett's test of sphericity was significant; $\chi^2(105)=2949.15$, $p < .001$. Three factors were retained with Eigenvalues greater than one, with a total of 82.03% of variance explained (see Table 2). Each variable had the highest loading for its predicted factor, therefore five items primarily loaded on each of the three extracted factors (see Table 3).

Table 2

Eigenvalues and Variance Explained by Retained Factors in Principal Axis Factoring

	Eigenvalues		
Factor	Total	% of Variance	Cumulative % of Variance
1. Political	9.73	64.86	64.86
2. Organizational	1.53	10.21	75.07
3. Social	1.05	6.96	82.03

Table 3
Factor Loadings for Principal Axis Factoring

	Factor		
	1	2	3
Political Commitment 1	0.898	0.672	0.634
Political Commitment 2	0.870	0.553	0.554
Political Commitment 3	0.851	0.707	0.607
Political Commitment 4	0.928	0.640	0.524
Political Commitment 5	0.938	0.658	0.580
Organizational Commitment 1	0.731	0.895	0.766
Organizational Commitment 2	0.629	0.917	0.678
Organizational Commitment 3	0.615	0.897	0.711
Organizational Commitment 4	0.625	0.913	0.649
Organizational Commitment 5	0.697	0.952	0.676
Social Commitment 1	0.585	0.723	0.913
Social Commitment 2	0.532	0.578	0.864
Social Commitment 3	0.438	0.535	0.637
Social Commitment 4	0.445	0.515	0.717
Social Commitment 5	0.603	0.725	0.908

Next, a confirmatory factor analysis was fit in a structural equation model – using the three-factor structure that was initially hypothesized and confirmed by the EFA. The simple-structure CFA with three latent factors (social, political, and organizational commitment) provided questionable fit to the data, χ^2 (87) = 432.50, comparative fit index (CFI) = .88, and RMSEA of .16 [95% CI: .14, .17]. Given that the model fit was inadequate, a new model was re-specified by utilizing a Larange Multiplier test and conceptually determining which error residuals should be allowed to correlate. Within each of the aspects of the GLBT community, there were five items to assess commitment. These items were worded identically except for the reference to the specific aspect (i.e., social, political, and organizational). Thus, the error residual from the first item assessing social commitment was allowed to correlate with the first

item assessing both political and organizational commitment, and the second error residuals were all allowed to correlate, etc., with a total of 15 error correlations. The new model proved to have good fit; χ^2 (72) = 270.25, CFI = .93. An improved RMSEA of .13 [95% CI: .11, .15] indicated marginal fit, but given the exploratory nature of this study, this model was retained. Additionally, the three factors were significantly correlated (see Table 4). As expected, each of the five items loaded onto their respective factor (see Figure 1). All factor loadings are significant at the $\alpha = .05$ level.

Table 4
Correlations Among Community Commitment Variables

Variable	*Mean*	*SD*	1	2	3
1. Social Commitment	6.43	2.13	-	.63*	.74*
2. Political Commitment	5.92	2.40		-	.73*
3. Organizational Commitment	6.00	2.51			-

*$p < .01$

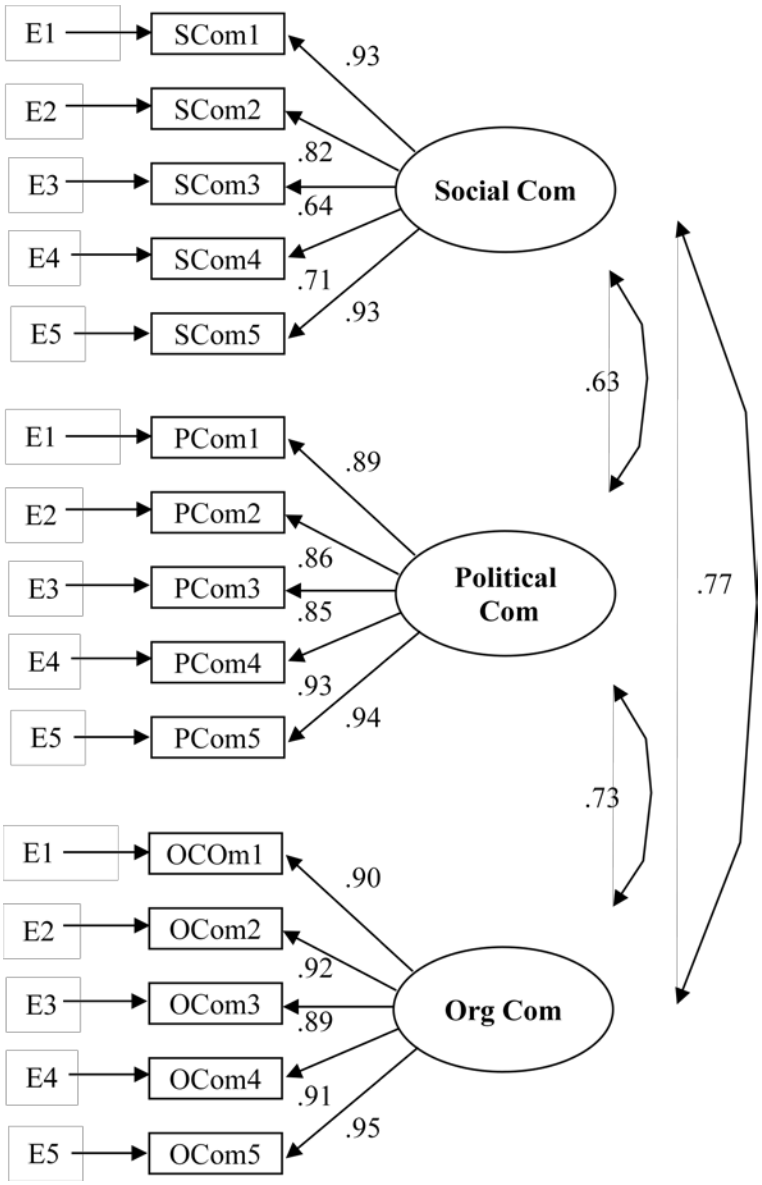

Figure 1
Confirmatory Factor Analysis for Community Commitment Factors.

Note. All factor loadings are significant at the .05 level. Correlations between factors are significant at the .01 level

Predicting Health Behaviors

To assess the relationship between commitment to each domain and the health behaviors/outcome of interest, a series of multiple regression analyses were estimated. In all models, commitment to the social, to the organizational, and to the political GLBT community were entered as simultaneous predictors of each of the outcome variables while holding constant age and outness (for means, standard deviations, and correlations among commitment variables, see Table 4). Commitment to the three aspects of the GLBT community were highly and positively correlated, indicating that if an individual was highly committed to the social community, that person was likely to be highly committed to the political and organizational communities as well. Before the regression models were estimated, correlations between each of the commitment variables and all outcome variables were assessed (see Table 5). All commitment variables were significantly and positively related to self-esteem, indicating that one's level of self esteem is associated with one's commitment to the GLBT community. No other factors were significantly associated with any of the outcome variables.

Table 5
Zero order correlations among commitment variables and outcome variables.

	Alcohol Use	Marijuana	Sex & Alcohol	STD Test	Self Esteem	Internalized Homophobia
Social Commitment	0.083	0.118	0.044	0.004	.213*	-0.051
Political Commitment	0.046	0.01	0.093	0.043	.200*	-0.076
Organizational Commitment	0.066	-0.042	0.128	-0.005	.182*	0.036

Note. *$p < .05$.

It was expected that commitment to each aspect of the community (i.e., social, political, and organizational) would independently predict one's levels of self-esteem and internalized homophobia, controlling for commitment to each of the other aspects. Additionally, it was expected that while controlling for commitment to the political and organizational aspects, commitment to one's social community would be positively associated with risky behaviors (such as alcohol and drug use), as well as positively associated with self-esteem and negatively associated with internalized homophobia. Commitment to both the political and organizational aspects was not expected to predict higher self-esteem or lower internalized homophobia. The commitment variables were centered at their means before the analyses.

The results partially supported these hypotheses. Commitment to the social aspect of the GLBT community was positively associated with some risky behaviors. Specifically, while adjusting for all control variables, commitment to the social community independently predicted one's marijuana use (p = .01; see Table 6, Model B for full results). In other words, when commitment to the social community was high, participants' levels of marijuana use was higher. Contrary to these hypotheses, commitment to the social community did not independently predict any other risky behaviors (alcohol use, p = .91; sex under the influence of alcohol, p = .06; and sexually transmitted disease testing, p = .75; see Tables 6 and 7, Models A, C, and D for full results of these analyses). This means that having a strong commitment to the social community was not positively associated with one's likelihood of participating in these risky behaviors. Additionally, commitment to the social community did not independently predict higher levels of self esteem (p = .24) or lower levels of internalized homophobia (p = .40; see Table 8, Models E and F).

Table 6
Multiple Linear Regression to Predict Substance Use Outcomes

	Model A: Alcohol Use				Model B: Marijuana Use			
Variable	*B*	*SE(B)*	*β*	95% CI	*B*	*SE(B)*	*β*	95% CI
Intercept	1.59**	0.17		[1.26, 1.91]	1.84**	0.41		[1.04, 2.65]
Social Commitment	0.00	0.03	0.01	[-.05, .06]	0.18*	0.07	0.32	[.05, .31]
Political Commitment	-0.02	0.02	-0.11	[-.07, .02]	-0.02	0.06	-0.04	[-.14, .10]
Organizational Commitment	0.02	0.03	0.12	[-.03, .07]	-0.13**	0.06	-0.28	[-.25, -.01]
Age	-0.01*	0.00	-0.29	[-.02, -.00]	-0.01*	0.01	-0.16	[-.03, .00]
Outness	0.06	0.04	0.13	[-.02, .13]	0.08	0.09	0.07	[-.10, .25]
R^2		0.10				0.08		

Note. CI = confidence interval.

**$p < .001$, *$p < .05$.

Table 7

Multiple Linear Regression to Predict Sexual Health Outcomes

	Model C: Sex and Alcohol				Model D: STD Tests			
Variable	*B*	*SE(B)*	*β*	95% CI	*B*	*SE(B)*	*β*	95% CI
Intercept	7.21**	1.53		[4.18,10.23]	3.43**	0.80		[1.84, 5.01]
Social Commitment	0.47[M]	0.24	0.28	[-.02, .95]	-0.04	0.13	-0.05	[-.30, .21]
Political Commitment	-0.14	0.22	-0.10	[-.57, .29]	0.15	0.12	0.21	[-.07, .38]
Organizational Commitment	-0.03	0.25	-0.02	[-.51, .46]	0.03	0.13	0.04	[-.23, .28]
Age	-0.03	0.03	-0.10	[-.08, .03]	-0.04*	0.01	-0.26	[-.06, -.01]
Outness	-0.80*	0.31	-0.25	[-1.42, -.18]	0.18	0.17	0.11	[-.15, .51]
R^2		0.10				0.10		

Note. CI = confidence interval. Only sexually active participants were included in this analysis.

**$p < .001$, *$p < .05$, [M]$p < .10$.

Table 8

Multiple Linear Regression to Predict Psychological Well-being Outcomes

	Model E: Self-Esteem				Model F: Internalized Homophobia			
Variable	*B*	*SE(B)*	*β*	95% CI	*B*	*SE(B)*	*β*	95% CI
Intercept	4.10**	0.41		[3.28, 4.91]	2.80**	0.36		[2.11, 3.48]
Social Commitment	0.08	0.07	0.13	[-.05, .21]	-0.05	0.06	-0.10	[-.15, .06]
Political Commitment	0.06	0.06	0.12	[-.05, .18]	-0.08^{M}	0.05	-0.19	[-.18, .02]
Organizational Commitment	-0.02	0.06	-0.05	[-.15, .10]	.012*	0.06	0.29	[.01, .23]
Age	.03**	0.01	0.36	[.02, .04]	-0.01*	0.01	-0.18	[-.02, -.00]
Outness	0.12	0.09	0.10	[-.06, .30]	-0.14	0.08	-0.15	[-.30, .02]
R^2		0.21				0.11		

Note. CI = confidence interval.

**$p < .001$, *$p < .05$, $^{M}p < .10$.

Next, consider the association between commitment to the organizational community and these outcomes. As expected, commitment to the organizational community did not predict any increase in risky behavior (alcohol use, $p = .42$; sex under the influence of alcohol, $p = .92$; and sexually transmitted disease testing, $p = .84$;). In fact, commitment to the organizational community predicted an overall decrease in marijuana use ($p = .04$, see Table 6, Model B). In other words, the more committed one is to the organizational aspect of the GLBT community, the less likely one is to use marijuana. However, unexpectedly, commitment to the organizational community did not predict one's self esteem ($p = .70$). Commitment to the organizational community did, however, predict one's level of internalized homophobia ($p = .03$; Table 8, Model F), such that an increase in commitment to the organizational community was also associated with a slight increase in internalized homophobia.

Finally, consistent with predictions, commitment to the political aspect of the GLBT community did not predict one's risky behaviors either (alcohol use, $p = .39$; marijuana use, $p = .74$; sex under the influence of alcohol, $p = .53$; and sexually transmitted disease testing, $p = .18$). This means that being committed to the political community as not linked to an increase in one's likelihood of participation in risky behavior. However, contrary to predictions, commitment to the political community was not associated with an increase in one's self-esteem ($p=.28$), or a decrease in one's level of internalized homophobia ($p=.11$).

Additionally, as an exploratory analysis, differences between gay men and lesbians were assessed. Gay men were defined as identifying both as male and homosexual ($n = 68$), and lesbians were defined as identifying both as female and homosexual ($n = 60$). A series of multiple linear regression models were estimated with sexual orientation (i.e., gay man or lesbian) entered as the predictor of each health behavior/outcome, holding constant commitment

to the social, organizational, and political communities, as well as age and outness. Differences between gay men and lesbians were only identified in three areas: marijuana use (b = -.87, SE = .34, p = .01) number of sexual partners (b = -1.26, SE = .43, p = .01), and HIV testing frequency (b = -1.47, SE = .50, p = .01). In other words, holding constant levels of commitment to the three aspects of the GLBT community, age, and outness, gay men are significantly more likely to use marijuana, more likely to have a higher number of sexual partners, and get tested for HIV more often. Additionally, the interaction between being gay or lesbian and commitment to the different aspects of the GLBT community was tested. The interactions between sexual identity (i.e., identifying as either a gay man or a lesbian) and each of the commitment types were input simultaneously into regression models for each of the outcome variables. There were two significant interactions, indicating that levels commitment was associated with the outcome variables differently for each group. Considering marijuana use, as commitment to the organizational community increased, levels of use decreased, and this association was even stronger for lesbians than for gay men. Considering STD testing, as commitment to the political community increased, frequency of getting STD tested increased, and this association was even stronger for gay men than lesbians. No significant interactions were found for any other outcome variables (all p-values were < .05), meaning that commitment was not associated with the outcome variables differently for gay men and lesbians (see Table 9).

Table 9

Regression Coefficients for Gay Men/Lesbian and Commitment Type Interactions

	Gay Men versus Lesbians by Commitment Interaction					
	Social		Political		Organizational	
Outcome Variable	B	SE(B)	B	SE(B)	B	SE(B)
Alcohol Use	0.03	0.06	-0.01	0.05	-0.01	0.05
Marijuana	-0.17	0.15	-0.07	0.13	0.31*	0.13
Sex and Alcohol	0.01	0.64	-0.55	0.54	0.13	0.53
STD Tests	0.39	0.24	-0.44*	0.20	0.18	0.19
Self Esteem	0.06	0.16	0.10	0.14	-0.09	0.13
Internalized Homophobia	-0.05	0.14	0.13	0.12	-0.11	0.12

Note. * $p < .05$.

DISCUSSION

The purpose of this study was to provide a better understanding of how commitment to individual aspects of the GLBT community is associated with one's positive and negative health outcomes. Specifically, three aspects of the GLBT community were assessed: commitment to the social, political, and organizational aspects. It was thought that commitment to the social aspect would be associated with risky behaviors such as alcohol use and risky sex, but commitment to the political and organizational aspects would only be associated with positive outcomes, i.e., increased self-esteem and decreased internalized homophobia. The study's main goal was to synthesize existing literature on the health implications of belonging to the GLBT community by providing a more comprehensive understanding of individuals' relationship with the community.

Results of this study were both consistent and inconsistent with hypotheses. First, based on participant open-ended responses, frequency of agreement on essential community components, and the exploratory factor analysis, it seems as if there are distinct and essential aspects of the GLBT community. Participants identified specific components within each aspect (for instance, 67% of individuals believed that a close network of GLBT individuals was important for the social community, and 59.6% believed that involvement in political campaigns was essential for the political community) that they believed to be essential to the community structure. Additionally, the exploratory factor analysis revealed that there were three distinct factors within community commitment to be considered, as hypothesized. However, the confirmatory factor analysis only partially supported these results. The CFI indicated good fit, however, the RMSEA indicated only marginal fit. This may be because power was too low with a somewhat low participant number for a structural equation model, or because the three factors

were so highly correlated. Given the exploratory nature of this initial study, retaining this model and continuing with the analyses was the best option, but the development of a better measure is needed for future work. Additionally, future studies could address this by increasing participants or utilizing a different method to distinguish between community aspects.

Unexpectedly, commitment to individual aspects of the GLBT community (while controlling for commitment to other aspects) did not predict the hypothesized health behaviors. It was thought that one's commitment to the social community would predict negative health behaviors such drinking and risky sex, given that GLBT community involvement has been demonstrated to predict this in previous literature (e.g., Hamilton & Mahalik, 2009; Hughs & Eliason, 2002). It was also hypothesized that commitment to the political and organizational aspects would not predict negative outcomes, but rather would predict positive mental health outcomes such as lower internalized homophobia and higher self esteem. Although commitment to these aspects did not predict negative outcomes, they also did not predict positive outcomes. Again, results must be interpreted cautiously, given that commitment levels to these three aspects of the community were so highly correlated. These results, rather than clarifying the competing findings within the literature, only add to these competing findings. However, null findings are also an important development and may suggest new directions for future work.

Findings from this study have several important implications. It was found that gay men were significantly more likely to use marijuana and more likely to have a higher number of sexual partners than lesbians. GLBT communities may want to increase their outreach for their focus of gay men's health decisions, educate their members on these risky behaviors, and perhaps have social support groups specifically for gay men. However, it is of course essential for all GLBT community members to have support and education about risky health behaviors.

Study Strengths and Limitations

The present research has a number of strengths that sets it apart from the current literature. First, the study took an innovative approach to looking at the GLBT community. No known study has ever partitioned the community into its essential aspects in order to investigate whether or not members can be committed to one aspect and not another, or to investigate whether commitment to just one aspect can predict important health outcomes. Although the results did not completely support the hypotheses, this was an important first step to further understand the complexities of the GLBT community and its members' commitment.

The study applied an important theoretical concept (i.e., commitment) to the exploration of GLBT members' relationship with their community. This has been done in previous research (Lehmiller & Konkel, in press), however the present study sought to expand on this research by exploring commitment to different aspects of the GLBT community. This study attempted to provide a consistent theoretical context for assessing how the relationship with one's community is associated with important health outcomes and decisions.

Another strength of the research was the inclusion of all members of the community, including gay men, lesbians, bisexual, transgendered individuals, and people that embraced other identifications. Much of the past research has focused exclusively on gay men (e.g, LeBeau & Jellison, 2009), so the present study may be generalizable to a broader portion of the GLBT community. Analyses that identify differences between gay men and lesbians are rare in the literature, so this study provided an important step to discerning the differences between gay men and lesbians when it comes to health behaviors.

There are many limitations to this research as well. First, although the exploratory factor analysis identified three distinct factors for commitment to the GLBT community, the

confirmatory factor analysis did not recognize a model with good fit. This may indicate a lack of power, given that the study had just under 200 participants, and a structural equation model may require more for adequate power to detect a good model fit. Additionally, the three factors (i.e., social commitment, political commitment, and organizational commitment) were very highly correlated, which indicates that all may be predictive (or not predictive) of the hypothesized health outcomes. Another limitation is that the study has a correlational design, which limits the ability to infer causality. Therefore, the relationship between commitment and health outcomes cannot be causally determined. It would be beneficial to conduct a longitudinal study to determine if commitment to certain aspects of the GLBT community predicts long-term health behaviors and outcomes.

An additional limitation is that GLBT community members may interpret social, political, and organizational communities in different ways. They way that they interpret these aspects may determine the role that each aspect of the community plays in their life. For example, some individuals may associate the social community with gay bars and clubs, and others may interpret the social community with close friends or support groups. If the social community to some individuals by definition involves risky behavior (e.g., gay bars and clubs), then individuals interpreting the social community in this way may be more likely to participate in risky behaviors such as alcohol use or unsafe sex. Future studies should address this option. Additionally, these community differentiations (social, political, and organizational) are somewhat ambiguous, and in fact, many participants agreed that there was much overlap between these three community aspects. For example, Pride events are oftentimes social, political, and organizational in nature. Organizations such as the Human Rights Campaign may also be considered political. And specific GLBT clubs, such as sports teams, are oftentimes both

social and organizational. The three aspects themselves may have so much overlap that distinguishing between them becomes very difficult, hence the high correlation between levels of commitment to these three aspects.

If one was able to accurately and unambiguously distinguish between these community aspects, a different analysis plan may have provided a better approach to answering the research questions. For instance, with a larger sample, one could use latent class analysis to determine if there are differences between people who are committed to just one aspect, a combination of two of the aspects, and all three aspects. A more rigorous analytic method may have provided a way to discover whether commitment predicts health outcomes for some GLBT community members, but not others.

One final limitation is that internet sampling of GLBT individuals has inherent biases. First, selection effects may indicate that most participants are already "out" or are already highly identified with their community. In this sample, 82% of participants either agreed or strongly agreed that they were "out" to most people out their GLBT identity, demonstrating that most participants were very open about their sexual orientation. This implies that our results may not be generalizable to all individuals that identify as GLBT. Additionally, the recruitment of gay men and lesbians was pretty equal, yet there was not a large representation of bisexual or transgender individuals. This meant that differences between these important groups could not be assessed.

Conclusions and Future Research

The present study provides an important contribution to the literature, albeit the null findings. There was conflicting findings in past studies with regard to how involvement, engagement, and commitment are related to GLBT community members' health decisions or

outcomes. Therefore, this study provides inconclusive evidence—commitment to individual community aspects may or may not influence one's health behaviors. Other studies suggest otherwise (e.g., Lehmiller & Konkel, in press), yet the nature of the sample (i.e., selection effects for "out" participants) or the interpretation of the different aspects of the GLBT community may not have allowed for conclusive results. Future research should examine what other variables specific to this community may affect health outcomes, or how community commitment can decrease one's risky health decisions and increase one's positive health decisions.

REFERENCES

Aaron, D., Markovic, N., Danielson, M., Honnold, J., Janosky, J., & Schmidt, N. (2001). Behavioral risk factors for disease and preventive health practices among lesbians. *American Journal of Public Health, 91,* 972-975.

Arriaga, X. B., & Agnew, C. R. (2001). Being committed: Affective, cognitive, and conative components of relationship commitment. *Personality and Social Psychology Bulletin, 27,* 1190-1203.

Baiocco, R., D'Alessio, M., & Laghi, F. (2010). Binge drinking among gay, and lesbian youths: The role of internalized sexual stigma, self-disclosure, and individuals' sense of connectedness to the gay community. *Addictive Behaviors, 35,* 896-899.

Centers for Disease Control (2007). *HIV/AIDS and men who have sex with men (MSM).* Retrieved from http://www.cdc.gov/hiv/topics/msm/index.htm

Choi, K., Han, C., Hudes, E. S., & Kegeles, S. (2002). Unprotected sex and associated risk factors among young Asian and Pacific Islander men who have sex with men. *AIDS Education and Prevention, 14,* 472-481.

D'Augelli, A. R., & Garnets, L. D. (1995). Lesbian, gay, and bisexual communities. In A. R. D'Augelli & C. J. Patterson (Eds.), *Lesbian, gay, and bisexual identities over the lifespan: Psychological perspectives* (pp 293-320). London: Oxford University Press.

D'Augelli, A. R., & Hershberger, S. L. (1993). Lesbian, gay, and bisexual youth in community settings: Personal challenges and mental health problems. *American Journal of Community Psychology, 21,* 421-448.

Fergus, S., Lewis, M. A., Darbes, L. A., & Butterfield, R. A. (2005). HIV risk and protection among gay male couples: The role of gay community integration. *Health Education & Behavior, 32,* 151-171.

Fergus, S., Lewis, M. A., Darbes, L. A., & Kral, A. H. (2009). Social support moderates the relationship between gay community integration and sexual risk behavior among gay male couples. *Health Education & Behavior, 36,* 846-859.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? *American Psychologist, 59,* 93-104.

Hamiltion, C. J., & Mahalik, J. R. (2009). Minority stress, masculinity, and social norms predicting gay men's health risk behaviors. *Journal of Counseling Psychology, 56,* 132-141.

Herek, G. M., & Glunt, E. K. (1995). Identity and community among gay and bisexual men in the AIDS era: Preliminary findings from the Sacramento Men's Health Study. In G. M.

Herek & B. Greene (Eds.), *AIDS, identity, and community: The HIV epidemic and lesbians and gay men* (pp. 55-84). Thousand Oaks, CA: Sage.

Hughes, T. L., & Eliason, M. (2002). Substance use and abuse in lesbian, gay, bisexual, and transgender populations. *The Journal of Primary Prevention, 22,* 263-298.

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127,* 472-503.

LeBeau, R. T., & Jellison, W. A. (2009). Why get involved? Exploring gay and bisexual men's experience of the gay community. *Journal of Homosexuality, 56,* 56-76.

Lehmiller, J. J. (2010). Differences in relationship investments between gay and heterosexual men. *Personal Relationships, 17,* 81-96.

Lehmiller, J. J., & Konkel, K. E. (in press). Commitment to the GLBT community: An investment model analysis of its antecedents and consequences. *Journal of Applied Social Psychology.*

Marshal, M. P., Friedman, M. S., Stall, R., & Thompson, A. L. (2009). Individual trajectories of substance use in lesbian, gay and bisexual youth and heterosexual youth. *Addiction, 104,* 974-981.

O'Donnell, L., Agronick, G., Doval, A. S., Duran, R., Myint-U, A., & Stueve, A. (2002). Ethnic and gay community attachments and sexual risk behaviors among urban Latino young men who have sex with men. *AIDS Education and Prevention, 14,* 457-471.

Ramirez-Valles, J., Fergus, S., Reisen, C. A., Poppen, P. J., & Zea, M. C. (2005). Confronting stigma: Community involvement and psychological well-being among HIV-positive Latino gay men. *Hispanic Journal of Behavioral Sciences, 27,* 101-119.

Ramirez-Valles, J., Kuhns. L. M., Campbell, R. T., & Diaz, R. M. (2010). Social integration and health: Community involvement, stigmatized identities, and sexual risk in Latino sexual minorities. *Journal of Health and Social Behavior, 51,* 30-47.

Ramirez-Valles, J. (2002). The protective effects of community involvement for HIV risk behavior: A conceptual framework. *Health Education Research, 17,* 389-403.

Rosario, M., Schrimshaw, E. W., & Hunter, J. (2004). Predictors of substance use over time among gay, lesbian, and bisexual youths: An examination of three hypotheses. *Addictive Behaviors, 29,* 1623-1631.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16,* 172-186.

Rusbult, C. E., Martz, J. M., & Agnew, C. A. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships, 5,* 357-391.

Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuenta, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons With Harmful Alcohol Consumption-II. *Addiction, 88,* 791-804.

Substance Abuse and Mental Health Services Administration. (2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings* (Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4586Findings). Rockville, MD.

Stall, R., Paul, J. P., Greenwood, G., Pollack, L. M., Bein, E., Crosby, G. M., Mills, T. C., Binson, D., Coates, T. J., & Catania, J. A. (2001). Alcohol use, drug use, and alcohol-related problems among men who have sex with men: the Urban Men's Health Study. *Addiction, 96,* 1589-1601.

Stall, R., & Wiley, J. (1988). A comparison of alcohol and drug use patterns of homosexual and heterosexual men: the San Francisco Men's Health Study. *Drug and Alcohol Dependence, 22,* 63-73.

Warner, R. M. (2012). *Applied Statistics: From Bivariate through Multivariate Techniques. 2nd Edition*. Sage Publications, London, UK.

Wright, E. R., & Perry, B. L. (2006). Sexual identity, social support, and the health of gay, lesbian, and bisexual youth. *Journal of Homosexuality, 51,* 81-110.