ATTRIBUTIONS FOR PERCEIVED DISCRIMINATORY EVENTS AS PREDICTORS OF SOCIAL ANXIETY IN GAY MEN

by

MICHELLE NICOLE BURNS

(Under the Direction of Steven Beach)

ABSTRACT

The purpose of this study was to examine the relationship between gay men's attributions for discriminatory events and their social anxiety symptoms within a minority stress framework. A sample of 309 men identifying as gay or bisexual completed an online survey including measures of social anxiety, perceived frequency of discriminatory events, and attributions for hypothetical discriminatory events. The participants also completed measures of constructs in the minority stress model describing the effect of discrimination on mental health outcomes in gay men (Meyer, 1995; 2003). These measures included internalized homonegativity, gay identity, social support, and outness. Frequency of perceived discrimination was associated with increased social anxiety. Consistent support for the minority stress model was also obtained; internalized homonegativity and less advanced gay identity were predictive of increased social anxiety, while advanced gay identity, social support, and outness were predictive of reduced social anxiety. Further, a composite scale formed by importance, stability, and globality attributions for discriminatory events was predictive of increased social anxiety, as was a composite scale comprised of internal and self-blaming attributions for discrimination. These attribution scales were also predictive of internalized homonegativity and advanced gay identity. External, other-

blaming attributions for discrimination moderated both the effect of perceived frequency of discrimination on social anxiety and the effect of such discrimination on satisfaction with social support. Satisfaction with social support also emerged as a partial mediator of the relationship between frequency of perceived discrimination and social anxiety, while advanced gay identity moderated the effect of such discrimination on social anxiety. Results indicate that attributions can not only add to the explanatory power of the minority stress model, but also help to understand the variables within this model. It is also concluded that the effects of discrimination on gay men cannot be adequately understood in isolation, as some gay men are at increased risk for adverse effects of discrimination. Future studies should provide clarification of temporal order and generalization of these results to the general gay male population, as well as translation of the model to other minority populations and the general population of socially anxious individuals.

INDEX WORDS: social anxiety, social phobia, attributions, attribution bias, discrimination, gay, sexual minorities, minority stress

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DEDICATION

This dissertation is dedicated to all the participants who so graciously volunteered their time to advance our understanding of the experiences of gay men.

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CHAPTER 1

INTRODUCTION

Social Phobia is a fear of unfamiliar individuals or scrutiny in at least one social or performance situation. If most social situations are feared, the Generalized specifier also applies. By definition, Social Phobia causes impairment and/or distress (DSM-IV-TR APA, 1994, p. 456). Although the deleterious effects of Social Phobia have at times been underestimated by clinicians (e.g., Judd, 1994), evidence demonstrates that Social Phobia is associated with suicide attempts (Katzelnick et al., 2001), decreased probability of marrying (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), risk for later development of major depression and substance use disorders (see Kessler, 2003, for a review), lower household income (Patel, Knapp, Henderson, & Baldwin, 2002), decreased likelihood of full-time employment (Patel et al., 2002), underemployment (Bruch, Fallon, & Heimberg, 2003), and decreased likelihood of transitioning from high school to college (Kessler, 2003). Unfortunately, Social Phobia is also one of the most common psychiatric disorders, occurring at a lifetime prevalence rate of 12.1% (Kessler et al., 2005). The median age of onset for Social Phobia is 13 years (Kessler et al., 2005), and Social Phobia runs a more persistent course than the other anxiety disorders (Wittchen & Fehm, 2003).

Although Cognitive Behavioral Therapy (CBT) and psychopharmacological interventions have proved effective in treating Social Phobia, more effective treatments are still required. Out of treatment-seeking samples with Social Phobia, approximately 40% do not respond (39% Heimberg, et al., 1998; 42%, Liebowitz, Gelenberg, & Munjack, 2005). Also, minority groups are

understudied in Social Phobia treatment trials, and thus the efficacy of current treatments in many populations is unknown (Lam & Sue, 2001).

Area for Improvement: Cognitive Techniques

One area for possible improvement in CBT for Social Phobia is the use of cognitive restructuring methods. One adjunct to current cognitive restructuring methods could be utilization of the information processing approach. The information processing approach focuses on memory, attention, and interpretation biases involved in psychopathology (Clark & McManus, 2002).

Interpretation Bias in Social Anxiety

Interpretation bias is associated with social anxiety (e.g., Stopa & Clark, 2000; Amir, Beard, & Bower, 2005). For example, Stopa & Clark (2000) found that when given ambiguous social scenarios (e.g., "You see a group of friends having lunch, they stop talking when you approach") and differing interpretations of the scenario (e.g., "They are about to ask you to join" versus "They were saying negative things about you" versus "They just ended their conversation"), individuals with social anxiety were more likely to endorse negative interpretations. These negative interpretations may increase socially anxious individuals' symptoms, as induced negative interpretation bias has been shown to lead to increased state anxiety (Mathews & Mackintosh, 2000). These authors provided their participants with ambiguous social scenarios ending with a word that disambiguated the situation in either a positive or negative way (e.g., "Your partner asks you to go to an anniversary dinner that their company is holding. You have not met any of their work colleagues before. Getting ready to go, you think that the new people you will meet will find you boring/friendly"). When participants had to generate this interpretation themselves (e.g., infer that bo___g meant 'boring'), and the

majority of the disambiguating words were negative, their interpretations became more negative in a subsequent task and their state anxiety increased relative to baseline. Due to its malleability and effect on anxiety, interpretation seems to be a candidate mechanism to target in treatment of social anxiety.

These interpretation studies have focused on probability estimations; they measure interpretations of ambiguous social information as predictive or indicative of a benign or threatening social event. Although results have been promising, another major issue for individuals with Social Phobia may be their cost estimates for actual negative social events. Foa, Franklin, Perry, and Herbert (1996) examined the role of both probability and cost estimates in social phobia treatment outcome. At pre-treatment, patients with Generalized Social Phobia (GSP) rated ambiguous social situations as both more probable and more "bad" (i.e., costly) than non-anxious controls. However, social anxiety symptom change after CBT was mediated by change in cost estimates rather than change in probability estimates. This suggests that clients who continue to fear an event, even of recognized improbability, may experience residual symptoms. In another study examining individuals' responses to hypothetical, mildly negative social situations, individuals with higher levels of social anxiety were more likely to foresee catastrophic emotional and external outcomes (e.g., "I will lose my friends, I will lose my job"); however, in this study higher levels of social anxiety were unrelated to probability estimates for these situations (Vassilopoulos, 2006).

A new measure of cost interpretation of negative social situations, the Consequences of Negative Social Events Questionnaire (CONSE-Q; Wilson & Rapee, 2005a), more specifically examined the type of cost most important in social anxiety. Notably, one of the scales on this measure was associated with symptom reduction at 3-month follow-up (Wilson & Rapee,

2005b). This scale measured the degree to which participants interpreted negative social events as meaning something negative about themselves (i.e., "I am a foolish person"). Further, in open-ended responses to hypothetical negative social situations, individuals high in social anxiety were more likely to interpret the events as implying negative personal traits (e.g., "I am a failure"; Vassilopoulos, 2006). As I will discuss, this type of interpretation may be more specifically categorized as an internal, stable, uncontrollable attribution.

In certain circumstances, however, probability estimates may be as important or more important than cost estimates. When probability and cost estimates for unambiguously negative social events were assessed along with more ambiguous social events, probability estimates were more related to clinical improvement in social phobia on two out of three outcome measures (McManus, Clark, & Hackmann, 2000). Thus, measures of interpretation of social events in social phobia may be most informative when they include both probability and cost estimates for events of varying levels of negativity. As I will next discuss, various attribution dimensions can perform this role.

What are Attributions?

Attributional style is a form of interpretation. Attributions are explanations for events. Weiner (1986) describes attributions along three dimensions. These include whether the locus of causality is due to the self (internal versus external), whether the cause is likely to remain the same in the future (stable versus unstable), and whether the cause is controlled by the self (controllable versus uncontrollable). For example, if an individual throws a party and the guests leave earlier than expected, some of the possible attributions are internal-stable-uncontrollable (e.g., "I am boring"), internal-unstable-controllable (e.g., "I didn't make enough of an effort to

introduce everyone"), external-stable-uncontrollable (e.g., "The guests have families and cannot stay out late"), or external-unstable-uncontrollable (e.g., "The guests were tired tonight").

These attribution dimensions are important in understanding emotional responses. Different dimensional configurations are associated with different emotions (e.g., Siemer, Mauss, & Gross, 2007). In a study of police officers in Singapore, officers' emotion and attribution appraisals were gathered "on-line" during the course of their workdays, so as to provide stronger evidence of concurrent experience of emotions and attributions. Another strength of this study was its ability to demonstrate the generalizability of attribution theory to a non-Western sample. This study showed, for example, that fear is associated with uncontrollable attributions in which effort is deemed necessary, and anger is associated with moral outrage, uncontrollable, and external attributions. Also, happiness is associated with controllable, internal attributions (Tong et al., 2007).

Attributional Biases in Normal Populations

Self-serving bias (SSB) is defined by Campbell and Sedikides (1999, p. 23) as "the explanatory pattern that involves external attributions (e.g. task difficulty, luck, or uncooperative others) for outcomes that disfavor the self but internal attributions (e.g. one's own ability, effort, or determination) for outcomes that favor the self." However, some cultural groups do not exhibit SSB (e.g., Moghaddam, Taylor, Lambert, & Schmidt, 1995); thus, note that the following discussion cannot be applied universally.

Theorists have posited that SSB is related to the information brought to bear on the problem rather than ego-protection in and of itself. Anderson's (1991) two-stage model of attribution indicates that during the first "problem formulation" stage, possible attributions for the situations are produced and "knowledge structures" pertaining to these attributions are used

to evaluate them. Anderson proposed differential activation of these knowledge structures depending on priming and instruction; individuals have "given" SSB to another individual under experimental manipulations of this nature.

SSB is exaggerated in aggressive children (see William, 1997 for a review). Exaggerated SSB is also found in undergraduates with elevated narcissistic, histrionic, and obsessive-compulsive personality characteristics via increased external attributions for failure. SSB was attenuated in undergraduates reporting avoidant and dependent symptoms via more internal attributions for failure. These findings suggest an optimal range for SSB (McAllister, Baker, & Mannes, 2002).

Attributional Biases in Social Phobia

Studies have shown that socially anxious individuals demonstrate a reversal of the SSB common in non-anxious controls (Hope, Gansler, & Heimberg, 1989). In other words, socially anxious people are more likely to attribute social failures to internal causes such as poor ability. They are also more likely to attribute social successes to external factors rather than their own social ability. Thus, socially anxious individuals avoid taking credit for social successes while at the same time assuming personal responsibility for social failures. Taylor and Wald (2003) found that compared to individuals with panic disorder with agoraphobia or posttraumatic stress disorder, individuals with social anxiety disorder made less internal attributions for positive social events, and more stable attributions for negative social situations; there was also a trend for the socially anxious group to make more internal attributions for negative social situations. Thus, the relationship between social anxiety and attributions is specific to the clinical group of socially anxious individuals.

In this study, however, some of the participants with panic disorder and posttraumatic stress disorder also had secondary diagnoses of social anxiety disorder and perhaps this weakened between-group differences. Correlations between a measure of social anxiety symptoms (i.e., the Social Phobia and Anxiety Inventory (SPAI): Turner, Beidel, Dancu, & Stanley, 1989) and an attribution style questionnaire revealed that social anxiety correlated with external attributions for positive social events and internal, stable attributions for negative social events. These correlations held even when controlling for levels of general anxiety and depression. These results provide strong support for a self-deprecating attributional bias (SDB) specific to clinical levels of social anxiety. These authors utilized the Attributional Style Questionnaire for Social Events (Taylor et al., 1997; Peterson et al., 1982) to measure participants' attributional styles. This measure lists three negative and three positive social situations. For each situation, the participant must describe one of the main causes they perceive and then rate that cause on scales of internality and stability.

Other studies have found an association between SDB and sub-clinical social anxiety or shyness (Johnson, Petzel, & Johnson, 1991; Johnson, Aikman, Danner, & Elling, 1995; Anderson & Arnoult, 1985; Teglasi & Hoffman, 1982) and low social self-esteem (Girodo, Dotzenroth, & Stein, 1981; Alden, 1986). Stability has also arisen as a factor involved in the attributional style of socially anxious individuals (Anderson & Arnoult, 1985; Teglasi & Hoffman, 1982). Additionally, studies have supported an association between social anxiety or shyness and decreased controllable attributions for both negative (Bruch & Belkin, 2001) and positive social events (Bruch & Pearl, 1995; Anderson & Arnoult, 1985). Thus, perceived internality, stability, and controllability of social failures have all been correlated with social anxiety. Notably, socially anxious individuals do not demonstrate this bias toward achievement

events (Anderson & Arnoult, 1985; Bruch & Belkin, 2001). Thus, SDB in social anxiety appears to be a different attribution bias than that found in depression, wherein noninterpersonal events are also implicated (Anderson & Arnoult, 1985). Shy persons do not seem to make different attributions for close relationship situations, again demonstrating the specificity of this bias to the kinds of situations distressing to shy individuals (Teglasi & Hoffman, 1982).

Most of the studies reviewed required participants to generate attributions for given hypothetical social scenarios. However, Alden (1986) asked participants to make attributions for bogus feedback from a social interaction and also found evidence of SDB. Also, Lake & Arkin (1985) demonstrated SDB in attributions for bogus feedback on a test purportedly measuring social insight. Thus, it seems that SDB is found not only for researcher-generated social scenarios, but also for attributions concerning actual behavioral performance.

SDB has also been associated with social anxiety symptoms during behavioral performance. Bruch and Pearl (1995) correlated attributional style for heterosocial conversation initiation with actual behavioral observations during the same type of heterosocial interaction. Participants endorsing more internal attributions for failed interactions reported greater anxiety during the interactions. Internal attributions for success interactions, however, were associated with less anxiety during the interaction. Also, attributing both failed and successful social encounters to controllable causes was associated with less subjective anxiety. Controllable attributions for failed situations were associated with an adaptive thought pattern during the interaction. Thus, internality and control seemed particularly important to various symptoms reported during social interactions.

Anderson and Arnoult (1985) concluded that controllability and internality were the most important attribution dimensions involved in shyness, loneliness, and depression, and that

stability correlations with these "problems in living" were simply a result of this dimension intercorrelating with controllability and internality. These findings as well as those of Bruch and Pearl (1995) support the hypothesis that internality and controllability are the most important attributional dimensions in shyness. Furthermore, lack of controllability (i.e., choosing ability or trait explanations versus strategy or effort explanations) on failure situations also predicted loneliness (see Anderson, Jennings, & Arnoult, 1988 for a review).

Attribution bias operates at critical time points. For healthy populations, SSB is strongest in self-threatening contexts and when the task is considered important (Campbell & Sedikides, 1999). However, Coles, Turk, Heimberg, and Fresco (2001) found that when socially anxious patients recalled high and medium anxious social situations, their attributions for their performance became more internal and stable while control participants attributed highly anxious situations less to internal, stable factors. Thus, for their most anxiety-provoking situations, socially anxious individuals are even more likely to exhibit SDB which, presumably, contributes to the maintenance of social anxiety disorder.

Teglasi and Fagin (1984) found that SDB is not present if socially anxious individuals have to choose attributions for situations involving other people, but the bias becomes evident for situations involving the self. However, the socially anxious group rated the negative situations as more likely for both themselves and others than did the non-anxious group. This finding demonstrates a divergence between the concepts of probability and cost, and suggests that cost may be a promising addition to information processing studies of social anxiety.

Mechanisms underlying Attribution Style

Given strong evidence of an attribution bias in individuals with social anxiety across differing methodologies, there is a need to identify the mechanisms responsible for this bias.

Hope, Gansler, & Heimberg (1989) review studies that support a relationship between self-focus and internal attributions; they proposed that the excessive self-focus may promote internal attributions.

SDB in social anxiety may also be due to social self-efficacy (see Alden, 1986, for a review). For example, Alden and Wallace (1995) found that participants with GSP discounted their social ability to the same extent whether their interaction partner behaved in positive or negative ways. Since the GSPs' observed behavior was more skilled in the positive interactions, this indicates that neither partner behavior nor their own behavioral improvements ameliorate their tendency to underestimate their social abilities. Conversely, they displayed a positive bias in assessing their interaction partner's warmth, friendliness, talkativeness, and self-disclosure. Thus, socially anxious individuals perceive positive responses in others to their own behavior, which they view as incompetent. These perceptions seem likely to lead to external attributions for social success.

Attribution Malleability

Attributions are malleable via therapy; Taylor et al. (1997) found that cognitive restructuring for GSP was associated with a .92 effect size in decreasing internal attributions for negative social events. Attributions are also malleable with social skills training, group exposure, and individual exposure treatments (Wlazlo, Schroeder-Hartwig, Hand, Kaiser, & Münchau, 1990). This adds feasibility to the future possibility of targeting attributions in CBT for social anxiety. However, studies that have examined the effect of attribution retraining in social anxiety have suffered from confounds or other methodological problems (e.g., Forsyth and Forsyth, 1982; Ladd, 1981). Thus, although CBT for social anxiety can change attributions, it is

as yet unknown whether attribution retraining would be a helpful adjunct to CBT for social anxiety.

Attributions are Causally Linked to Behavior, Expectancies, and Affect

Furthermore, attributional styles are responsive to experimental manipulation, wherein participants are told that either abilities or strategies determine success in the task at hand. For example, Jennings (1980) asked participants to create radio broadcasts persuading people to donate blood to the Red Cross. In the internal, uncontrollable condition, the experimenter stated, "persuading people…is a task in which abilities determine a volunteer's success or failure." In the internal, controllable condition, the experimenter stated that strategies determine success or failure. In the control condition, the experimenter stated, "no one in the Red Cross really knows why some volunteers are more successful than others." In the control condition, participants' existing attributional style was measured. Participants who were encouraged to use controllable attributions, along with those in the control condition who naturally had a controllable attribution style, demonstrated improved success expectancies, variation of strategies employed, and performance effectiveness. Anderson (1983) utilized the same dependent variables and found that attribution manipulations completely override participants' pre-existing attributional style while performing phone solicitations. The effect of attribution manipulation was comparable to the effect of participants' original attributional style if left unaltered (for a review and pooled analysis of these studies, see Anderson, Jennings, & Arnoult, 1988).

The bulk of attribution retraining studies focus on academic achievement and social skills in children. Academically low-achieving students demonstrate SDB in which academic failure is attributed to poor skills and academic success is attributed to luck or the easiness of the task. Attribution retraining studies encourage students to attribute academic success to effort and

academic failure to poor effort or strategy. The majority of these studies have been successful in increasing students' persistence, positive expectations, and academic achievement (for a review, see William, 1997).

There are also a number of misattribution studies (for a review see Hope et al., 1989) where participants are led to attribute anxiety during a social performance to a noise or other external variable. These studies were generally effective, and misattributions were associated with reduced arousal and better performance. Furthermore, attributions are causally related to both reported emotional experience and behavioral indicators of more general emotional experience (e.g., Neumann, 2000).

In summary, numerous studies demonstrate an attribution bias in social anxiety, and there is evidence that this bias is malleable. There is also evidence that modifying attributions can have a causal influence of emotions, thoughts, and behaviors. Thus, attribution retraining may be a helpful future adjunct to social anxiety treatment. However, as I will discuss, the relationship between social anxiety and attributions for social threat in the form of discrimination is understudied.

Areas for Improvement: Addressing Minority Stress

As indicated previously, treatment efficacy in minority populations is understudied (Lam & Sue, 2001), and one way of increasing the efficacy of CBT for social anxiety would be to tailor treatment to the needs of these populations. Social anxiety has deleterious effects unique to particular populations. For example, Hart and Heimberg (2005) found that unprotected insertive anal sex is more common among socially anxious gay and bisexual youth. Cognitive restructuring techniques may also need to be adapted. Processing discrimination is a major area

of concern in psychological treatments for minority populations, as I will demonstrate that discrimination leads to increased levels of emotional distress.

The Minority Stress Model

The Minority Stress Model posits that being a member of a stigmatized group subjects individuals to chronic stressors (Brooks, 1981). Three minority stress processes proposed by Meyer (1995) are internalized negative attitudes regarding one's minority status (e.g., internalized homophobia[1] in gay men), expectations of stigma from the environment, and actual prejudicial events. These processes are posited to have deleterious mental health outcomes. In a reformulation of the Minority Stress Model as applied to lesbian, gay, and bisexual individuals, Meyer (2003) describes prejudicial events as distal minority stressors, which are then moderated by proximal factors such as expectations of rejection and internalized homophobia. Concealment of sexual orientation is introduced as another relevant proximal factor, while social support and identification with one's minority status were introduced as possible ameliorative factors.

Empirically, the proposition that discriminatory events have negative impacts on mental health has support. In a population-based sample, perceived day-to-day (e.g., being called names or insulted) discrimination (in regards to race/ethnicity, gender, physical appearance, sexual orientation, etc.) was linked to Major Depression (MD), Generalized Anxiety Disorder (GAD), and general psychological distress. Major lifetime discriminatory events (e.g., not being hired for a job) were associated with a increased risk of MD and GAD, and the magnitude of this increased risk was comparable to the increased risk that traumatic life events incur for these

[1] Terminology note: the phrase "internalized homophobia" has been criticized due to its assumption that negative attitudes towards one's own sexual orientation are indicative of fear. "Internalized homonegativity" is a more contemporary term that removes this assumption (Herek, 2004). In this paper, I use these terms interchangeably, as my references have used both of these terms.

same diagnoses in other studies (Kessler, Mickelson, & Williams, 1999). Unfortunately, this study did not examine risk for other psychological disorders. Mays and Cochran (2001) administered diagnostic interviews to a population-based sample for one-year prevalences of MD, GAD, panic disorder, and alcohol and drug dependence. Respondents who identified as homosexual and bisexual were more likely to have at least one of these disorders than exclusively heterosexual respondents. However, discrimination appeared partially responsible for this association, as this difference was reduced when perceived lifetime and day-to-day discrimination were controlled.

Assessment of whether and how discrimination plays a role in presenting problems (e.g., its role in the client's cognitions) is widely recognized as important in treatment of minorities; for example, the APA has called for consideration of the impact of anti-gay prejudice in psychotherapy (Division 44/Committee on Lesbian, Gay, and Bisexual Concerns Joint Task Force, 2000). Targeting internalized homophobia in LGBT clients appears to make clinical sense across a variety of theoretical orientations and case studies (e.g., Kaysen, Lostutter, & Goines, 2005; Safren & Rogers, 2001; Garnets, Hancock, Cochran, Goodchilds, & Peplau, 1991; Eckleberry-Hunt & Dohrenwend, 2005). Affirmative therapies incorporate reduction of internalized homophobia into their treatments for LGBT individuals, but there is little empirical work to demonstrate their efficacy (Cochran, 2001; Bieschke et al., 2000; Lam & Sue, 2001). Thus, less is known about which particular cognitions are most adaptive when individuals process discriminatory events.

Attributions for Discrimination

In particular, little is known about which attributions for discrimination may be most protective in terms of reducing anxiety. There is a call for studies of specific attribution

dimensions for discrimination that would be more beneficial than others (Kessler, Mickelson, & Williams, 1999). In what the authors believed was the first study on attribution dimension ratings for discriminatory events, a sample of Latino-American undergraduates rated the cause (i.e., discrimination) of five hypothetical discriminatory events along controllability, stability, globality, and severity of impact dimensions. Globality and severity ratings were strongly correlated, and thus a composite globality/severity scale was created. Globality/severity ratings of discrimination, rather than stability or controllability ratings, were associated with reduced self-esteem in this sample (Eccleston & Major, 2006). Thus, there may be reason to believe that certain attribution dimensions for discriminatory events may impact other mental health outcomes, such as social anxiety.

Endorsement of controllability when Black youth are faced with discriminatory events is associated with increased problem-solving and support-seeking behaviors; however, the authors did not assess general mental health correlates of increased controllability. They did, however, measure internalizing (e.g., worrying) and externalizing (e.g., yelling) responses to discrimination, and they found both these response styles to be unrelated to endorsements of controllability (Scott & House, 2005). Thus, although controllability is related to certain coping strategies for discrimination, it is unclear whether this coping style for discrimination is generally the most adaptive in terms of mental health.

In an experiment where college women completed a test they were told was sex discriminatory, women encouraged to attribute poor performance on the test to societal discrimination endorsed more intent to confront the discrimination than participants encouraged to make attributions to their own performance. Women encouraged to make internal attributions were more likely to accept the situation than woman who were encouraged to make attributions

to society (Foster, Matheson, & Poole, 1994). However, this study also does not address the mental health outcomes of internal versus external attributions for discrimination.

Attributions may be particularly important when individuals are faced with discriminatory events, as social threat is a situation in which attributions become more salient. Failure and unexpected events cause people to generate attributions automatically, and the dimensions they focus on are locus and controllability (Wong & Weiner, 1981). Additionally, attributions are more often made for social rejection than acceptance (Folkes, 1982). Thus, in rejecting situations, individuals are more likely to generate attributions, affording attributions greater potential to influence their emotional reactions for better or worse. For example, as previously discussed both socially anxious and non-socially anxious individuals are more likely to demonstrate their respective attribution biases for anxiety-provoking situations (Coles et al., 2001).

There is general consensus that external, unstable attributions for discrimination should be adaptive (Foster, 2001, p. 243). However, other aspects of models of maladaptive attribution biases in psychopathology may not be accurate for minorities making attributions for discrimination. Researchers have proposed globality (whether the cause of an event will affect multiple areas of life versus whether the cause is specific to the particular situation) as an important attribution dimension. Global attributions for negative events are thought to be predictive of depression (Abramson, Seligman, & Teasdale, 1978). However, global attributions for sex discrimination in college women were found to be associated with greater amount of action taken against discrimination (Foster, 2001). Thus, global attributions for discrimination may be beneficial to individuals by increasing a sense of control and perhaps collaboration with

and social support from one's in-group. These attributions may also benefit society by contributing to the progress of social justice.

Additionally, controllable attributions in certain contexts can be harmful. For example, an experimental study that manipulated the controllability of the cause of hypothetical diseases showed that individuals anticipated more negative emotions and less disclosure of the disease to particular others when the cause of the disease was presented as more controllable (Senior, Weinman, & Marteau, 2002). Also, making controllable attributions regarding an unobtainable goal may lead to continued pursuit of that goal and subsequent distress (see Brandtstädter & Renner, 1990 for a review and theoretical outline). In facing a goal, individuals may engage in assimilative processes in which they attempt to adjust their environment to their preferences. Individuals may also engage in accommodative strategies to make the negative current state more palatable (Brandtstädter, 1989), such as searching for positives regarding their state, finding meaning via cognitive reappraisals, etc. (see Brandtstädter et al., 1990, for a discussion). When facing an uncontrollable issue, accommodative processes may be most appropriate, but in order to engage those processes an uncontrollable attribution must be made (Brandtstädter et al., 1990). In fact, individuals who are inflexibly unable to disengage from unattainable goals report poorer physical health (Wrosch, Miller, Scheier, & Brun de Pontet, 2007). Thus, it is premature to assume that controllable attributions would be beneficial for discriminatory experiences simply because they appear to be helpful in individuals facing other types of social threat.

Blameworthiness is another attribution dimension that may be important in processing discriminatory events, as it has been demonstrated to be relevant in other clinical areas. For example, marital dissatisfaction is related to spouse-blaming attributions (see Bradbury & Fincham, 1990 for a review) and psychological well being following sexual assault is inversely

related to self-blaming attributions and society-blaming attributions (e.g., Branscombe, Wohl, Owen, Allison, & N'gbala, 2003). Attributions of blame must be examined separately from locus of control; although locus of control is related to self or other blame (e.g., Lussier, Sabourin, & Wright, 1993), blame also entails judgments that an act was intentional, inexcusable and morally wrong (Shaver & Drown, 1986; however, see McGraw, 1987 for a study in which participants blame self and others for accidents). For example, a person who faces discrimination regarding their sexual orientation may make a somewhat internal attribution for a discriminatory event ("I disclosed my sexual orientation to someone I did not know well enough to trust"); however, they may not find this behavior blameworthy.

Often studies have discussed blame and locus of control interchangeably (Hall, French, & Marteau, 2003; Shaver & Drown, 1986), though blame may have more direct association with affect than locus of control (Mantler, Schellenberg, & Page, 2003; Lussier et al., 1993; McGraw, 1987; Shaver & Drown, 1986). In fact, it has been argued that "behavioral" internal attributions for negative events may be helpful in the sense that they allow the individual a sense of control in preventing future negative occurrences (e.g., Janoff-Bulman, 1985; but see Tennen & Affleck, 1990 and Hall et al., 2003), contrary to predictions that internal attributions for negative events are harmful in the learned helplessness theory of depression (Abramson et al., 1978) and as previously discussed in the self-deprecating bias literature in social anxiety. Thus, separation of assessment of locus of control, self blame, and other blame may explain many inconsistencies in the attribution literature (Hall et al., 2003). Studies of attributions in discriminatory events should include each of these concepts, especially since discriminatory encounters involve another person, thereby increasing an individual's likelihood to blame others (Tennen & Affleck, 1990).

In summary, there is a need to better understand attribution dimensions that are most adaptive for individuals facing discrimination in terms of social anxiety outcomes. There is reason to believe that the most adaptive causal attributions for discrimination may differ from those most adaptive for other kinds of negative situations. Also, blame is an attribution dimension relevant to varying clinical areas; however, I know of no studies of blame attributions in either social anxiety or discrimination literatures (there are studies that ostensibly examine blame, but are actually referring to locus of control). Although there is a need to study the aforementioned attributional processes for discrimination in multiple populations, I believe that studying these processes in gay men may be particularly fruitful.

Discrimination Toward Gay Men

Gay men face a particularly high level of social threat. Both men and women identifying as bisexual or homosexual reported more major lifetime and day-to-day discriminatory events than exclusively heterosexual respondents in a population-based sample (Mays & Cochran, 2001). These differences remained even when only non-Hispanic White respondents were included in analysis. Thus, the increased discrimination was not specific to multiple minority status. Gay men also experience social threat due to their sexual orientation and increased anxiety even in situations that heterosexuals would view as non-threatening (e.g., sports conversations; Pachankis & Goldfried, 2006). Finally, heterosexual men have more negative attitudes toward gay men than they do toward lesbian women (Herek, 2000; Herek, 1988).

Psychological Disorders in Gay Men

The research to date examining the prevalence of psychiatric disorders in sexual minorities is fraught with methodological limitations (Cochran & Mays, 2006; Meyer, 2003), and few studies have specifically examined the prevalence of Social Phobia in gay men. Gay

men have a higher prevalence of certain mental health disorders, especially MD, and they are more likely to suffer from comorbid psychiatric disorders (see Cochran, 2001, and Meyer, 2003 for reviews). In a recent study using a nationally representative survey of U.S. adults between 25 and 74 years of age, gay and bisexual men were found to be at increased risk for depression and panic attacks when compared to heterosexual men (Cochran, Sullivan, & Mays, 2003). Unfortunately, Social Phobia was not assessed in this study.

In a nationally representative sample from the United States, men who reported any same-sex partners within the past 5 years were more likely than men reporting only opposite-sex partners to have at least one anxiety, mood, or substance-related disorder. Although they were more likely to have a 12-month (8.8% versus 6.3%) or lifetime (odds ratio of 1.6) diagnosis of Social Phobia, the difference was non-significant; this was perhaps due to low power, as no individual 12-month disorder prevalence differed between these groups (Gilman et al., 2001). In a nationally representative Dutch sample of individuals aged 18 to 64 years, Social Phobia was also included in the diagnostic interview; men reporting one or more male sexual partners in the past year were significantly more likely to have had Social Phobia in their lifetimes than men reporting exclusively opposite-sex partners (14.6% versus 5.5%; Sandfort, de Graaf, Bijl, & Schnabel, 2001).

In the previous studies, same sex behavior served as a dubious proxy variable for sexual orientation. However, a similar pattern of results emerges when researchers directly assess sexual orientation. For example, in a sample of undergraduate men, those identifying as gay reported more social interaction anxiety and fear of negative evaluation than men identifying as heterosexual. However, groups did not differ in "circumscribed" social anxiety occurring in situations where they would be observed (e.g., public speaking). This may indicate that gay men

have increased anxiety in situations in which sexual orientation could be become salient (Pachankis & Goldfried, 2006).

Similar results were obtained in a sample of 16-21 year-olds in supportive community programs targeting either sexual minority youth or youth at economic or other risk. Youth identifying as bisexual, gay, or lesbian reported more anxiety in social interactions than youth identifying as predominantly heterosexual (Safren & Pantalone, 2006). As these authors noted, social interaction anxiety was associated with decreased satisfaction with social support and decreased experience of positive events. The authors were particularly concerned about this finding since these same two factors were found to protect sexual minority youth from hopelessness, suicidality, and depression in the same sample (Safren & Heimberg, 1999). Thus, not only does social anxiety appear to be more prevalent in sexual minority youth, but it also may obstruct these youth from obtaining resources critical for maintaining mental health in the face of minority stress (Safren & Pantalone, 2006).

Gay men also consume mental health resources more often than heterosexual individuals (see Bieschke et al., 2000, for a review), so there is a need for clinicians to be able to effectively serve them. Because gay men face high levels of social threat and are more prone to psychiatric disorders and mental health resource consumption, gay men with low levels of social anxiety are likely to be quite resilient. Cochran and Mays (2006) called for research on adaptive coping in sexual minorities, given that between half and three quarters of sexual minorities do not have any psychiatric disorders even though they face tremendous prejudice in their environment. These authors point out the value in this knowledge for sexual minority populations, but also for general populations facing social threat.

Further, the experience of gay men may be particularly informative in terms of attributional processes. The cost of the social threat that gay men face is objectively high (e.g., hate crimes; Herek, Gillis, & Cogan, 1999). The frequency of the discrimination gay men experience and have faced in their youth is also high (see Meyer, 2003 p.680 for a review). Thus, if a subset of gay men has low levels of social anxiety, this may be due to lowered subjective cost estimates. Attributions may be a way to decrease cost estimates in these difficult conditions. In fact, Meyer (1995) found that internalized homophobia moderated the relationship between anti-gay violence and discriminatory events and subsequent mental health problems. Gay men with higher levels of internalized homophobia experienced more demoralization and guilt after prejudicial events than their non-homophobic gay counterparts. Meyer conceptualizes internalized homophobia as leading to self-blame attributions for the event. He refers to this condition as "agree[ing] with the homophobic attitudes conveyed by the victimization event" (p. 50).

As Cochran and Mays (2006) suggest, research findings on adaptive attributions for gay men facing discrimination could be translated back to general populations with social anxiety. Although not all individuals with social anxiety face similar levels of objective social threat as gay men, individuals with social anxiety ruminate over subjectively anticipated social threat. For example, during anticipatory anxiety they are more likely than individuals low in social anxiety to visualize negative images of their appearance or others' reactions during feared situations, and they are more likely to construe catastrophic interpretations of the outcome they anticipate (Hinrichsen & Clark, 2003; see Clark & Wells, 1995 for theoretical model). Often in CBT for anxiety disorders, clients acknowledge the most distressing outcome they are anticipating, and learn that the feared outcome would not be as catastrophic as they anticipated (Beck & Emery,

1985). Since gay men with low levels of social anxiety appear to have navigated this process already, examination of their thought processes may be helpful in CBT for social anxiety.

Appropriate measurement of social anxiety in this investigation must include both social interaction and performance anxiety measures, as previous research (Pachankis & Goldfried, 2006) has shown that these types of social anxiety are differentially related to gay sexual orientation. Also, a wide range of social situations must be assessed, as individuals with social anxiety can experience problems in many different social domains (Liebowitz, 2003). Further, fear and avoidance of social situations should be measured on separate scales, as the strong link between social fear and avoidance found in clinical samples may not extend to non-clinical samples (Liebowitz, 2003). For example, Reilly and Rudd (2007) compared gay and heterosexual men on levels of social fears and avoidance in an online study. In their sample of 67 men, social fear was not related to sexual orientation ($p < .497$). However, there was a non-significant trend for social avoidance to be related to sexual orientation ($p = .111$). This demonstrates the importance of separating these two constructs. Results may have been even more descriptive if these authors had separated social interaction versus social performance anxiety instead of combining these situations.

The Current Study

The current study examined cognitions regarding discriminatory events as moderators of the effect of these events on mental health, particularly social anxiety. For various discriminatory events, frequency of perceived occurrence, causal attribution dimensions (locus, stability, globality, controllability), blame attributions, and cost estimates were obtained. The stability attribution dimension may also act as a proxy for probability estimate, as stability has been found to be a function of the similarity between a given event and one's expectations. The

lower the probability estimate for a given event is, the less stable the cause is rated (Valle & Valle, 1977). I also included measures of depressive symptoms and state and trait anxiety. As discussed previously, anxiety and depressive disorders are more prevalent in gay men than in heterosexual men; thus, it is important to include these measures to enable future examination of whether different patterns of results emerge for these symptoms versus social anxiety symptoms.

There is a call for research addressing the impact of rejection due to sexual minority status in terms of social anxiety (Pachankis & Goldfried, 2006, p. 1012), and I do not know of prior examination of the impact of discrimination specifically on social anxiety symptoms. Additionally, there is a call for measures of the impact of broader ranges of discriminatory events on mental health, as previous studies in this area focus on more narrow experiences (e.g., hate crimes, workplace discrimination; Szymanski, 2006). Thus, I assessed experiences with and responses to a wide variety of discriminatory experiences, of varying degrees of severity.

I also improved on many previous studies of attributions by including self and other blame, and importance ratings in my analyses. Importance ratings have often been ignored in attribution studies (Vázquez, Jiménez, Saura, & Avia, 2001). Although importance ratings are associated with stable, global attribution dimensions (Försterling, 1984), they moderated the predictive power of locus, stability, and globality attribution dimensions on depressive symptoms following a naturalistic stressor in a prospective study (Vázquez et al., 2001). Additionally, in emotional response to negative feedback, high importance ratings were predictive of shame and guilt, but not sadness (Siemer et al., 2007). Thus, importance may be an overlapping, but distinct concept that can add to our understanding of the effect of discrimination on mental health.

This study included the variables in Meyer's (2003) reformulation of the minority stress model, so as to increase explanatory power. Thus, I included concealment of sexual orientation

in my model. Concealing a stigmatized identity in a situation where identity-relevant material is discussed is related to more thought suppression, thought intrusion, and cognitive accessibility of some identity-relevant material (Smart & Wegner, 1999). Concealment is linked with higher social interaction anxiety in gay men (Pachankis & Goldfried, 2006), higher levels of social anxiety in LGB individuals (Potoczniak, Aldea, & DeBlaere, 2007), and expectations that others will respond negatively to their sexual orientation in LGB individuals (Franke & Leary, 1991). The direction of this association is unknown (Pachankis & Goldfried, 2006). Concealment also appears to be associated with socially inhibited temperament; however, "outness" may not always be the most adaptive status for socially inhibited individuals (Cole, 2006). Thus, inclusion of this variable in a model of social anxiety in gay men is important, although this variable is not yet well understood. Packankis and Goldfried (2006) also showed that discomfort in being gay is associated with social interaction anxiety, thus further supporting the need to incorporate variables such as internalized homophobia and gay identity from the reformulated minority stress model into the current study.

Social support was also included in this study, as suggested by Meyer's updated Minority Stress model (2003). Discrimination may lead to diminished social support, and thereby indirectly result in diminished mental health (Meyer, 1995). Conversely, social support may also buffer individuals against the negative effects of discrimination (Meyer, 2003). Social support is negatively related to social anxiety in LGB individuals (Potoczniak et al., 2007), lending empirical support to its importance in the current study.

Finally, I also examined the attributions related to internalized homophobia, due to its aforementioned importance in moderating the mental health consequences of discrimination.

Although conceptualized as relating to self-blaming attributions for discrimination (Meyer, 1995), to my knowledge this has not yet been empirically examined.

Hypotheses:

1. Frequency of perceived discrimination will be associated with increased levels of social anxiety. This association will also hold when only non-Hispanic White participants are analyzed; thus, the association will not solely be due to multiple minority statuses that may have additive harmful effects on mental health (Mays & Cochran, 2001). Please refer to Figure 1 for a model including the hypothesized relationships.
2. Internalized homonegativity and concealment will also be positively related to social anxiety.
3. Perceived social support and higher levels of gay identity will be associated with lower levels of social anxiety.
4. The association of perceived discrimination with social anxiety will be moderated by attributions for the discriminatory events (e.g., locus of control, stability, globality, controllability, self-blame, and other-blame) and perceived importance of the discriminatory events. Higher scores on the internal, external-other, stability, globality, self-blame, other-blame, and perceived importance variables were hypothesized to predict a stronger positive relationship between perceived discrimination and social anxiety. Higher scores on external-circumstance and controllability dimensions are hypothesized to attenuate the relationship between perceived discrimination and social anxiety.

5. The association of perceived discrimination with social anxiety will be moderated by perceived social support. Increased social support is expected to attenuate the relationship between perceived discrimination and social anxiety.
6. Internalized homonegativity will be associated with less external-circumstance attributions and more internal, stable, and self-blaming attributions for discrimination.

CHAPTER 2

METHOD

Participants

Participants were male individuals at least 18 years of age and identifying as bisexual or exclusively or predominantly gay. Participants were recruited by emailing announcements to listservs dedicated to the lesbian, gay, bisexual, and transgender (LGBT) community. Announcements were sent to LGBT community groups along with college and university student and faculty groups in various areas around the U.S. These announcements also requested that information about the study be forwarded to other listservs.

Procedure

The aforementioned announcements sent to LGBT listservs included the following information:

> We are recruiting men who are attracted to men and are at least 18 years of age to participate in an online study of social beliefs and behaviors among gay men. Your honest responses to these questions will help us to understand the relationship between social events (including experiences of discrimination), social beliefs, and adjustment for men who are attracted to men. This research project has been approved by the Institutional Review Board of the University of Georgia. We would like to assure you that this information is collected anonymously, and that we have no way to identify you. IP addresses will be neither solicited nor identifiable. Any identifying information will be provided at your discretion, separately from the body of the survey, and will be

removed prior to data analysis. There is absolutely no risk to you in completing these questionnaires. By clicking on the link below, you signify that you voluntarily consent to completing these questionnaires, are over 18 years old, and are doing so anonymously. You will be asked to submit a password on the initial screen before viewing the survey; this password is provided below.

The announcements also requested that if participants had a committed romantic relationship partner, that only one of the individuals in this relationship should complete the survey. This was to limit dependency effects in the data. This announcement was at times shortened or altered to facilitate posting in various online venues, including online chat rooms serving gay men, but similar basic information was conveyed.

A link to the web questionnaire was provided, along with a password to enter the website. Surveymonkey, a service that uses Secure Socket Layers (SSL) encryption to protect the security of participant responses, hosted the questionnaires. When participants clicked the link to the web questionnaire, they were directed to a consent form outlining the benefits of participation and potential risks, such as discomfort in answering personal questions. If participants agreed to participate in the study, they completed the self-report measures listed below, along with relationship questionnaires that were utilized for another study.

Upon completion of the self-report instruments, participants were asked if they would like to also complete a form in which they entered their email address to be used in the lottery drawing. Participants were informed that participation in the lottery is voluntary, and the email addresses were entered in a separate form that was not linked to their responses on the surveys. Ten of these email addresses will be selected to win a $20 check. Winners will be contacted via

the email addresses they provide, and asked for the information necessary for reimbursement from the University of Georgia.

Measures

1.) Demographics. It is important to assess income, age, education, and relationship status, as these variables may impact mental health outcomes (e.g., Kessler et al., 1999). This measure also assessed gender identity and sexual orientation; only individuals with male gender identity and bisexual, or predominantly or exclusively gay, sexual orientation were able to continue to the other measures. Those who failed to meet these inclusion criteria were brought directly to the debriefing form after completing the demographics measure. Finally, this measure also assessed ethnic background.

Outcome Measures

2.) Liebowitz Social Anxiety Scale Self-Report (LSAS-SR; adapted from the interview version by Liebowitz, 1987). The LSAS-SR has demonstrated strong internal consistency and convergent and discriminant validity; it performs very similarly to the LSAS interview version (Fresco et al., 2001), which is the most commonly used clinician-administered measure of social anxiety (Liebowitz, 2003). The LSAS-SR also demonstrates test-retest reliability and is responsive to treatment change (Baker, Heinrichs, Kim, & Hofmann, 2002). It consists of 24 social situations to which participants rate how fearful they are in the situation as well as how likely they are to avoid the situation. The LSAS includes situations related to social interaction (e.g., meeting strangers) and performance (e.g., acting, performing, or giving a talk in front of an audience), and these can be scored on separate scales. Thus, the LSAS-SR yields a total score, along with four possible sub-scores: fear of social interaction, avoidance of social interaction, fear of performance, and avoidance of performance. The fear and avoidance of social interaction

subscales are more strongly correlated with another self-report measure of social interaction anxiety than with another self-report measure of performance anxiety; the opposite can be said for the fear and avoidance of performance subscales (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Heimberg et al., 1999). The LSAS-SR has been used in a previous internet study involving a male sample, more than half of which identified as gay (Reilly & Rudd, 2007).

3.) State-Trait Anxiety Inventory (STAI; Spielberger, 1983). The STAI consists of two forms, one measuring state anxiety and the other measuring trait anxiety. These two forms have demonstrated adequate psychometric characteristics (Spielberger, 1983).

4.) Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 is a self-report measure assessing the nine DSM-IV diagnostic criteria for a Major Depressive episode. Participants will indicate how frequently they experience each of these nine symptoms. The PHQ-9 has demonstrated excellent internal and test-retest reliability, and it has demonstrated construct and criterion validity against other measures of depression and a phone interview with either a Ph.D. level clinical psychologist or senior psychiatric social worker.

Perceived Discrimination and Attribution Measures

5a.) Frequency of Discrimination. This questionnaire was derived from nine of fourteen questions from a study of lesbian women and discriminatory events. This measure had an internal consistency of .90 and appeared to consist of three factors: Harassment and Rejection, Workplace and School Discrimination, and Other Discrimination (Szymanski, 2006). I reworded the questions so as to refer to "sexual orientation," rather than lesbian identity. Each question describes a particular kind of discrimination, such as unfair treatment by service workers and being denied a job or promotion due to sexual orientation. Participants then rated the frequency with which they perceived that kind of discrimination during the past five years. I combined two

questions regarding discrimination by supervisors and professors, as many of our participants were students. I also eliminated a question regarding denial of promotions and other favorable work outcomes in favor of a similar question that more broadly assessed unfair treatment by supervisors at work. Finally, I removed the three questions that loaded most weakly onto their respective factors (Szymanski, 2006). I also changed the time period in question from one year to five years, as there were relationship questionnaires included in the web survey that referred to this time period; I desired consistency so as to avoid participant confusion.

5b.) Experiences and Perceptions of Discrimination. On a separate measure, for 5 of the discriminatory events assessed in the Frequency of Discrimination scale, participants were asked to imagine each event happened to them and rate their primary attribution for the event on various scales. Use of imagined, rather than previously experienced discriminatory events, may be advantageous as some studies have suggested that attributions for hypothetical events may be more important for symptomatic outcomes that attributions for actual events (e.g., Tiggemann & Crowley, 1993). I reduced the number of events assessed in order to improve completion rates found in a pilot study using this measure. I combined items assessing rejection from friends and family members, and I also combined the item assessing verbal insults with the item assessing being made fun of, picked on, shoved, hit, or threatened with harm. These item pairs loaded onto the same factor (Szymanski, 2006), supporting their combination. I eliminated an item assessing unfair treatment by service workers, as an item assessing "unfair treatment by strangers" would presumably include treatment by service workers. Finally, I eliminated an item involving hearing anti-gay remarks from family members in favor of situations more explicitly directed towards the participant.

Participants were asked to consider what they see as the primary cause of the event, along with internal, external-other, external-circumstances, stable, and global attribution dimensions of this primary cause rated on 1-7 Likert scales. These are the attribution questions assessed by the Attributional Style Questionnaire (ASQ; Peterson et al., 1982), with the exception that I removed the question asking participants to verbally describe the cause of the event, and I split the ASQ's locus dimension into three dimensions: whether the cause was due to oneself, the other person, or the circumstances. I made the first modification as a pilot study of this measure indicated open-ended text responses were increasing attrition rates due to their time-consuming nature. The second modification was made because of criticism of the ASQ's use of a bipolar locus scale and its combination of other people and circumstances into one external pole (Shaver & Drown, 1986). There may be benefits to attributing to external circumstances, but attributing to other people is often maladaptive (Tennen & Affleck, 1990).

I also assessed blame of self and blame of the other person via 1-7 Likert scales (Bradbury & Fincham, 1992). To assess perceived controllability, I then asked participants to rate the extent to which the cause was under their control on a 1-7 Likert scale. Finally, I assessed cost estimates for each of the discriminatory events by asking participants to rate their perceived degree of importance of each event on a 1-7 Likert scale.

Minority Stress Variables

6.) Gay Identity Questionnaire (GIQ; Brady & Busse, 1994). I utilized 21 of the 45 true-false items on this measure to assess stages 4-6 of the original scale. The first two stages could not be assessed for psychometric properties by the original authors, as they experienced difficulty recruiting individuals in these stages. The items assessing stages 3-6 of gay identity development generally had adequate psychometric properties, as all but stage 5 had interitem

consistencies above .70 (Brady & Busse, 1994). The GIQ's use of the word "homosexual" was changed to "gay," and the word "heterosexuals" changed to "heterosexual people," in order to make the wording more contemporary.

The GIQ measures stages of gay identity development proposed by Cass (1979). The stages I assessed for, in order of development, are: Identity Acceptance, Identity Pride, and Identity Synthesis. Higher stages are associated with having disclosed one's sexual orientation to significant others (Brady & Busse, 1994), supporting the measure's criterion validity.

7.) The Short Internalized Homonegativity Scale (SIHS; Currie, Cunningham, & Findlay, 2004). The SIHS is a twelve item self-report measure of covert expressions of negative attitudes toward and discomfort with gay experience. Some of these items were derived from the Reactions to Homosexuality Scale (Ross & Rosser, 1996), with the addition of new items assessing sexual comfort with gay men. Adequate internal consistency was demonstrated in a web-based survey of a sample of 677 gay men living in the U.S. In this sample, the SIHS appeared to consist of a single higher order construct of Internalized Homonegativity, along with three lower order factors: Public Identification as Gay, Sexual Comfort with Gay Men, and Social Comfort with Gay Men (Currie et al., 2004).

8.) A single item assessed the number of social relationships (e.g., friendships, work peer relationships) in which participants have disclosed their sexual orientation. This item lists nine types of social relationships derived from the Outness Inventory (OI; Mohr & Fassinger, 2000), and requests that participants indicate the ones in which they have disclosed or "come out."

9.) Sarason's Social Support Questionnaire (SSQ6; Sarason, Sarason, & Shearin, 1987). The SSQ6 is a six item self-report measure that requests the initials of individuals who provide particular types of social support to the participant. These initials are then used to form a scale

representing the number of supportive individuals summed across all types of support. Participants are also asked to rate their degree of satisfaction with each type of social support; these ratings are then summed to form a satisfaction score. The SSQ6 has demonstrated good internal reliability (Sarason et al., 1987), the number and satisfaction scales load onto overlapping but distinct factors, and the SSQ6 demonstrate good test-retest reliability (Rascle, Bruchon-Schweitzer, & Sarason, 2005). To increase ease of administration, I simply requested participants enter the number, rather than the initials, of individuals who provide each type of social support. This number was summed across all types of support to form the number score.

CHAPTER 3

RESULTS

Four hundred ninety-eight individuals participated in this study. Seven individuals were excluded from analyses as they identified as women or transgender/gender queer, and 6 individuals were excluded from analyses as they identified as exclusively or predominantly heterosexual. Of the remaining 485 participants, 309 went on to complete the entire study, resulting in a 64% completion rate.

Preliminary Analyses

I performed a confirmatory factor analysis on the Liebowitz Social Anxiety Scale to examine whether the anticipated four-factor structure fit the data. For hypotheses involving the LSAS as a dependent variable, I planned to conduct separate analyses using each of the four LSAS sub-scales (fear of social interaction, avoidance of social interaction, fear of performance, and avoidance of performance) as dependent variables, unless my confirmatory factor analysis failed to support the anticipated four-factor structure. Confirmatory factor analysis was performed to test the four-factor structure of the LSAS using data from all 366 participants who completed this measure. All analyses were performed on the variance-covariance matrix and conducted using the maximum likelihood method of parameter estimation. The variance of each latent factor was constrained to 1, and factors were allowed to correlate with one another. Estimation of this model revealed a significant chi-square value, X^2 (1074) = 7178.82, $p < .01$. The non-normed fit index (NNFI; Bentler & Bonett, 1980) was .44, the comparative fit index (CFI; Bentler, 1989) was .47, and the Root-Mean-Squared Error of Approximation (RMSEA;

Steiger & Lind, 1980) was .12. These indicators also failed to support the fit between model and data, as NNFI and CFI values > .90 and RMSEA values less than or equal to .08 indicate acceptable model fit (e.g., Oakman, Van Ameringen, Mancini, & Farvolden, 2003). However, due to the length of the LSAS, this model involved the estimation of 102 parameters; thus, our sample was inadequate to provide the minimal 5 observations per parameter estimate required for accurate results from confirmatory factor analysis (Hatcher, 1994).

Thus, the fear and avoidance items on the LSAS were separated, and a two-factor (social interaction, performance) solution was tested on both. Although these models provided a closer fit to the data than the previous 4-factor solution, they still failed to consistently meet criteria for an adequate fit to the data. When the two-factor model was tested on the fear items, a significant chi-square value was obtained, X^2 (251) = 817.87, $p < .01$. The NNFI was .79, the CFI was .81, and RMSEA was < .08. When the two-factor model was tested on the avoidance items, a significant chi-square value was also obtained, X^2 (251) = 837.84, $p < .01$. The NNFI was .76, and the CFI was .79, and RMSEA = .08. Although the RMSEA indicated adequate fit of these models, other indicators of fit did not. Thus, evidence does not warrant conducting separate analyses using each of the four Liebowitz Social Anxiety Scale sub-scales as dependent variables; instead, the total LSAS score will be used. The total LSAS score demonstrated excellent internal consistency in this sample ($\alpha = .95$; Cronbach, 1951).

As the Experiences and Perceptions of Discrimination Scale was newly constructed for this study, confirmatory factor analysis was also performed to test the hypothesized factor structure of the attribution data using responses from the 311 participants who completed this measure. Each attribution dimension was expected to load onto a separate factor. The analysis was performed on the variance-covariance matrix and conducted using the maximum likelihood

method of parameter estimation. The variance of each latent factor was constrained to 1, and factors were allowed to correlate with one another. Estimation of this model revealed a significant chi-square value, X^2 (909) = 2569.66, $p < .01$, and 2 of 3 other indices also failed to support the fit between model and data (NNFI = .79; CFI = .81; RMSEA = .08). Thus, exploratory factor analysis was performed on the attribution questionnaire data using squared multiple correlations as prior communality estimates. The maximum likelihood method was used to extract the factors, and then a promax (oblique) rotation was applied. Visual inspection of a scree test suggested retention of 2 factors, but preliminary eigenvalues suggested this would only account for 59.1% of the variance. Thus, I decided to retain all factors that accounted for at least 5% of the variance. This resulted in retention of 5 factors, which accounted for 78.8% of the variance.

An item was determined to load onto a given factor if the factor loading was .40 or greater on that factor and less than .40 on the other factors in the rotated factor pattern. No items had to be removed due to loading on multiple factors. Table 1 presents the attribution questionnaire items and their pattern loadings. Three of the stability items, along with all of the globality and importance items comprised an importance/stability/globality composite factor (α = .90). Four of the external-other items and all of the other blame items comprised an external-other/other blaming composite scale (α = .90). All of the internal items and 4 of the self blame items comprised an internal/self blaming composite scale (α = .91). The controllability (α = .86) and external-circumstance scales (α = .85) were derived from the originally hypothesized items. Factor-based scales for each of the 5 factors were constructed by summing responses for all of the items comprising that factor. The correlations between these factor-based scales are presented in Table 2.

Hypotheses

The hypotheses were investigated using only responses from the 309 participants who completed all the questionnaires. The participants who completed the study were well-educated, low income, and primarily White. Specifically, the sample was 75.7% White, 7.4% Hispanic/Latino, 5.2% Asian/Pacific Islander, 2.6% Black/African American, and 9.0% mixed race or other racial identification. The age of the participants ranged from 18 to 84 years (M = 31.5, SD = 13.7), and 31.7% of the participants had an advanced or graduate degree, 30.1 % had a bachelor's degree, 28.5% had completed some college or obtained an associate's degree, 9.7% had a high school diploma, and none failed to graduate high school. As many student groups were targeted for recruitment, the modal income category was $0 - $10,000 (26.5%). The majority of the sample identified as exclusively homosexual (70.9%), while 24.3% identified as predominantly homosexual and only incidentally heterosexual, 4.2% identified as predominantly homosexual but more than incidentally heterosexual, and only 0.6% identified as equally homosexual and heterosexual. The modal relationship status was single (48.5%), while 23.9% were dating but not cohabitating, 14.9% were dating and cohabitating, 16.8% were formally committed/married, and 3.5% described themselves as separated, divorced, or widowed. Refer to Table 3 for descriptive statistics of the study variables.

Aiken and West (1991) recommend that when predictor variables are continuous and quantitative, theory should be used to produce regression equations predicting outcomes of interest. Thus, multiple regression was used to test my hypotheses as follows. To investigate hypothesis 1, a regression equation was constructed in which total LSAS scores were regressed against frequency of perceived discrimination. This model was significant [$F(1, 307) = 12.37$, $R^2_{adj} = .04$, $p < .01$]. Higher frequency of perceived discrimination was associated with higher

LSAS scores (β = .20). The model remained significant when the analysis was repeated using only non-Hispanic White participants [$F(1, 232) = 10.89$, $R^2_{adj} = .04$, $p<.01$].

LSAS scores were then regressed against the SIHS and outness scores to examine hypothesis 2. This model was significant [$F(2, 306) = 32.84$, $R^2_{adj} = .17$, $p < .01$]. Both the SIHS (β = .25) and outness scores (β = -.25) exerted significant main effects within this model ($p < .01$) in the hypothesized directions.

To examine hypothesis 3, scores from stages 4, 5, and 6 from the GIQ were entered as predictor variables along with the number and satisfaction scales from the Sarason's Social Support Questionnaire. Total LSAS scores served as the dependent variable. This model was significant [$F(5, 303) = 16.89$, $R^2_{adj} = .21$, $p < .01$]. The main effect of GIQ stages 4 (β = .14) and 6 (β = -.21) were significant ($p < .05$), but the main effect of GIQ stage 5 was not ($p > .30$). This is consistent with the hypothesis that endorsement of higher stages of gender identity on the GIQ would be associated with lower LSAS scores than endorsement of lower stages. The main effects of the number (β = -.13) and satisfaction scales (β = -.18) from the SSSQ were both significant ($p < .05$) and in the expected directions.

To examine hypothesis 4, total LSAS scores were regressed against frequency of perceived discrimination, importance/stability/globality, external-circumstance, controllability, external-other/other blaming, and internal/self blaming scales, and the product of perceived discrimination frequency with each of the aforementioned scales. To center the variables and thus reduce multicollinearity, the z-scores of all the aforementioned predictor variables were used in place of the raw variables (see Aiken & West, 1991). This model was significant [$F(11, 297) = 5.54$, $R^2_{adj} = .14$, $p < .01$]. The main effects of the importance/stability/globality (β = .22) and internal/self blaming (β = .16) scales were significant ($p < .05$) and in the expected direction,

while all other main effects including frequency of discrimination were non-significant ($p > .30$). The only significant interaction effect was the product of frequency of discrimination and external/other blaming ($\beta = .18$; $p < .01$), while all other interaction effects were non-significant ($p > .09$). To further explore this moderation effect, total LSAS scores were regressed against only frequency of perceived discrimination, external/other blaming, and the interaction between these two predictor variables. Again, z-scores were used to center the predictor variables. This model was significant [$F(3,305) = 7.24$, $R^2_{adj} = .06$, $p < .01$]. The main effect of frequency of perceived discrimination was significant ($\beta = .18$; $p < .01$), along with the interaction effect between frequency of perceived discrimination and external/other blaming ($\beta = .15$; $p < .01$). The main effect of external/other blaming remained non-significant ($p > .22$). Refer to Figure 2 for a graphical display of this moderation effect. As suggested by Aiken & West (1991), high and low levels of each variable consisted of scores +1 or –1 standard deviation from the mean, respectively. The medium levels of each variable in Figure 2 consist of the mean value.

Similarly to the analysis for hypothesis 4, to test hypothesis 5 total LSAS scores were regressed against perceived discrimination, the number and satisfaction scales from the SSSQ, the product of perceived discrimination and the number scale from the SSQ, and the product of perceived discrimination and the satisfaction scale from the SSQ. Again, z-scores were used in place of the raw variables. This model was significant [$F(5, 303) = 9.95$, $R^2_{adj} = .13$, $p < .01$]. Neither interaction term was significant ($p > .12$), nor was the main effect of perceived discrimination ($p > .08$). The main effects of number ($\beta = -.18$) and satisfaction ($\beta = -.19$) with social support, however, were both significant ($p < .01$) and in the hypothesized direction. This pattern of results suggested it is possible that social support mediates the relationship between frequency of perceived discrimination and social anxiety.

Mediation is suggested by the following combination of relationships: 1) The predictor variable (frequency of perceived discrimination) is associated with the mediating variable (social support), 2) The predictor variable is associated with the dependent variable (LSAS score), and 3) When the dependent variable is regressed onto the mediating variable and predictor variable, the mediating variable exerts a significant main effect (Baron & Kenny, 1986; Judd & Kenny, 1981). Further, complete mediation is indicated when the effect of the predictor variable on the dependent variable drops to zero with the mediating variable included in the regression equation. In testing hypothesis 1 I have demonstrated the second relationship. Therefore, I explored the first relationship by constructing two regression equations. In the first, satisfaction with social support served as the dependent variable, while frequency of perceived discrimination was the predictor variable. This model was significant [$F(1, 307) = 27.12$, $R^2_{adj} = .08$, $p < .01$], and frequency of discrimination was associated with decreased satisfaction with social support ($\beta = -.29$). In the second regression equation, number of social supports was the dependent variable and frequency of perceived discrimination served again as the predictor variable. This model was significant [$F(1, 307) = 5.52$, $R^2_{adj} = .01$, $p < .05$], and frequency of discrimination was associated with decreased number of social supports ($\beta = -.13$). To test the third relationship, I constructed a regression equation in which LSAS scores were regressed against frequency of perceived discrimination, satisfaction with social support, and number of social supports. This model was significant [$F(3, 305) = 15.70$, $R^2_{adj} = .13$, $p < .01$], with frequency of perceived discrimination ($\beta = .11$; $p < .05$), satisfaction with social support ($\beta = -.21$; $p < .01$), and number of social supports ($\beta = -.17$; $p < .01$) all exerting significant main effects. Thus, results suggest social support partially mediates the relationship between frequency of perceived discrimination and social anxiety. As number of social supports was not strongly related to frequency of

perceived discrimination, satisfaction with social support is likely the stronger component of this mediating relationship.

To examine hypothesis 6, SIHS scores were regressed against the importance/stability/globality, external-circumstance, controllability, external/other blaming, and internal/self blaming scales. This model was significant [$F(5, 303) = 10.38$, $R^2_{adj} = .13$, $p < .01$]. Internal/self blaming scores exerted a main effect on the SIHS ($\beta = .27$; $p < .01$), while external-other/other blaming trended toward a significant main effect ($\beta = -.13$; $p = .06$) in the opposite direction. The other attribution scales did not exert significant main effects ($p > .10$). I performed a similar analysis in which GIQ stage scores were regressed against the attribution dimensions. For GIQ stage 4 and 5, none of the attribution dimensions exerted main effects ($p > .07$). However, for GIQ stage 6, the model was significant [$F(5, 303) = 6.41$, $R^2_{adj} = .08$, $p < .01$]. The main effect of importance/stability/globality on GIQ stage 6 endorsements was significant ($\beta = -.30$; $p < .01$), while none of the other attribution dimensions exerted a significant main effect ($p > .22$).

Investigation of the previous hypotheses revealed that SIHS and LSAS scores are related, while the SIHS is related to some of the attribution dimensions also predictive of LSAS scores. Thus, it is possible that the relationship between attributions and social anxiety may be spurious and better explained by internalized homonegativity. A hierarchical regression model was constructed to examine whether attributions add significant predicted variance in the LSAS, above and beyond that explained by the SIHS. In model 1, LSAS scores were regressed against the SIHS alone. This model was significant [$F(1, 307) = 44.63$, $R^2_{adj} = .12$, $p < .01$]. In model 2, the importance/stability/globality and internal/self blaming attribution scales were entered with the SIHS, as these attribution dimensions were found to exert main effects on LSAS scores. This

model added .06 to the R^2_{adj} found in model 1, a significant change in variance accounted for ($F_{change} = 12.72$; $p < .01$). The main effect of importance/stability/globality was significant in model 2 ($\beta = .24$; $p < .01$), but the main effect of internal/self blaming attributions was not ($p > .15$).

I performed a similar analysis using GIQ stage scores to determine if attributions add to the predictive power of this variable. In model 1, LSAS scores were regressed against GIQ stages 4, 5, and 6 alone. This model was significant [$F(3, 305) = 18.50$, $R^2_{adj} = .15$; $p < .01$]. In model 2, the importance/stability/globality and internal/self blaming attribution scales were entered with the GIQ stage scores. This model added .06 to the R^2_{adj} found in model 1, a significant change in variance accounted for ($F_{change} = 13.25$; $p < .01$). The main effect of importance/stability/globality was significant in model 2 ($\beta = .21$; $p < .01$), as was the main effect of internal/self blaming attributions ($\beta = .13$; $p < .05$).

As a final test to determine whether attributions add to these variables, I regressed LSAS scores against GIQ stages 4, 5, and 6, along with the SIHS. This model was significant [$F(4, 304) = 18.48$, $R^2_{adj} = .19$; $p < .01$], with GIQ stage 6 ($\beta = -.23$; $p < .01$) and SIHS ($\beta = .24$; $p < .01$) reaching significance while the main effects of GIQ stage 4 and 5 did not ($p > .27$). In model 2, the importance/stability/globality and internal/self blaming attribution scales were entered with the SIHS and GIQ stage 4, 5, and 6 scores. This model added .04 to the R^2_{adj} found in model 1, a significant change in variance accounted for ($F_{change} = 9.36$; $p < .01$). The main effect of importance/stability/globality was significant in model 2 ($\beta = .20$; $p < .01$), but the main effect of internal/self blaming attributions was not ($p > .11$). In model 2, GIQ stage 6 ($\beta = -.17$; $p < .05$) and SIHS scores ($\beta = .18$; $p < .01$) were also significant predictors, while GIQ stage 4 and 5 ($p > .11$) remained non-significant.

Due to the relationship between GIQ stage and attributions for discrimination, I also investigated whether GIQ stage moderated the effect of perceived discrimination on social anxiety symptoms. A regression model was constructed in which LSAS scores served as the dependent variable, while frequency of perceived discrimination, GIQ stage 4 endorsements, GIQ stage 6 endorsements, the product of frequency of perceived discrimination and GIQ stage 4 endorsements, and the product of frequency of perceived discrimination and GIQ stage 6 endorsements. Z-scores were used in place of the raw variables. This model was significant [$F(5, 303) = 15.05$, $R^2_{adj} = .19$; $p < .01$]. The main effect of GIQ stages 4 ($\beta = .26$) and 6 ($\beta = -.15$) were significant ($p < .05$), the main effect of frequency of perceived discrimination trended towards significance ($\beta = .11$; $p = .06$), and the interaction of frequency of perceived discrimination with GIQ stage 6 was significant ($\beta = -.19$; $p < .01$). To further explore this moderation effect, total LSAS scores were regressed against only frequency of perceived discrimination, GIQ stage 6 endorsements, and the interaction between these two predictor variables. Again, z-scores were used to center the predictor variables. This model was significant [$F(3,305) = 18.80$, $R^2_{adj} = .15$, $p < .01$]. The main effect of frequency of perceived discrimination was non-significant ($p = .15$), but the main effect of GIQ stage 6 endorsements ($\beta = -.31$; $p < .01$) and the interaction term were significant ($\beta = -.16$; $p < .01$). Refer to Figure 3 for a graphical display of this moderation effect.

A similar test was performed to examine whether internalized homonegativity also moderates the effect of frequency of perceived discrimination on social anxiety. A regression model was constructed in which LSAS scores served as the dependent variable, while frequency of perceived discrimination, internalized homonegativity, and the product of frequency of perceived discrimination and internalized homonegativity served as predictors. Z-scores were

used in place of the raw variables. This model was significant [$F(3,305) = 19.45$, $R^2_{adj} = .15$, $p < .01$]. However, only the main effects were significant ($p < .01$), while the non-significance of the interaction term ($p > .38$) suggested internalized homonegativity does not play a moderating role.

Additionally, it is unclear whether participants reporting high importance/stability/globality estimates were doing so based on a catastrophizing attribution style as opposed to realistic appraisals of more hostile, anxiety-provoking social environments than those of the other participants. Thus, I examined whether frequency of perceived discrimination was predictive of importance/stability/globality estimates in a regression equation. Importance/stability/globality ratings served as the dependent variable and frequency of perceived discrimination served as the predictor. This model was significant [$F(1, 307) = 34.40$, $R^2_{adj} = .10$; $p < .01$], and increased self-reported discriminatory events was associated with increased endorsement of importance/stability/globality attribution dimensions ($\beta = .32$). This prompted further exploration of the relationship between frequency of perceived discrimination and attribution dimensions relevant to social anxiety. Individuals reporting more frequent discrimination were also more likely to endorse internal/self blaming attributions ($\beta = .22$) when such estimations served as the dependent variable and frequency of discrimination served as the predictor [$F(1, 307) = 15.51$, $R^2_{adj} = .05$; $p < .01$] in a separate regression equation.

A final question arose from the preceding pattern of results. Social support was found to partially mediate the relationship between frequency of discrimination and social anxiety. However, external/other blaming attributions were found to moderate this same relationship. One possible explanation for these relationships is that individuals who blame others for more frequent discriminatory events deprive themselves of social support, ultimately becoming more socially anxious. Thus, two regression equations were constructed in which number of and

satisfaction with social supports served as the dependent variables and external/other blaming attributions, frequency of perceived discrimination, and the interaction between these two variables served as the predictors. The model using number of social supports as the dependent variable was significant [$F(3, 305) = 3.49$, $R^2_{adj} = .02$; $p < .05$]. However, only frequency of perceived discrimination exerted a significant main effect ($\beta = -.12$; $p < .05$), while the main effect of external/other blaming and the interaction term were non-significant ($p > .10$). The model using satisfaction with social supports as the dependent variable was also significant [$F(3, 305) = 13.12$, $R^2_{adj} = .11$; $p < .01$]. Frequency of perceived discrimination exerted a significant main effect ($\beta = -.27$; $p < .01$), and the interaction term was also significant ($\beta = -.18$; $p < .01$). The main effect of external/other blaming attributions was non-significant ($p > .43$). See Figure 4 for a graphical representation of the moderation effect found in this model. The regression equation used to test the moderating effect of external/other blaming attributions on the relationship between frequency of perceived discrimination and social anxiety was then modified to also include satisfaction with social supports. This was to determine whether this original moderating effect was solely due to the moderation effect subsequently found on satisfaction with social support. This model was significant [$F(4, 304) = 10.75$, $R^2_{adj} = .11$; $p < .01$]. The interaction between external/other blaming and frequency of perceived discrimination remained significant ($\beta = .11$; $p < .05$), while the main effects of frequency of perceived discrimination ($\beta = .12$; $p < .05$) and satisfaction with social support ($\beta = -.26$; $p < .01$) were also significant. The main effect of external/other blaming attributions was not significant ($p > .30$). Thus, external/other blaming attributions continued to moderate the relationship between frequency of perceived discrimination and social anxiety symptoms, even when social support was controlled for in the model.

CHAPTER 4

DISCUSSION

Current findings support the hypothesized relationship between frequency of perceived discrimination and increased social anxiety symptoms in gay men, and the relationship did not appear to be due to an interaction between sexual and racial minority status. However, this perceived discrimination accounted for a relatively small percentage of the variance in social anxiety symptoms. Inspection of the descriptive statistics for the frequency of perceived discrimination measure reveals that the varying discriminatory events were usually reported as never, or only "once in awhile," occurring. This relative infrequency of encountering discriminatory events is consistent with results found by Szymanski (2009) using a similar measure and finding a similar strength of association between perceived discrimination frequency and psychological distress ($r = .24$). Notably, these authors also used an online format and recruited a highly educated, low-income, primarily White sample of gay and bisexual men in the same age range as the current sample. The experiences of discrimination in our sample may well be different from or less frequent than in the general population of gay men. Thus, the association between discrimination and social anxiety symptoms may have been attenuated due to the relative invariance of the frequency of perceived discrimination responses. However, the beta-weight describing the association between frequency of perceived discrimination and social anxiety symptoms in my sample is identical (.20) to that found in a general adult population survey using nonspecific psychiatric distress as the dependent variable and perceived day-to-day discrimination based on any social status as the predictor (Kessler et al., 1999).

Consistent with expectations and previous research, internalized homonegativity predicted substantially increased social anxiety symptoms, while outness, social support, and more advanced stages of gay identity development were associated with substantially decreased social anxiety symptoms. Thus, while instances of specific discriminatory experiences were relatively infrequent and predicted a rather small proportion of the variance in social anxiety, it is clear that the indirect effects of heterosexism do contribute considerably to social anxiety symptoms. These findings are consistent with Meyer's (2003, 1995) Minority Stress framework. Findings are also consistent with the cognitive model (Beck, 1964; Ellis, 1962) of stress, in which the lens through which stressful events are viewed is as important in terms of psychiatric distress, if not more so, than the stressful events themselves.

However, consistent with Szymanski (2009), social support did not moderate the effect of perceived discrimination on social anxiety. This does not support Meyer's (2003) suggestion that social support may buffer gay men from discriminatory experiences per se. Rather, social support was generally predictive of less social anxiety and partially mediated the relationship between perceived discrimination and social anxiety. This is consistent with Meyer's (1995) suggestion that discrimination can prevent gay males from obtaining the social support they require to cope with this same discrimination. This finding, however, may not extend to other forms of psychiatric distress. General psychiatric distress, including anxiety, depression, somatization, and interpersonal sensitivity, was associated with perceived discrimination but not social support in a sample similar to that in the current study (Szymanski, 2009). However, other measures such as self-esteem and avoidant coping were included in the model, making it difficult to compare results to the current study. The measures of trait anxiety and depression in the current dataset can be used in the future to clarify this issue.

Results supported the predictive value of some, but not all, of the attributions hypothesized. The first relevant attribution dimension was comprised of importance, or cost ratings attached to the discriminatory events, along with participants' belief that discrimination would continue in the future and affect multiple life domains. Factor analysis supported the combination of these attribution dimensions into a composite scale, suggesting that some individuals are likely to view discriminatory events as harmful in multiple ways. In therapeutic contexts with gay men experiencing social anxiety, this underscores the importance of assessing both cost and probability estimates regarding discrimination. As previously noted, it is unclear whether participants reporting high importance/stability/globality estimates did so because they are by objective standards exposed to more frequent and costly instances of discrimination versus a tendency to subjectively magnify these events. To begin to clarify this issue, it was found that these individuals did report increased frequency of perceived discrimination. The potential role of negative events in the formation and maintenance of this cognitive style highlights not only a need for future study, but also an assessment challenge for therapists working with gay men.

The tendency to attribute discriminatory experiences to internal or self-blameworthy factors also emerged as a predictor of social anxiety. Similarly to findings regarding importance/stability/globality ratings, it was found that frequency of perceived discrimination was associated with internal/self blaming attributions as well. Thus, it appears that frequent encounters with discrimination may lead to a more overarching, maladaptive cognitive style. These findings highlight the "double blow" of discrimination, as it appears to lead both directly and indirectly to social anxiety symptoms. Notably, factor analysis also supported combination of the internal and self blaming attribution scales. This indicates that for discriminatory events,

in contrast to conceptualizations of other clinical areas (e.g., Janoff-Bulman, 1985), situational or less trait-based internal attributions represent an unlikely therapeutic target. Results also suggest that internal/self blaming attributions for discrimination are based in part on internalized homonegativity, and in fact their relationship with social anxiety is better explained by internalized homonegativity. What attribution theory appears to add to pre-existing Minority Stress (Meyer, 1995; Meyer, 2003) conceptualizations of psychopathology in gay men is the idea that anticipation of, and high cost attributed to, discriminatory events further adds to gay men's social fears and discomfort. Further, the relationship between internalized homonegativity and internal/self blaming attributions may indicate that these attributions play a role in the development or maintenance of internalized homonegativity.

Examination of main effects suggests that no attribution dimension emerged as helpful in the realm of social anxiety. Rather, main effects indicate therapists should focus on reduction of maladaptive attributions for discrimination. However, examination of the moderation effect of external/other blaming attributions for discrimination reveals a more complicated picture. Individuals who are less likely to blame others for discriminatory experiences reported higher levels of social anxiety, with little increase in social anxiety when discriminatory events were more frequent. As external/other blaming attributions were inversely related to internal/self blaming attributions, this finding is logical; if participants were not blaming others for the events, they were likely to blame themselves, endorse internalized homonegativity, and experience more social anxiety. In contrast, individuals more likely to blame others for discrimination experienced lower levels of social anxiety when discrimination was infrequent. However, when such individuals reported more frequent discrimination experiences, they experienced a sharp increase in their social anxiety symptoms.

This finding was not easily interpretable until social support was added to the conceptualization. It was then revealed that individuals endorsing external/other blaming attributions reported high satisfaction with their social supports when encounters with discrimination were infrequent. However, external/other blaming attributions, in the context of frequent encounters with discrimination, were associated with a sharper decrease in satisfaction with social support. If the individuals involved in discriminatory events are sources of social support for a participant, and the participant then assigned a stronger level of blame to these individuals, it is easy to see how the relationships could become a source of strain and disappointment rather than support. Alternatively, if discriminatory encounters are occurring due to individuals outside the participant's social support system, participants reacting with anger or frustration may carry this stress over to their close relationships. Interestingly, for individuals who are less likely to blame others for discrimination, their satisfaction with social support actually increased in the face of additional discriminatory experiences. Perhaps these participants coped with discriminatory events by seeking additional social supports or even working to repair the relationship with the transgressor. This may explain why these individuals did not experience substantial increases in social anxiety symptoms when confronted with more discriminatory events. Further work is necessary to clarify the role of other blaming in interpersonal reactions to discrimination. However, in a therapeutic context, the current results highlight the need for assessment of blame and other potential rifts in gay men's social support systems in the context of discrimination, along with the potential benefit of interpersonal coping techniques and communication training. Also, the moderating role of external/other blaming on the relationship between perceived discrimination and social anxiety did not appear to be limited to its association with social support. Overall, individuals who endorse more external/other

blaming attributions for discrimination appear to be well adjusted when they infrequently encounter discrimination; however, they also appear to be sharply reactive to more frequent encounters with discrimination. This is an intriguing area for future study.

Finally, level of gay identity development emerged not only as a substantial predictor of social anxiety in gay men, but as a powerful moderator of the effect of perceived discrimination on social anxiety. In fact, individuals endorsing the highest stage of gay identity did not experience any increase in social anxiety symptoms in response to more frequent discrimination experiences. Thus, attribution dimensions relevant to gay identity stage were examined. Results support gay identity development as conceptually distinct from internalized homonegativity. Rather than internal/self blaming attributions for discrimination, the importance/stability/globality dimension emerged as a predictor of advanced gay identity. Individuals at this Identity Synthesis (Cass, 1979) stage of gay identity development described discriminatory events as less important, less likely to recur, and more specific in terms of the events' effect on their lives. Clarification of the process leading to this association poses an exciting area for future study. It is reasonable to believe that individuals who view discrimination as less threatening would be more likely to seek integration into both minority and majority cultures. However, it is equally plausible that openness regarding one's sexual orientation and increased contact with majority culture could result in de-catastrophizing attributions for discrimination. This could occur through formation of a broader social support system and thus access to accepting majority group members, learning to construe more realistic reappraisals of the threat posed by discriminatory events, or a combination of these and other factors.

In summary, results were generally supportive of the Minority Stress Model (Meyer, 2003; Meyer, 1995), along with the relevance of attributions in not only further explaining variance in social anxiety symptoms among gay men, but in understanding other variables within the Minority Stress framework. See Figure 5 for a visual representation of the relationships found in my exploration of this dataset.

Future Directions

There are several limitations of this study. The first limitation is that I cannot determine the direction of causality between variables. For example, our model posits certain attributions as moderators of the effect of discrimination on social anxiety. However, discriminatory events may also cause changes in attributions, and socially anxious gay men may be predisposed to particular attribution styles. Longitudinal studies similar to those conducted on attributions and depression (e.g., Gibb, Beevers, Andover, & Holleran, 2006) are required to determine the temporal order of events, and future studies should also manipulate attributions for discrimination and examine the causal effect on social anxiety symptoms. The present study is more concerned with attributions as a point of possible future intervention, rather than pinpointing how much of the causality goes one way versus another.

Additionally, this is a study of perceived discrimination rather than actual discrimination. Individuals with higher levels of social anxiety may report more perceived discrimination due to attention, memory, or interpretation biases for social threat. However, obtaining collateral evidence of objective discriminatory events or creating analog discriminatory events in the laboratory is beyond the scope of this study. Further, perceived discrimination may be more relevant to gay men than objectively experienced discrimination—estimation of a higher probability of social rejection upon others learning of one's gay sexual orientation has been

shown to have a more potent effect on emotional distress than do actual sexual orientation-related rejection experiences (Ross, 1985). Additionally, CBT for social anxiety often involves processing hypothetical feared situations; thus, in the effort to translate findings to general populations with social anxiety, thought processes regarding imagined or hypothetical situations are relevant.

Our internet-based methodology relies on self-report measures. Thus, our dependent variable consists of self-reported social anxiety and lacks interview, behavioral, and diagnostic measures of social anxiety. However, Potoczniak et al. (2007, p. 449) suggest that internet studies may recruit more people who are less comfortable reporting their sexual orientation in a lab setting, and Currie et al. (2004, p. 1057) indicate the potential of this methodology to improve the sample size and diversity of gay men recruited. Further, analogue studies comparing individuals scoring high and low on the Fear of Negative Evaluation Scale (Watson & Friend, 1969) demonstrate similar interpretation biases as those comparing patients with social phobia to controls. Social anxiety is thought to be continuously distributed throughout the population, and analogue studies in this area are touted as strategies to quickly test-run hypotheses. However, further studies are required to verify that results also extend to clinical populations with social phobia (Stopa & Clark, 2001).

Finally, the current sample may over-represent men affiliated with the gay community. This probably over-represents more "out" and more gay-identified gay men, and thus the sample may be well adjusted than the total population of gay men. However, this likely attenuated the data's support for my hypotheses; thus, this study provides a more rigorous test of the relationships between the aforementioned variables (Meyer, 1995). Further, the sample was

generally well educated, White, and reporting low yearly income. Thus, generalizability to the entire gay male population will be limited.

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Table 1.

Factor loadings in the rotated factor pattern for the attribution dimensions rated on each of the 5 discriminatory events

	Factor1	Factor2	Factor3	Factor4	Factor5
Internal #1	-3	6	75 *	-2	8
Internal #2	2	2	78 *	-7	15
Internal #3	-1	4	73 *	3	6
Internal #4	-2	-2	68 *	-2	14
Internal #5	-5	-11	76 *	-6	2
External-Other #1	14	44 *	-29	0	2
External-Other #2	6	56 *	-28	-4	3
External-Other #3	2	49 *	-20	2	2
External-Other #4	0	35	-23	-11	-7
External-Other #5	5	57 *	-15	1	5
External-Circ #1	-1	10	7	1	68 *
External-Circ #2	4	3	4	-1	74 *
External-Circ #3	-8	4	1	7	75 *
External-Circ #4	-6	-6	5	2	70 *
External-Circ #5	3	-6	9	0	66 *
Stable #1	28	27	21	-6	-8
Stable #2	31	32	17	-6	-7
Stable #3	52 *	8	-4	5	-12
Stable #4	64 *	6	-2	5	-5
Stable #5	41 *	15	17	-2	-6
Global #1	77 *	-12	-8	-7	10
Global #2	78 *	-10	-5	-10	14
Global #3	78 *	-17	-10	0	7
Global #4	81 *	-14	-7	0	5
Global #5	70 *	-7	2	0	11
Controllable #1	-1	9	-1	69 *	12
Controllable #2	-2	3	-1	80 *	3
Controllable #3	3	-2	-1	78 *	-3
Controllable #4	-5	-1	5	70 *	-1
Controllable #5	6	-10	0	70 *	-2
Important #1	46 *	26	4	-3	-10
Important #2	61 *	14	9	0	-7
Important #3	66 *	-3	-1	7	-7
Important #4	65 *	17	0	8	-5
Important #5	52 *	18	12	0	0
Self Blame #1	8	-22	55 *	10	-4
Self Blame #2	13	-30	56 *	6	-8
Self Blame #3	14	-36	43 *	5	-8

Self Blame #4	10	-30	36	5	-1
Self Blame #5	7	-35	48 *	3	-10
Other Blame #1	11	66 *	-4	-3	-2
Other Blame #2	6	80 *	-1	3	-3
Other Blame #3	0	83 *	10	-2	0
Other Blame #4	3	78 *	7	0	-2
Other Blame #5	2	76 *	-7	11	4

Note. Printed values are multiplied by 100 and rounded to the nearest integer. External-Circ = External-Circumstances. *Values greater than 0.4.

Table 2.

Pearson correlations between attribution factor-based scales

	Importance/ Stability/ Globality	External/Other Blaming	Internal/Self Blaming	Controllability	External-Circumstances
Importance/ Stability/ Globality	1.0	.08	.22*	-.16*	-.05
External/Other Blaming	.08	1.0	-.56*	-.33*	-.33*
Internal/Self Blaming	.22*	-.56*	1.0	.28*	.41*
Controllability	-.16*	-.33*	.38*	1.0	.27*
External-Circumstances	-.05	-.33*	.41*	.27*	1.0

*p < .05.

Table 3.

Means and standard deviations for the study variables among completers

Variable	M (SD)
LSAS	35.9 (20.8)
PHQ-9	7.5 (5.8)
STAI-T	41.6 (12.6)
STAI-S	39.3 (12.8)
SSQ-N	52.0 (52.6)
SSQ-S	31.7 (8.4)
Number of relationships in which participant is “out”	6.3 (2.4)
SIHS	37.8 (12.1)
GIQ Stage 4	1.7 (1.9)
GIQ Stage 5	2.6 (1.5)
GIQ Stage 6	4.9 (1.9)
Frequency of Perceived Discrimination	8.6 (5.4)
Average Importance/Stability/Globality Attribution Item Rating (1-7 scale)	4.4 (1.2)
Average Internal/Self Blaming Attribution Item Rating (1-7 scale)	2.6 (1.3)
Average External/Other Blaming Attribution Item Rating (1-7 scale)	5.7 (1.1)
Average Controllability Attribution Item Rating (1-7 scale)	2.7 (1.2)
Average External/Circumstances Attribution Item Rating (1-7 scale)	3.7 (1.4)

Figure Captions

Figure 1. A hypothesized minority stress and attribution model for gay men.

Figure 2. Moderation effect of external-other/other blaming attributions on the relationship between frequency of perceived discrimination and LSAS scores, created by graphical software (Jose, 2008).

Figure 3. Moderation effect of GIQ Stage 6 endorsement on the relationship between frequency of perceived discrimination and LSAS scores, created by graphical software (Jose, 2008).

Figure 4. Moderation effect of external-other/other blaming attributions on the relationship between frequency of perceived discrimination and satisfaction with social support, created by graphical software (Jose, 2008).

Figure 5. A minority stress and attribution model for gay men as supported by results of the current study.

Figure 1.

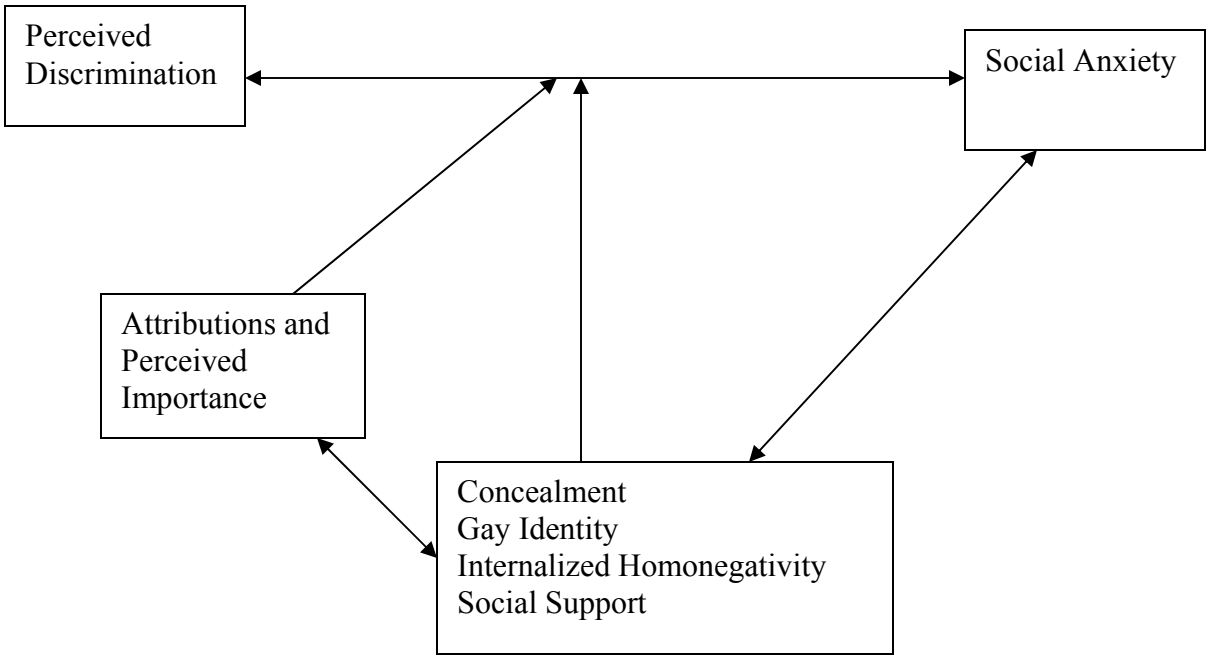

Perceived Discrimination
Social Anxiety
Attributions and Perceived Importance
Concealment
Gay Identity
Internalized Homonegativity
Social Support

Figure 2.

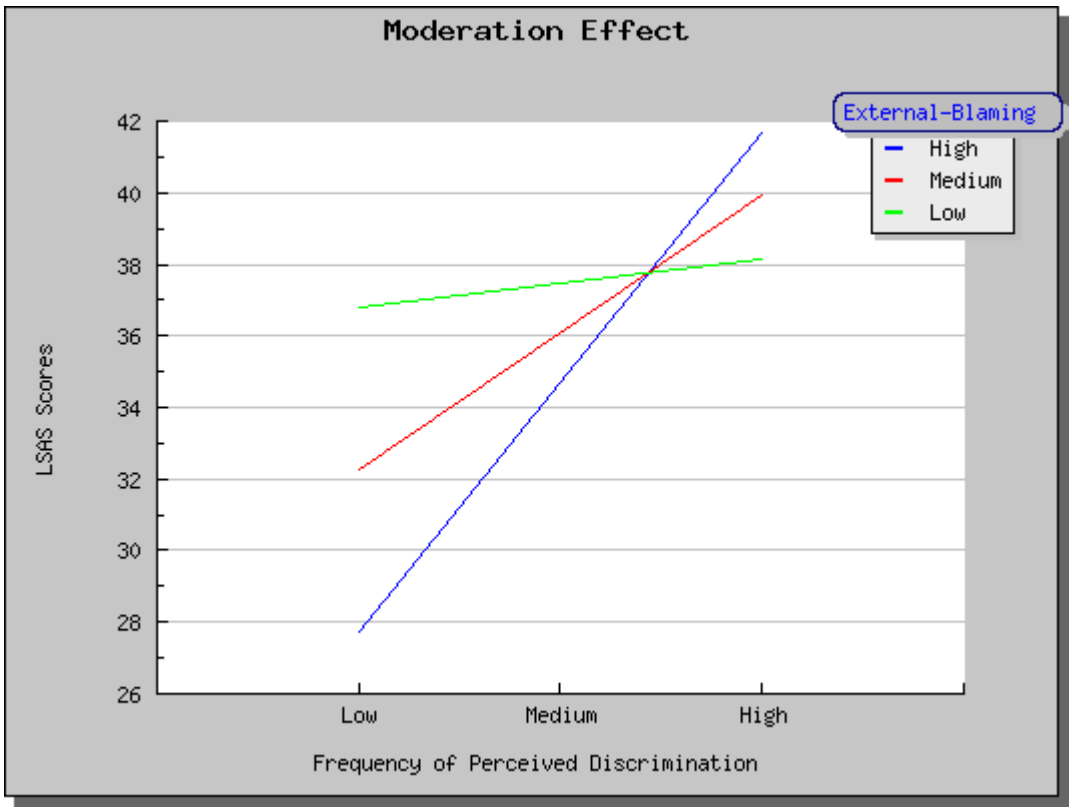

Moderation Effect
External-Blaming
High
Medium
Low
LSAS Scores
42
40
38
36
34
32
30
28
26
Low
Medium
High
Frequency of Perceived Discrimination

Figure 3.

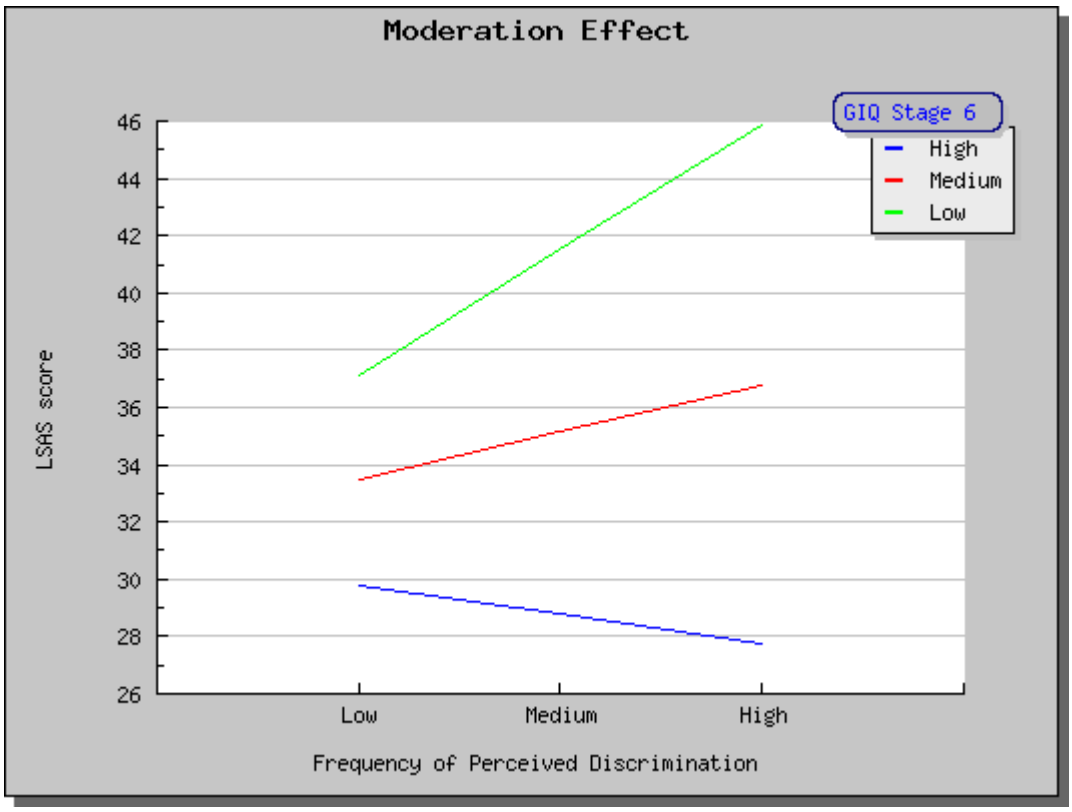

Moderation Effect
GIQ Stage 6
High
Medium
Low
LSAS score
46
44
42
40
38
36
34
32
30
28
26
Low
Medium
High
Frequency of Perceived Discrimination

Figure 4.

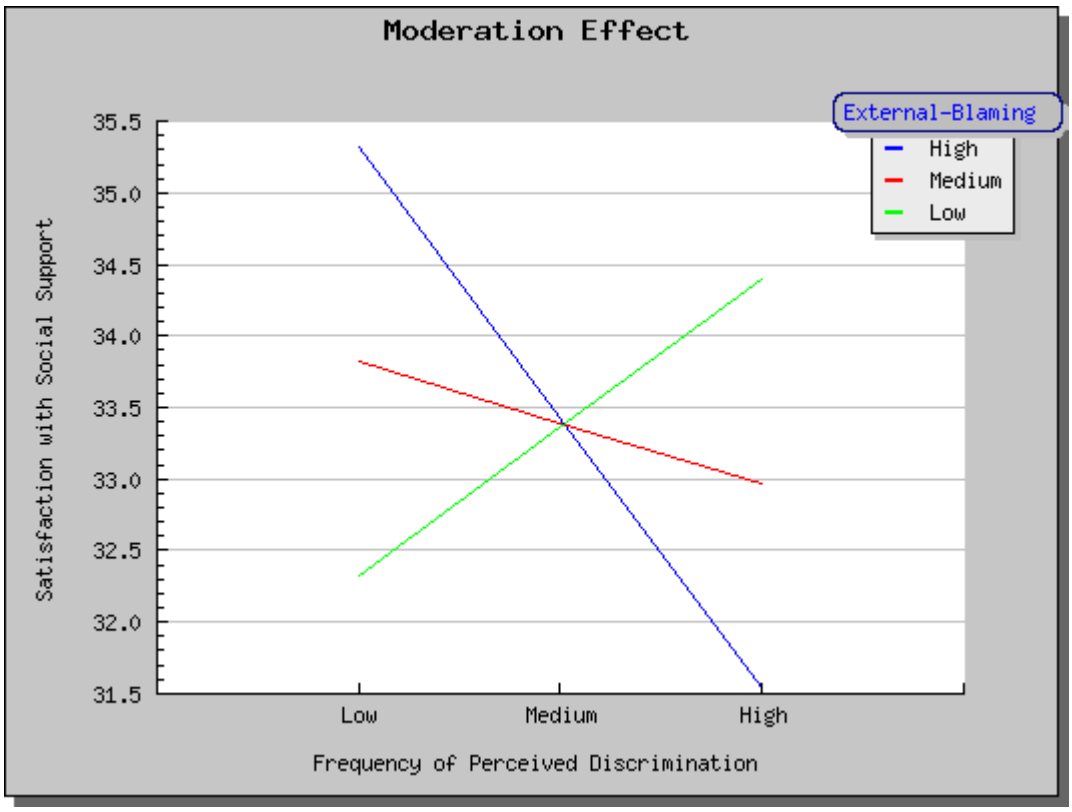
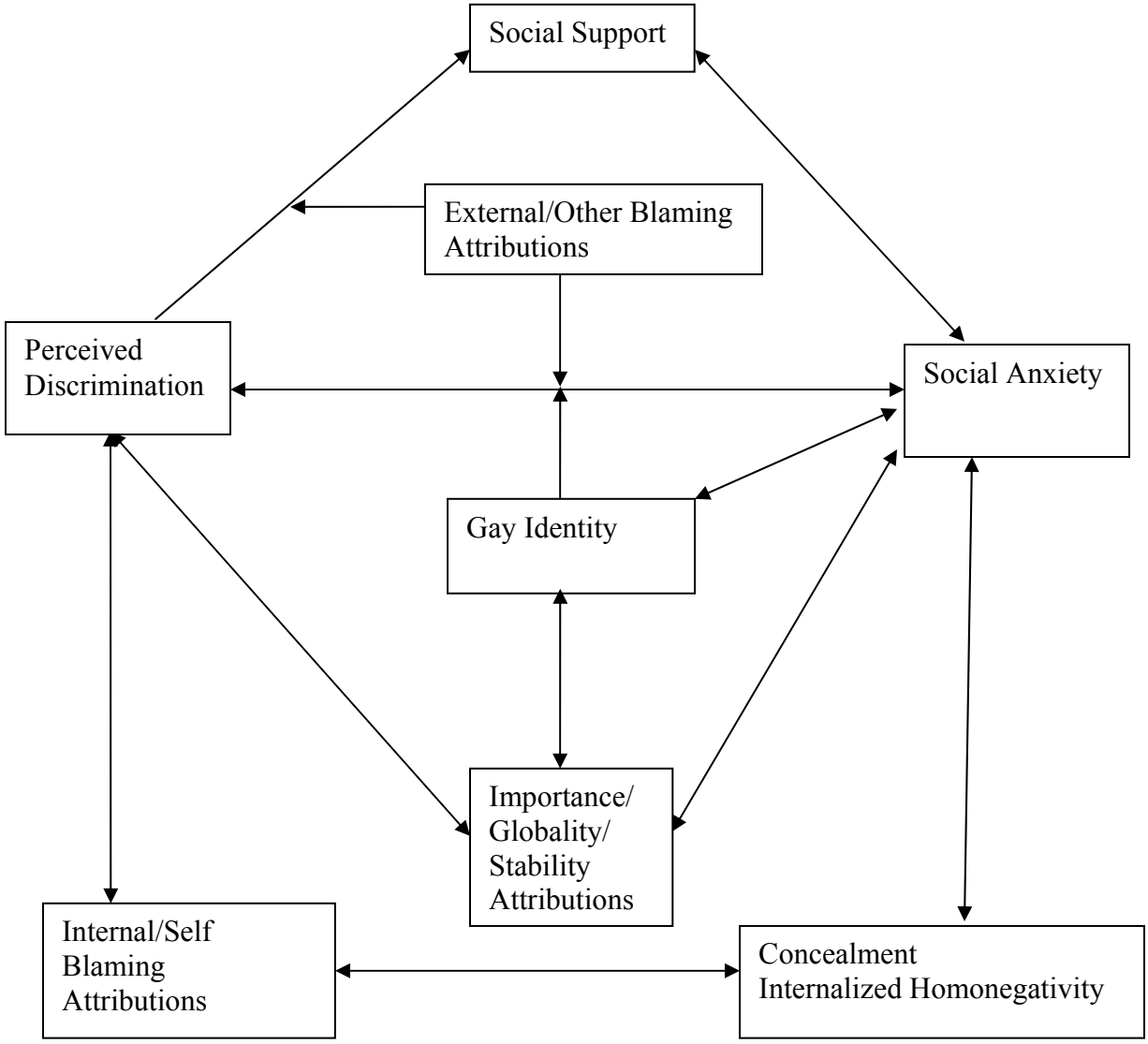

Moderation Effect
External-Blaming
High
Medium
Low
35.5
35.0
34.5
34.0
33.5
33.0
32.5
32.0
31.5
Satisfaction with Social Support
Low
Medium
High
Frequency of Perceived Discrimination

Figure 5.


Social Support
External/Other Blaming Attributions
Perceived Discrimination
Social Anxiety
Gay Identity
Importance/ Globality/ Stability Attributions
Internal/Self Blaming Attributions
Concealment Internalized Homonegativity